

PREFACE

Winners never quit and quitters never win.

Whenever i used to get disappointed or demotivated for studies, i used to remember this quote and the fire to come in all India exam used to lit up again in me.

I have written this book with utmost care so as to give precise explanation and right answers to AIPG 2010 questions, in order to help to all those dedicated aspirants who will be giving may AIIMS 2010 exam and other exams.

Guys, i know, studying for MDS preparation is a huge task and maintaining its consistency another one. Portion is vast, time limited and competition tough. The key to success is maintaining your consistency and doing smart work.

I hope this book helps you to achieve your goal.

Any **correction** regarding anything is welcomed.

You can email me at

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ACKNOWLEDGEMENTS

TO GOD, FOR HIS CONSTANT GUIDANCE THROUGHOUT MY LIFE AND FOR KEEPING ME ON THE RIGHT PATH ALWAYS.

Special thanks to my

- Grandfather MR. DAMODAR PRASAD KHANDELWAL for his constant motivation and unconditional love.
- My mother MRS. GEETA KHANDELWAL for inculcating the values and goodwill.
- My father Dr B.M Khandelwal for his motivation.
- My brother Akshay Khandelwal for entertaining me with his humor in difficult times.

The biggest dilemma for a student is what to study and how to study.

The key to MDS success is not only knowing what all to study but also retaining it and understanding it without mugging it up.

This is a list of books from where to study.

- 1) Dental pulse—clinical and basic
- 2) Gauri Shankar—clinical and basic.
- 3) National boards—clinical and basic questions only.
- 4) Mudit khanna papers.
- 5) Amit ashish papers .
- 6) Prabhakar for priodontology.(all recent aipg questions are form there)

Now apart from the basic textbooks which everybody has, here is a list of other textbooks, from where recent questions have been asked.

- 1) Neville for oral pathology.
- 2) Fonseca and Peterson for oral surgery.
- 3) Kelly and klein for oral surgery.
- 4) Cohen and Ingle for endodontics.
- 5) Satyanarayan for biochemistry.
- 6) Harrison for medicine...

You should start your studies after analysing the trend of questions that are asked in AIPG so that you know in which topics more concentration is needed.

Doing preparation from these books is enough so long as you revise what all you have done at least three times

Hardworking is important but the smart and hard worker only wins!!

Make a point to read the explanations of each AIPG question that you solve as the examiners make questions from the related details of the previously asked questions.

Remember the golden word---

REVISION.

BEST OF LUCK.

--DR. GARIMA KHANDELWAL.

42ND RANK

AIPG 2010.

ANATOMY

1) Cells not seen in cerebral cortex is

- a) purkinje
- b) cajal
- c)stellate
- d)pyramidal

ans) purkinje

Repeat From Aiims Medical
And May Aiims Dental 2008

ref—NMS neuroanatomy by william demeyer 3rd 300-302
expln—

Cerebral cortex is divided into six horizontal layers.
I,II,III,IV,V,AND VI.

THERE ARE FIVE ANATOMICAL TYPES OF CORTICAL NEURONS.

Pyramidal Neurons

-----persent in layer V and VI –provide the major efferent axons of the cerebral cortex.

The Stellate Or The Granular Neurons.

The Fusiform Neurons

-----most common in layer VI

The Martinotti Neurons

-----in all layers except layeer I

The Horizontal Neurons Of The Cajal

-----confined to layer I

So by exclusion..purkinje cells are not present in cerebral CORTEX.

NOW LETS SEE THE CELLS PRESENT IN CEREBELLAR CORTEX.

Ref---gray's anatomy 40ed 300

There are 5 types of neurons in cerebellar cortex.

Granular cells

Golgi cells

Basket cells

Stellate cells

Purkinje cells

Bipolar neurons are less common.

2) Long term memory to short term memory is converted in

- a) hippocampus
- b) amygdala
- c) hypothalamus
- d) thalamus

ans) hippocampus

repeat from AIPGMEE – 2007

ref: guyton 11th/ 723- 726; ganong 22nd/269 journal of neuroscience vol: 16; number 10, p 3189-3198; harison 16th/2394

expln--

the hippocampus is currently credited with being the area of the brain in which short term memories are converted in to long term memories.

Three major neuronal pathways have been described in the hippocampus that are responsible for conversion of short term memory into long term memory.

Long term memory potentiation (LTP) has been used as the cellular model responsible for long term memory in the hippocampus – journal of neuroscience

Role of hippocampus in memory (guyton/ganong/Harrison)

Hippocampus is the site in brain where short term memory are converted into long term memory

1) People in whom the two hippocampus have been removed (eg for treatment of epilepsy) are unable to establish new long term memory. (i.e. they are unable to convert the short term memory into long term memory.)

- 2) This indicates that the centre of conversion of short term memory into long term memory lies in the hippocampus
- 3) Thoughts or experiences are converted from short term memory to long term memory after hippocampus decides on the basis of reward or punishment which of these is worth to be stored long term.

Note:- (exception)

- 1) Only long term memory of the Explicit or Declarative type is formed in the hippocampus.
- 2) Long term memory of the Implicit/Non Declarative/Reflexive type is not formed in the hippocampus.
 - 3) People in whom the two hippocampus are removed (eg for treatment of epilepsy) are still able to develop Reflexive/Implicit type of long term memory.
(people with hippocampal lesions do not have difficulty in learning physical repetitive skills that do not require symbolic rehearsing in the mind such as driving a car or typewriting.)

hippocampus is not the site where long term memory is stored.

- 1) People in whom the two hippocampi have been removed (eg for epilepsy) still retain long term memory prior to removal of hippocampus.
- 2) This indicates that once short term memory is converted into long term memory, it is not stored in the hippocampus.
- 3) The site for storage of long term memory is believed to be the neocortex.

Hippocampal lesions cause Antegrade amnesia (Long term memory prior to accidental event remain intact)

3) All are derivatives of connective tissue except

- a) endothelial cell
- b) clara cell
- c) fibroblast
- d) mast cell

ans) clara cells

Repeat From May Aiims Dental 2008

ref—gray's anatomy 38th ed 1666-1667

expln—

Regarding the epithelial cells present in the lower respiratory tract..gray states that.. eight types of epithelial cells have been described.

These are

Ciliated columnar

Globlet

CLARA

Dense core granules

Serous

Brush

Basal

Intermediate.

So the above text shows that clara cells are epithelial in origin and are not a derivative of connective

tissue.

CLARA CELLS (bronchiolar non- ciliated cells)

These cells are strictly restricted to the terminal and the respiratory bronchioles.

They are cuboidal non-ciliated.

They have functional similarities to type II alveolar cells of pulmonary alveoli.

4) Which of the following is not a neuroectodermal origin?

- a) paneth cells
- b) neurons
- c) schwann cells
- d) odontoblasts

ans) paneth cells

Repeat From AIPG 2007

Ref—I.B.singh 5th ed 321 , 4th ed 221

Expln—

Structures derived from neural crest.

- glial cells
- pia mater and arachnoid mater
- adrenal medula
- schwann cells
- c- cells of thyroid
- melanocytes
- mesenchyme of dental papilla(odontoblast)
- muscles and connective tissues of face and neck.
- neurons(spinal posterior root ganglion)

Sensory ganglion of 5th,7th,8th,9th ,10th nerve.

Paneth cells

- provide host defence against microbes in small intestine.
- they are functionally similar to neutrophils.

5) The slightly movable articulations in which the contiguous bony surfaces are either connected by broad, flattened discs of cartilage or united by intraosseous ligaments are known as

- a) gomphosis
- b) enarthroses
- c) diarthroses
- d) amphiarthroses

ans) amphiarthroses.

Repeat form AIPG 2007

Ref—b.d.chaurasia 3rd ed 50

Expln—

--Slightly movable joints are called as amphiarthroses..in this type of joint the bones are connected

by hyaline cartilage or fibrocartilage.

Eg. The symphysis pubis is slightly movable in which there is a fibrocartilage pad between two bones.

The joints between the vertebral disc and intervertebral disc are also of this type.

Gomphosis (the freedictionary.com)

A type of immovable articulation as of a tooth inserted into its bony socket. also called as peg and socket joint.

Enarthrosis.(the free dictionary .com)

A freely movable joint in which a sphere on the head of one bone fits into a rounded cavity in the other bone.

Diarthroses

Most of the joints in adult body are diarthroses.

In this type of joint the ends of the bones are covered with hyaline cartilage, articulat cartilage and

they are separated by a space called the joint cavity.

This entire component is enclosed in a dense fibrous capsule. The outer layer of the capsule consists of

ligaments that hold the bones together. The inner layer is a synovial membrane that secretes synovial fluid for lubrication.

These are also called as synovial joints.

6) Basal lamina of blood vessel in brain is formed by

- a) endothelial cell
- b) oligodendrocytes
- c) microglia
- d) astrocytes

ans) endothelial cell

ref--http://en.wikipedia.org/wiki/Endothelial_cells

expln---

The **endothelium** is the thin layer of cells that line the interior surface of blood vessels, forming an interface between circulating blood in the lumen and the rest of the vessel wall. Endothelial cells line the entire circulatory system, from the heart to the smallest capillary. These cells reduce turbulence of the flow of blood allowing the fluid to be pumped farther.

Endothelial tissue is a specialized type of epithelium tissue . More specifically, it is simple squamous epithelium.

The endothelium normally provides a non-thrombogenic surface because it contains heparan sulphate which acts as a cofactor for activating antithrombin III, a protease that cleaves several factors in the coagulation cascade.

Astrocytes (also known collectively as **astroglia**) are characteristic star-shaped glial cells in the brain and spinal cord. They perform many functions, including biochemical support of endothelial cells which form the blood-brain barrier, provision of nutrients to the nervous tissue, maintenance of extracellular ion balance, and a principal role in the repair and scarring process of the brain and spinal cord following traumatic injuries.

Oligodendrocytes , or **oligodendroglia** are a type of brain cell. They are a variety of neuroglia (specifically, a sub-type of macroglia). Their main function is the insulation of axons (the long projection of nerve cells) in the central nervous system (the brain and spinal cord) of higher vertebrates. (The same function is performed by Schwann cells in the peripheral nervous system). A single oligodendrocyte can extend its processes to 50

axons, wrapping around approximately 1 mm of myelin sheath around each axon; Schwann cells, on the other hand, can only wrap around 1 axon.

Microglia are a type of glial cells that are the resident macrophages of the brain and spinal cord, and thus act as the first and main form of active immune defense in the central nervous system (CNS). Microglia constitute 20% of the total glial cell population within the brain. Microglia (and astrocytes) are distributed in large non-overlapping regions throughout the brain and spinal cord. Microglia are constantly excavating the CNS for damaged neurons, plaques, and infectious agents. The brain and spinal cord are considered "immune privileged" organs in that they are separated from the rest of the body by a series of endothelial cells known as the blood-brain barrier, which prevents most infections from reaching the vulnerable nervous tissue. In the case where infectious agents are directly introduced to the brain or cross the blood-brain barrier, microglial cells must react quickly to decrease inflammation and destroy the infectious agents before they damage the sensitive neural tissue. Due to the unavailability of antibodies from the rest of the body (few antibodies cross the blood brain barrier due to their large size), microglia must be able to recognize foreign bodies, swallow them, and act as antigen-presenting cells activating T-cells.

- So thereby we can conclude that endothelial cell is the answer.

7) Middle constrictor is attached

- a) body of hyoid
- b) pterygomandibular raphae
- c) ramus of the mandible
- d) maxillary tuberosity.

Ans) body of hyoid.

Repeat from AIPG 2007

ref—B.D.chaurasia 3rd ed 188

expln--

The middle constrictor takes origin takes from

- The lower part of stylohyoid ligament
- Lesser cornua of the hyoid bone
- Upper border of the greater cornua of the hyoid bone.

The inferior constrictor consists of two parts

- The thyropharyngeus arises from the thyroid cartilage.
- Cricopharyngeus from the cricoid cartilage.

The superior constrictor arises from

- Pterygoid hamulus
- Pterygomandibular raphae
- Side of the posterior part of the tongue.
- Medial surface of the mandible at the posterior end of the mylohyoid line near the attachment of the pterygomandibular.

8) The lymphatics from the lower lip first enter the blood stream through..

- a) inferior labial artery
- b) inferior labial vein
- c) brachicephalic vein
- d) pterygoid plexus of veins.

Ans) brachicephalic vein.

Repeat from AIPG 2007

Ref—B.D. chaurasia 3rd ed 180

This question is taken from national boards -anatomic sciences- july 1978
(released 1980) Q-74

9) Hyoglossus is attached to the

- a) at the tip of the tongue
- b) at the base of the tongue
- c) at the lateral surface of tongue.
- d) at hyoid

ans) at the lateral surface of tongue.

ref—WIKEPEDIA.

Expl—

The **Hyoglossus**, thin and quadrilateral, arises from the side of the body and from the whole length of the greater cornu of the hyoid bone, and passes almost vertically upward to enter the side of the tongue, between the Styloglossus and Longitudinalis inferior.

The hyoglossus depresses and retracts the tongue makes the dorsum more convex

The fibers arising from the body of the hyoid bone overlap those from the greater cornu.

It is important in singing.

Structures passing medially to the hyoglossus muscle are the lingual vein and lingual artery. Laterally, in between the hyoglossus muscle and the mylohyoid muscle lay several important structures (from superior in inferior): submandibular gland, submandibular duct, lingual nerve, vena comitans of hypoglossal nerve, and the hypoglossal nerve. Note, posteriorly, the lingual nerve is superior to the submandibular duct and a portion of the submandibular salivary gland protrudes into the space between the hyoglossus and mylohyoid muscles.

10) Nerve originating from the dorsal surface of the brain is

- a) trochlear
- b) glossopharyngeal
- c) vagus
- d) abducens

ans) trochlear

ref-- WIKEPEDIA

expl—

The **trochlear nerve** (the **fourth cranial nerve**, also called the **fourth nerve, IV**, or **Layton's nerve**) is a motor nerve (a“somatic efferent” nerve) that innervates a single muscle: the muscle of the eye.

The trochlear nerve is unique among the cranial nerves in several respects. It is the smallest nerve in terms of the number of axons it contains. It has the greatest intracranial length. Along with the optic nerve (cranial nerve II), it is the only cranial nerve that decussates (crosses to the other side) before innervating its target. Finally,

It is the only cranial nerve that exits from the dorsal aspect of the brainstem.

11) Injury to which nerve will affect lacrimation?

- a) greater petrosal nerve
- b) lesser petrosal nerve
- c) supraorbital
- d) nasocilliary nerve

ans) greater petrosal nerve

ref-- wikipedia

expn--

The **greater petrosal nerve** is a nerve in the skull that branches from the facial nerve; it forms part of a chain of nerves that innervates the lacrimal gland. The fibres have synapses in the pterygopalatine ganglion.

The greater petrosal nerve is a branch of the facial nerve that arises from the geniculate ganglion, a part of the facial nerve inside the facial canal. It enters the middle cranial fossa through the hiatus for the greater petrosal nerve (on the anterior surface of the petrous temporal bone). It proceeds towards the foramen lacerum, where it joins the deep petrosal nerve (sympathetic) to form the nerve of the pterygoid canal. The nerve of the pterygoid canal passes through the pterygoid canal to reach the pterygopalatine ganglion.

The greater petrosal nerve carries gustatory (taste) and parasympathetic fibres. Postganglionic parasympathetic fibres from pterygopalatine ganglion supply lacrimal gland and the mucosal glands of the nose, palate, and pharynx. The gustatory fibres do not relay in the ganglion and are distributed to the palate.

The **lesser petrosal nerve** consists of parasympathetic fibres. It leaves the tympanic plexus to synapse in the otic ganglion, and eventually provide parasympathetic innervation to the parotid gland.

The tympanic plexus has parasympathetic (preganglionic) roots which contribute to the **lesser petrosal nerve**. Parasympathetic contribution is from the tympanic nerve which branches from the glossopharyngeal nerve (CN IX) in the jugular foramen.

The **lesser petrosal nerve** exits the temporal bone and enters the middle cranial fossa through the hiatus of lesser petrosal nerve. In some individuals it instead passes through the foramen ovale. It then exits the middle cranial fossa through foramen ovale to the otic ganglion where its parasympathetic fibers synapse. From the otic ganglion, its fibers hitchhike with the auriculotemporal nerve (from V3) to eventually innervate the parotid gland.

The geniculate ganglion also communicates with the lesser petrosal nerve.

The **nasociliary nerve** is a branch of the ophthalmic nerve. It is intermediate in size between the two other main branches of the ophthalmic nerve, the frontal nerve and the lacrimal nerve, and is more deeply placed.

The **nasociliary nerve** enters the orbit between the two heads of the lateral rectus muscles and between the superior and inferior rami of the oculomotor nerve (CN III). It passes across the optic nerve (CN II) and runs obliquely beneath the superior rectus muscle and superior oblique muscle to the medial wall of the orbital cavity. It passes through the anterior ethmoidal opening as the anterior ethmoidal nerve and enters the cranial cavity just above the cribriform plate of the ethmoid bone. It supplies branches to the mucous membrane of the nasal cavity and finally emerges between the inferior border of the nasal bone and the side nasal cartilages as the external nasal branch.

12) The deepest layer of deep cervical fascia is

- a) prevertebral
- b) carotid
- c) pretracheal
- d) temporal

ans) prevertebral

ref—wikipedia

expln—

*GUYS, U NEED TO BE THOROUGH WITH ANATOMY TO ANSWER THIS QUESTION..THE FOLLOWING EXPLANATION MIGHT BE BORING AND TOO LONG..BUT U NEED **TO** UNDERSTAND IT..*

The fascia which lines the deep surface of the Sternocleidomastoideus gives off the following processes:

- (1) A process envelops the tendon at the Omohyoideus, and binds it down to the sternum and first costal cartilage.
- (2) A strong sheath, the **carotid sheath**, encloses the carotid artery, internal jugular vein, and vagus nerve.
- (3) The **prevertebral fascia** extends medialward behind the carotid vessels, where it assists in forming their sheath, and passes in front of the prevertebral muscles.(THE DEEPEST LAYER)

It forms the posterior limit of a fibrous compartment, which contains the larynx and trachea, the thyroid gland, and the pharynx and esophagus. The prevertebral fascia is fixed above to the base of the skull, and below is continued into the thorax in front of the Longus colli muscles. Parallel to the carotid sheath and along its medial aspect the prevertebral fascia gives off a thin lamina, the **buccopharyngeal fascia**, which closely invests the Constrictor muscles of the

pharynx, and is continued forward from the Constrictor pharyngis superior on to the Buccinator. It is attached to the prevertebral layer by loose connective tissue only, and thus an easily distended space, the

retropharyngeal space, is found between them. This space is limited above by the base of the skull, while below it extends behind the esophagus into the posterior mediastinal cavity of the thorax. The prevertebral fascia is prolonged downward and lateralward behind the carotid vessels and in front of

the Scaleni, and forms a sheath for the brachial nerves and subclavian vessels in the posterior triangle of the neck; it is continued under the clavicle as the axillary sheath and is attached to the deep surface of the coracoclavicular fascia. Immediately above and behind the clavicle an areolar space

exists between the investing layer and the sheath of the subclavian vessels, and in this space are found the lower part of the external jugular vein, the descending clavicular nerves, the transverse scapular and transverse cervical vessels, and the inferior belly of the Omohyoideus muscle. This space is limited below by the fusion of the coracoclavicular fascia with the anterior wall of the axillary sheath.

(4) The **pretrachial fascia** extends medially in front of the carotid vessels, and assists in forming the carotid sheath. It is continued behind the depressor muscles of the hyoid bone, and, after enveloping the thyroid gland, is prolonged in front of the trachea to meet the corresponding layer of the opposite side. Above, it is fixed to the hyoid bone, while below it is carried downward in front of the trachea and large vessels at the root of the neck, and ultimately blends with the fibrous pericardium. This layer is fused on either side with the prevertebral fascia, and with it completes the compartment containing the larynx and trachea, the thyroid gland, and the pharynx and esophagus.

13) The action of styloglossus muscle is

- a) right to left movement of tongue
- b) move the tongue forward
- c) move the tongue backward
- d) depress the tongue.

ans) C) move the tongue backward

ref—wikipedia

B.D. chaurasia 3rd ed

expln—

The **Styloglossus**, the shortest and smallest of the three muscles, arises from the anterior and lateral surfaces of the styloid process, near its apex, and from the stylomandibular ligament.

Passing downward and forward between the and , it divides upon the side of the tongue near its dorsal surface, blending with the fibers of the in front of the ; the other, oblique, overlaps the Hyoglossus and decussates with its fibers.

Innervation

The styloglossus is innervated by the (CN XII) like all muscles of the tongue except which is innervated by CN X carrying CN XI (cranial part).

Action

The styloglossus draws up the sides of the tongue to create a trough for swallowing. As a pair they also aid in retracting the tongue.

14) Which is not formed from the cartilagenous part of viscerocranium

- a) sphenoid
- b) vomer
- c) lacrimal
- d) zygoma

Ans) zygoma

Ref—inderbir singh 7th ed 130-131

Expln—

the nasal, lacrimal and vomer bones are ossified in the membrane covering the nasal capsule.

Sphnoid:- the lateral part of the greater wing , and the pterygoid laminae, are formed in the membrane, the rest is a **CARTILAGE BONE.**

ZYGOMATIC BONE IS FORMED BY INTRAMEMBRANOUS OSSIFICATION OF THE MAXILLARY PROCESS.

15) false about blood brain barrier is

- a) There are gaps between tight junctions at the active sites and it is permeable to nutrients.
- b) There are no gaps between active sites.
- c) It secretes nutrition for the cells.
- d) It has less activity in the membrane.

Ans) there are gaps between tight junctions at the active sites and it is permeable to nutrients.

Ref-- http://en.wikipedia.org/wiki/Tight_junctions
http://en.wikipedia.org/wiki/Blood-brain_barrier

expln--

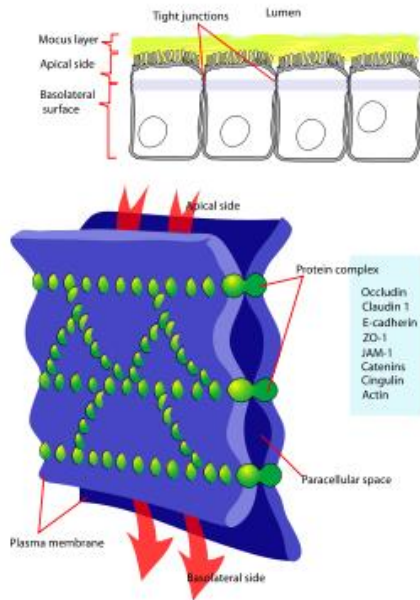
Tight junctions, or **zonula occludens**, are the closely associated areas of two cells whose membranes join together forming a virtually impermeable barrier to fluid. It is a type of junctional complex present only in vertebrates

Tight junctions are composed of a branching network of sealing strands, each strand acting independently from the others

They prevent the passage of molecules and ions through the space between cells. So materials must actually enter the cells (by diffusion or active transport) in order to pass through the tissue. This pathway provides control over what substances are allowed through. (Tight junctions play this role in maintaining the blood-brain barrier.)

At the present time, it is still unclear whether the control is active or passive and how these pathways are formed.

This "barrier" results from the selectivity of the tight junctions between endothelial cells in CNS vessels that restricts the passage of solutes. At the interface between blood and the brain, endothelial cells and associated astrocytes are stitched together by these tight junctions, which are composed of smaller subunits, frequently biochemical dimers, that are transmembrane proteins such as occludin, claudins, junctional adhesion molecule (JAM), or ESAM, for example. Each of these transmembrane proteins is anchored into the endothelial cells by another protein complex that includes zo-1 and associated proteins.



16) Common carotid artery divides and is palpated at the level of

- a) Hyoid bone
- b) Cricoid cartilage
- c) Superior border of thyroid cartilage
- d) Inferior border of thyroid cartilage

ans) Superior border of thyroid cartilage

repeat from AIPG 2007

Ref—B.D chaurasia 3rd ed vol III 102

Expln—

Common carotid artery

The right CCA is a branch of the brachiocephalic artery

It begins in the neck, behind the right sternoclavicular joint.

The left CCA is a direct branch of ARCH OF AORTA.

It begins in the thorax in front of trachea opposite a point little to the back of the left sternoclavicular joint and enters the neck.

In the neck both the arteries have a similar course.

Each artery runs upwards within the carotid sheath, under cover of anterior border of the sternomastoid.

At the level of the upper border of the thyroid cartilage, the artery ends by dividing into external or internal carotid arteries.

17) Injury to the median nerve occurs when following artery is used for taking an ABG sample

- a) radial artery
- b) brachial artery
- c) external carotid
- d) femoral artery

Ans) brachial artery

Ref-- wikipedia

Expln—

An ABG sample is abbreviated as Arterial Blood Gas sample.

The **median nerve** is a nerve in humans and other animals. It is in the upper limb. It is one of the five main nerves originating from the brachial plexus.

The median nerve is formed from parts of the medial and lateral cords of the brachial plexus, and continues down the arm to enter the forearm with the brachial artery. (while giving an i.v in the arm...it is given in cubital fossa..and since in cubital fossa,..the median nerve lies next to brachial artery and vein..it is the most likely nerve to get damaged.)

It originates from the brachial plexus with roots from C5, C6, C7, C8, & T1.

The median nerve is the only nerve that passes through the carpal tunnel, where it may be compressed to cause carpal tunnel syndrome.

The cubital fossa contains four main vertical structures (from lateral to medial):

- The radial nerve is in the vicinity of the cubital fossa, located between brachioradialis and brachialis muscles. **It is often- but not always considered** part of the cubital fossa.

- The biceps brachii tendon
- The brachial artery. The artery usually bifurcates near the apex (inferior part) of the cubital fossa into the radial artery (superficial) and ulnar artery (deeper)
- The median nerve

18) The tubuloglomerular feedback is mediated by

- a) Sensing of Na^+ concentration in PCT
- b) Through the action of ADH
- c) Sensing of NaCl concentration in macula densa.
- d) Opening up of voltage gated Na^+ channel in afferent arteriole.

Ans) sensing of NaCl concentration in macula densa.

Repeat form AIPGME 2006

Ref-- guyton 11th 323,324

Expln--

To perform the function of autoregulation the kidneys, have a feed back mechanism (tubuloglomerular feedback) that links changes in sodium chloride concentration at macula densa (tubulo glomerular component) with the control of renal arteriolar resistance. (glomerular component)

Tubuloglomerular feedback

- 1) Its a feedback from the renal tubules, to the glomerulus to regulate the GFR, in an attempt to ensure constant sodium chloride delivery to the distal tubule.
- 2) The sensor for this response is macula densa.
- 3) The macula densa senses the changes in sodium chloride concentration.
- 4) The Na^+ and Cl^- enter the macula densa via the $\text{Na}^+ \text{K}^+ 2\text{Cl}^-$ cotransporter.

19) What is synaptic stripping?

- a) nuclear fragmentation of microglial cells
- b) activation of oligodendrocyte and removal of adjacent synapse
- c) vacuolisation of oligodendrocytes
- d) Activation of microglia and removal of adjacent synapse.

Ans) Activation of microglia and removal of adjacent synapse.

Ref--

http://www.biomedexperts.com/Abstract.bme/18512252/Reduced_synaptic_activity_precedes_synaptic_stripping_in_vagal_motoneurons_after_axotomy

Expln—

Activated microglia, which spread on the motor neurons following nerve injury, engage in the displacement of detached afferent synaptic boutons from the surface of regenerating motor neurons. This phenomenon is known as "synaptic stripping.

In immune-mediated lesion, **synaptic stripping by activated microglia may have neuroprotective consequences.**

BIOCHEMISTRY

20) Vit K dependent clotting factors are

- a) 2,7,9,10
- b) 3,7,9,10
- c) 7,9,10,12
- d) 3,6,8,10

ans) 2,7,9,10

Repeat From AIPG 2007

ref—satyanarayan 2ND ed pg 128,129

expln—

Vit K is the only fat soluble vitamin with a specific coenzyme function. Its absorption takes place with fats and is dependent on the bile salts.

Functions.

The functions of vit K are concerned with clotting

It brings about the post translational modifications of certain blood clotting factors.

The clotting factors II (prothrombin) VII,IX and X are synthesized as inactive precursors in the liver.

Vit K acts as a coenzyme for the carboxylation of glutamic acid residues present in the proteins and this reaction is catalysed by a carboxylase.

It involves the conversion of glutamate to gamma carboxyglutamate and requires vit K.

Warfarin is a synthetic analogue that can inhibit vit K action

21) In sickle cell anemia amongst the following which is seen?

- a) non-sense mutation
- b) missense mutation
- c) degradation of beta chain
- d) none of the above

ans) missense mutation

ref--http://en.wikipedia.org/wiki/Missense_mutation
expln--

In genetics, a **missense mutation** (a type of **nonsynonymous mutation**) is a point mutation in which a single nucleotide is changed, resulting in a codon that codes for a different amino acid (mutations that change an amino acid to a stop codon are considered nonsense mutations, rather than missense mutations). This can render the resulting protein nonfunctional. Such mutations are responsible for diseases such as Epidermolysis bullosa, sickle-cell disease, and SOD1 mediated ALS

For example, in sickle-cell disease, the 20th nucleotide of the gene for the beta chain of hemoglobin found on chromosome 11 is erroneously changed from the codon GAG (for glutamic acid) to GUG (which codes valine), so the 6th amino acid is incorrectly substituted (after the initial methionine amino acid is removed).

22) ATP is

- a) reserve of energy
- b) adenosine phosphate
- c) phosphate
- d)adenylate cyclase

ans) reserve of energy

ref—wikepedia

expln--

Adenosine-5'-triphosphate (ATP) is a multifunctional nucleotide used in cells as a coenzyme. It is often called the "**molecular unit of currency**" of **intracellular energy transfer**. ATP transports chemical energy within cells for metabolism. It is produced by photophosphorylation and cellular respiration and used by enzymes and structural proteins in many cellular processes, including biosynthetic reactions, motility, and cell division. One molecule of ATP contains three phosphate groups, and it is produced by ATP synthase from inorganic phosphate and adenosine diphosphate (ADP) or adenosine monophosphate (AMP). Metabolic processes that use ATP as an energy source convert it back into its precursors. ATP is therefore continuously recycled in organisms, with the human body turning over its own weight in ATP each day.

ATP is used as a substrate in signal transduction pathways by kinases that phosphorylate proteins and lipids, as well as by adenylate cyclase, which uses ATP to produce the second messenger molecule cyclic AMP. The ratio between ATP and AMP is used as a way for a cell to sense how much energy is available and control the metabolic pathways that produce and consume ATP. Apart from its roles in energy metabolism and signaling, ATP is also incorporated into nucleic acids by polymerases in the processes of DNA replication and transcription.

The structure of this molecule consists of a purine base (adenine) attached to the 1' carbon atom of a pentose sugar (ribose). Three phosphate groups are attached at the 5' carbon atom of the pentose sugar. It is the addition and removal of these phosphate groups that

inter-convert ATP, ADP and AMP. When ATP is used in DNA synthesis, the ribose sugar is first converted to deoxyribose by ribonucleotide reductase.

23) 1st sign of vitaminA deficiency is

- a) night blindness
- b) bitot's spots
- c) xerostomia
- d) conjunctivitis

ans) night blindness

ref—satyanarayan 2nd ed.

wikipedia

expln—

Since the unique function of retinyl group is the light absorption in retinylidene protein, one of the earliest and specific manifestations of vitamin A deficiency is impaired vision, particularly in reduced light - night blindness. Persistent deficiency gives rise to a series of changes, the most devastating of which occur in the eyes. Some other ocular changes are referred to as xerophthalmia. First there is dryness of the conjunctiva (xerosis) as the normal lacrimal and mucus secreting epithelium is replaced by a keratinized epithelium. This is followed by the build-up of keratin debris in small opaque plaques (Bitot's spots) and, eventually, erosion of the roughened corneal surface with softening and destruction of the cornea (keratomalacia) and total blindness. Other changes include impaired immunity, hypokeratosis (white lumps at hair follicles), keratosis pilaris and squamous metaplasia of the epithelium lining the upper respiratory passages and urinary bladder to a keratinized epithelium. With relations to dentistry, a deficiency in Vitamin A leads to enamel hypoplasia.

24) Wernicke's encephalopathy is caused due to deficiency of

- a) thiamine
- b) cyanocobalamin
- c) niacin
- d) none of the above

ans) thiamine

ref- wikipedia

expln—

Wernicke encephalopathy is a syndrome characterised by ataxia, ophthalmoplegia, confusion, and impairment of short-term memory. It is caused by lesions in the medial thalamic nuclei, mammillary bodies, periaqueductal and periventricular brainstem nuclei, and superior cerebellar vermis, often resulting from inadequate intake or absorption of thiamine [Vitamin B1], especially in conjunction with carbohydrate ingestion. Its most common correlate is prolonged alcohol, amphetamine or methylphenidate consumption resulting in thiamine deficiency. Alcoholics are therefore particularly at risk, but it may also occur with thiamine deficiency states arising from other causes, particularly in patients with such gastric disorders as carcinoma, chronic gastritis, Crohn's disease, and repetitive vomiting

25) Which of the following is gold standard for determination of HCG?

- a) radioimmuno assay
- b) latex agglutination
- c) bioassay
- d) ELISA

ans) radioimmuno assay

ref—wikipedia

expln—

Radioimmunoassay (RIA) is a very sensitive technique used to measure concentrations of antigens (for example, hormone levels in the blood) without the need to use a bioassay.

Although the RIA technique is extremely sensitive and extremely specific, it requires specialized equipment and is costly. It also requires special precautions, since radioactive substances are used.

Method

1. To perform a radioimmunoassay, a known quantity of an antigen is made radioactive, frequently by labeling it with gamma-radioactive isotopes of iodine attached to tyrosine. This radiolabeled antigen is then mixed with a known amount of antibody for that antigen, and as a result, the two chemically bind to one another. Then, a sample of serum from a patient containing an unknown quantity of that same antigen is added. This causes the unlabeled (or "cold") antigen from the serum to compete with the radiolabeled antigen ("hot") for antibody binding sites.
2. As the concentration of "cold" antigen is increased, more of it binds to the antibody, displacing the radiolabeled variant, and reducing the ratio of antibody-bound radiolabeled antigen to free radiolabeled antigen. The bound antigens are then separated from the unbound ones, and the radioactivity of the free antigen remaining in the supernatant is measured. Using known standards, a binding curve

can then be generated which allows the amount of antigen in the patient's serum to be derived.

Bioassay

(commonly used shorthand for **biological assay**), or **biological standardisation** is a type of scientific experiment. Bioassays are essential in the development of new drugs, and in monitoring environmental pollutants. Both are procedures by which the potency or the nature of a substance is estimated by studying its effects on living matter.

Definition

"It is the comparable estimation of the nature, constitution or potency of the active principles with that of the standard drug, by means of the reaction on a living matter such as whole animal, isolated tissue or organism"

Purpose

1. measurement of the pharmacological activity of new or chemically undefined substances
2. investigation of the function of endogenous mediators
3. determination of the side-effect profile, including the degree of drug toxicity
4. measurement of the concentration of known substances (alternatives to the use of whole animals have made this use obsolete)
5. assessing the amount of pollutants being released by a particular source, such as wastewater or urban runoff.

Types

Bioassays are of two types:

Quantal

A quantal assay involves an "all or none response". For example: Insulin induced hypoglycemic convulsive reaction or the cardiac arrest caused by digitalis. In both the cases, the end point is an all or none response e.g.—either convulsion occurs or doesn't occur; similarly is with cardiac arrest.

Graded

Graded assays are based on the observation that there is a proportionate increase in the observed response following an increase in the concentration or dose. The parameters employed in such bioassays are based on the nature of the effect the substance is expected to produce. For example: contraction of smooth muscle preparation for assaying histamine or the study of blood pressure response in case of adrenaline.

Techniques

3. Matching Bioassay
4. Interpolation Method
5. Bracketing Method
6. Multiple Point Bioassay
7. Six Point Assay

A latex fixation test (or latex agglutination test)

is an agglutination technique used to detect antibodies, such as those produced in response to the rubella virus or the rheumatoid factor. May be used for Rickettsia, coccidioidomycosis, though numerous sources of interferences (eg, large immune complexes and high protein concentrations) lessen the utility of the latex agglutination (LA) test in most situations. There is an excellent LA test for cryptococcus:

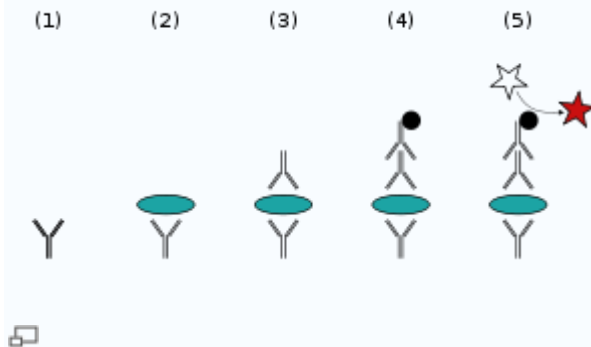
8. In a latex fixation test, a sample is mixed with latex beads coated with antibodies. If the antigen is present, it will react with the antibodies causing the latex beads to clump.

Enzyme-linked immunosorbent assay

, also called **ELISA**, **enzyme immunoassay** or **EIA**, is a biochemical technique used mainly in immunology to detect the presence of an antibody or an antigen in a sample. The ELISA has been used as a diagnostic tool in medicine and plant pathology, as well as a quality control check in various industries. In simple terms, in ELISA, an unknown amount of antigen is affixed to a surface, and then a specific antibody is washed over the surface so that it can bind to the antigen. This antibody is linked to an enzyme, and in the final step a substance is added that the enzyme can convert to some detectable signal. Thus in the case of fluorescence ELISA, when light of the appropriate wavelength is shone upon the sample, any antigen/antibody complexes will fluoresce so that the amount of antigen in the sample can be inferred through the magnitude of the fluorescence.

ELISA may be run in a qualitative or quantitative format. Qualitative results provide a simple positive or negative result for a sample. The cutoff between positive and negative is determined by the analyst and may be statistical. Two or three times the standard deviation is often used to distinguish positive and negative samples. In quantitative ELISA, the optical density or fluorescent units of the sample is interpolated into a standard curve, which is typically a serial dilution of the target.

Sandwich ELISA



A sandwich ELISA. (1) Plate is coated with a capture antibody; (2) sample is added, and any antigen present binds to capture antibody; (3) enzyme linked capture antibody used as detecting antibody is added, and binds to antigen; (4) substrate is added, and is converted by enzyme to detectable form.

The image to the right includes the use of a secondary antibody conjugated to an enzyme, though technically this is not necessary if the primary antibody is conjugated to an enzyme. However, use of a secondary-antibody conjugate avoids the expensive process of creating enzyme-linked antibodies for every antigen one might want to detect. By using an enzyme-linked antibody that binds the Fc region of other antibodies, this same enzyme-linked antibody can be used in a variety of situations. Without the first layer of "capture" antibody, any proteins in the sample (including serum proteins) may competitively adsorb to the plate surface, lowering the quantity of antigen immobilized..

Competitive ELISA

For competitive ELISA, the higher the original antigen concentration, the weaker the eventual signal. The major advantage of a competitive ELISA is the ability to use crude or impure samples and still selectively bind any antigen that may be present.

(Note that some competitive ELISA kits include enzyme-linked antigen rather than enzyme-linked antibody. The labeled antigen competes for primary antibody binding sites with your sample antigen (unlabeled). The more antigen in the sample, the less labeled antigen is retained in the well and the weaker the signal).

Reverse ELISA

A new technique uses a solid phase made up of an immunosorbent polystyrene rod with 4-12 protruding ogives. The entire device is immersed in a test tube containing the collected sample and the following steps (washing, incubation in conjugate and incubation in chromogenous) are carried out by dipping the ogives in microwells of standard microplates pre-filled **with reagents**.

The advantage of this technique are as follows:

The use of laboratory supplies for dispensing sample aliquots, washing solution and reagents in microwells is not required, facilitating ready-to-use lab-kits and on-site kits.

26) Most lipidogenic

- a) fructose
- b) glucose
- c) galactose
- d) ribose

Ans) fructose

Ref—satyanarayan 2nd ed,
wikepedia
expln—

A high flux of fructose to the liver, the main organ capable of metabolizing this simple carbohydrate, perturbs glucose metabolism and glucose uptake pathways, and leads to a significantly enhanced rate of *de novo* lipogenesis and triglyceride (TG) synthesis, driven by the high flux of glycerol and acyl portions of TG molecules from fructose catabolism. These metabolic disturbances appear to underlie the induction of insulin resistance commonly observed with high fructose feeding in both humans and animal models. Fructose-induced insulin resistant states are commonly characterized by a profound metabolic dyslipidemia, which appears to result from hepatic and intestinal overproduction of atherogenic lipoprotein particles.

Thus, emerging evidence from recent epidemiological and biochemical studies clearly suggests that the high dietary intake of fructose has rapidly become an important causative factor in the development of the metabolic syndrome..

INCREASE dietary intake of fructose significantly elevates the production of acetyl CoA and lipogenesis (fatty acid , triacylglycerol and very low density lipoprotein synthesis)---
satyanarayan 2nd ed 287

27) The reducing equivalents for fatty acid synthesis is provided by which pathway?

- a) glycolysis
- b) kreb's cycle
- c) HMP pathway
- d) urea cycle

ans) HMP pathway

ref—satyanarayan 2nd ed 283

expln—

significance of HMP shunt

this shunt is unique in generating two important products

- 1) Pentoses
- 2) NADPH

Importance of pentoses

For synthesis of nucleic acids (RNA and DNA) and many nucleotides such as ATP, NAD⁺, FAD and CoA

Importance of NADPH

It is required for the reductive biosynthesis of fatty acids and steroids, hence HMP shunt is more active in the tissues concerned with lipogenesis, e.g adipose tissue, liver, etc.

28) Denaturation of double stranded dna.

- a) it gets broken down to nucleotides
- b) it becomes single stranded reversibly
- c) becomes single stranded irreversibly
- d) becomes double stranded permanently

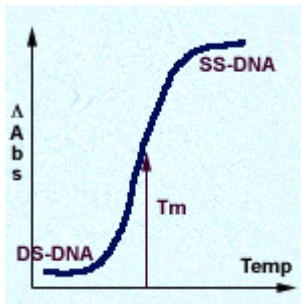
Ans) it becomes single stranded reversibly

Ref— <http://www.massey.ac.nz/~wwbioch/DNAprot/DNAmelt/framset.htm>

Expln—

As DNA is heated, it reaches a temperature where the strands separate (DNA melts). The base pairs are separated as the H-bonds between them are broken and the strand unwind. This results in single stranded DNA.

It is possible to follow this process in a spectrophotometer, by observing the change in absorbance at 260nm. Unstacked bases (random orientation) absorb more light than neatly stacked (oriented) base-pairs. This results in a melting curve.



The temperature at which DNA is half unfolded is called the melting temperature.

T_m is a measure of the stability of DS-DNA under a given set of conditions. Stability, and therefore T_m , is affected by....

Base Composition - higher the GC content, the higher the T_m .

Ionic Strength - as the ionic strength increases, so does T_m . Double helical DNA is stabilised by cations.

Divalent cations (eg Mg^{2+}) are more effective than monovalent cations (Na^+ or K^+).

Organic Solvents - formamide for instance lowers the T_m by weakening the hydrophobic interactions.

Reannealing of DNA

If melted DNA is cooled slowly, complementary strands will pair up again. This process is called "annealing". Only complementary strands can anneal. This is an important feature of DNA which is utilised in the laboratory when carrying out DNA hybridisation.

Perfect annealing requires the perfect matching of base pairs, although mis-matching occurs quite often. This gives less stable DNA, and can be monitored by watching the T_m . If the T_m lowers by 1 °, then 1% mismatch has occurred.

The conditions of annealing, salt concentration and temperature, can determine the amount of mismatch that occurs. But it must be said that not all mismatching is bad. If, for instance, a gene was found in a rat, and researchers needed to know if a similar gene was found in humans, then they would need to allow some mismatch, since the genetic sequences are unlikely to be exactly the same.

"Stringency" is the term given to the conditions of annealing which control the extent of mismatching allowed. If the stringency of hybridisation is high, there is little or no mismatch with 95-100% of base-pairs matched correctly. At low stringency, only 40-50% of base-pairs are correctly repaired.

29) Cereals are deficient in

- a) Vitamin C
- b) Vitamin B- complex
- c) Iron
- d) Minerals

Ans) Iron

Cereals, grains or cereal grains, are cultivated for the edible components of their fruit seeds - the endocarp, germ and bran. Cereal grains are grown in greater quantities and provide more food energy worldwide than any other type of crop, they are therefore staple crops. In their natural form (as in **whole grain**), they are a rich source of vitamins, minerals, carbohydrates, fats and oils, and protein. However, when refined by the removal of the bran and germ, the remaining endocarp is mostly carbohydrate and lacks the majority of the other nutrients.

From the above explanation i choose iron as my answer ..u can choose ur own.

30) ORF stand for

- a) open reading frame
- b) open reading fragment

(i could not get other options)

Ans) open reading frame

Ref—wikipedia

Expln--

In molecular genetics, an **open reading frame** (ORF) is a portion of an organism's genome which contains a sequence of bases that could potentially encode a protein. The start-points and end-points of a given ORF are not equivalent to the ends of the messenger RNA (mRNA), but the ends of the ORF are usually contained within the mRNA's sequence. In a gene, ORFs are located between the start-code sequence (initiation codon) and the stop-code sequence (termination codon). ORFs are usually encountered when shifting through pieces of DNA while trying to locate a gene. Since there exist variations in the start-code sequence of organisms with altered genetic code, the ORF will be identified differently. A typical ORF finder will employ algorithms based on existing genetic codes (including the altered ones) and all possible reading frames.

In fact, the existence of an ORF, especially a long one, is usually a good indication of the presence of a gene in the surrounding sequence. In this case, the ORF is part of the sequence that will be translated by the ribosomes, it will be long, and if the DNA is eukaryotic, the ORF may continue over gaps called introns. However, short ORFs can also occur by chance outside of genes. Usually ORFs outside genes are not very long and terminate after a few codons.

Once a gene has been sequenced it is important to determine the correct open reading frame (ORF). Theoretically, the DNA sequence can be read in six reading frames in organisms with double-stranded DNA; three on each strand. The longest sequence without a stop codon usually determines the open reading frame. That is the case with prokaryotes. Eukaryotic mRNA is typically monocistronic and therefore only contains a single ORF. A problem arises when working with eukaryotic pre-mRNA: long parts of the DNA within an ORF are not translated (introns). When the aim is to find eukaryotic open reading frames it is necessary to have a look at the spliced mRNA.

31) Which of the following is used in recombinant DNA technology

- a) restriction endonucleases
- b) PCR
- c) Reverse transcriptase
- d) FISH

Ans) restriction endonucleases

Ref—wikipedia and
Kaplan series.

Expln—

Recombinant DNA (rDNA) is a form of DNA that does not exist naturally, which is created by combining DNA sequences that would not normally occur together. In terms of genetic modification, recombinant DNA is introduced through the addition of relevant DNA into an existing organismal DNA, such as the plasmids of bacteria, to code for or alter different traits for a specific purpose, such as antibiotic resistance. It differs from genetic recombination, in that it does not occur through processes within the cell, but is engineered. A **recombinant protein** is a protein that is derived from recombinant DNA.

Recombinant DNA technology was made possible by the discovery, isolation and application of restriction endonucleases by Werner Arber, Daniel Nathans, and Hamilton Smith, for which they received the 1978 Nobel Prize in Medicine.

A **restriction enzyme** (or **restriction endonuclease**) is an enzyme that cuts double-stranded or single stranded DNA at specific recognition nucleotide sequences known as restriction sites. Such enzymes, found in bacteria and archaea, are thought to have evolved to provide a defense mechanism against invading viruses. Inside a bacterial host, the restriction enzymes selectively cut up *foreign* DNA in a process called *restriction*; host DNA is methylated by a modification enzyme (a methylase) to protect it from the restriction enzyme's activity. Collectively, these two processes form the restriction modification system. To cut the DNA, a restriction enzyme makes two incisions, once through each sugar-phosphate backbone (i.e. each strand) of the DNA double helix.

32) All are true about glutathione except?

- a) It is tripeptide
- b) It converts haemoglobin to methemoglobin
- c) It conjugates xenobiotics
- d) It scavenges free radicals and superoxide ions.

Ans) It converts haemoglobin to methemoglobin

Ref—harper 26th ed 166, 169, 629

Repeat from AIPG 2009, AIIMS 2008.

Expln—

glutathione prevents oxidation of heomoglobin to methemoglobin.

Glutathione is a tripeptide of glutamic acid , cystein and glycine.

Because of its reducing properties, reduced glutathione has potent antioxidant action.

Glutathione S- transferases(GST) to conjugate GSH with endogenous substances (e.g estrogen) and to exogenous electrophiles (e.g arene oxides, unsaturated carbonyls, organic halides) and diverse xenobiotics.

GSH acts as carrier transport of certain amino acids across membranes in the kidney.

PHYSIOLOGY

33) All are seen in adrenal deficiency except

- a) hypoglycemia
- b) hypocalcemia
- c) hypotension
- d) hyponatremia

ans) Hypocalcemia

Repeat From Aiims May Dental 2008

ref--harrison 16th ed pg..220,2144

expln-

adrenal deficiency results in sodium loss----> so hyponatremia

reflex potassium retained-----> hyperkalemia

becoz of hyponatremia-----> water loss---->hypotension

glucocorticoid deficiency-----> hypoglycemia

Adrenal deficiency results in HYPERCALCEMIA

34) Which of the following is inhibitory neurotransmitter?

- a) aspartate
- b) GABA
- c) acetylcholine
- d) glutamate

ans) GABA

Repeat From AIPG 2007

ref—harrison 16th ed 2340
ganong 21st ed 111

expln--

GABA and glycine are examples of inhibitory neurotransmitters. Glutamate and aspartate are examples of excitatory neurotransmitters.

GABA is the major inhibitory mediator in the brain. It is a transmitter at 20% of synapses. It is also present in the retina and is the mediator responsible for pre-synaptic inhibition.

GLYSINE

Responsible for neuron mediated direct inhibition in the spinal cord, brain stem, forebrain and retina.

GLUTAMATE

Main excitatory transmitter in brain and spinal cord

ASPARTATE

It is apparently a transmitter in pyramidal cells and spiny stellate cells in the visual cortex.

35) Site of rbc formation in a 20 yr old healthy male is

- a) flat bones
- b) long bones
- c) liver
- d) yolk sac

ans) flat bones

repeat from may aiims dental 2008

ref--guyton 11th 1420

expln--

blood formation starts in the third week of intrauterine life

INTRAUTERINE LIFE

3rd week to 3rd month(intravasular phase)----> erythropoesis in mesoderm of yolk sac

3rd month to 5th month(hepatic phase)----> in liver and spleen

3rd month onwards (myeloid phase)----> in red bone marrow (all marrow is red bone marrow at this stage)

POST NATAL ERYTHROPOESIS

from birth to 5yrs----> all bones.. flat+long

5yrs to 20 yrs----> all bones..flat + long(more production from flat bones and less production from

long bones)

after 20yrs----> flat bones ONLY. because

marrow of long bones becomes quite fatty so no more rbc is produced from there after 20 yrs.

36) Which is not produced enteroendocrinally

- a) intrinsic factor
- b) secretin
- c) motilin
- d) GIP

ans) Intrinsic factor

repeat from may aiims dental 2008

ref--harper 25th ed pg 635,663
expln—

The term enteroendocrine means..hormone like substance produced from intestine.
Intrinsic factor is produced by parietal cells of stomach nd not by intestine
it is necessary for absorption of vit.B12

SECRETIN---->S-cells of duodenum, jejunum nd ileum
stimulates the secretion of watery alkaline pancreatic secretion
inhibits gastric juice secretion and gastric motility
causes contraction of pyloric sphincter

MOTILIN----> M cells of small intestine----> it increses the migrating myoelectric
complex component
of gastrointestinal motility and stimulates production of pepsin
at low ph it inhibits gastric motor activity..wheras at high ph it has a stimulatory effect.

GIP----> gastric inhibitory peptide----> K- cells of duodenum nd jejunum
it inhibits secretion of gastric juice
inhibits gastric motility
increses insulin secretion by stimulating the B-cells of pancreas.

37) All of the following except one types of collagen except for one is present in hyaline cartilage

- a) 2
- b) 4
- c) 6
- d) 9

ans) 4

Repeat From MAY AIIMS DENTAL 2008

expl—

collagen of the cartilage matrix

forming upto 50% of its dry weight , this is chemically distinct from that of most other tissues, being

classed as TYPE II collagen

in additon to type II collagen, the principal component ,minor quantities of other classed unique to

cartilage are present, including types IX,X,XI.

TYPE IV collagen is mainly present in the vicinity of chondrocytes and may form a link between the

chondrocyte, pericellular microenvironment and interteritotrail matrix—GRAY'S ANATOMY.

38) Not true about second heart sound

- a) due to closure of semilunar valves
- b) is occasionally split
- c) has longer duration than first heart sound
- d) marks the beginning of diastole

Ans) has longer duration than first heart sound

Ref—sembulingam 2nd ed 419

Expln—

the first heart sound is produced due to simultaneous closure of both the atrio-ventricular valves.

The first heart sound is a long, soft and low pitched sound. The duration of this sound is 0.10-0.17 second.

Second heart sound is produced during the onset of diastole. This sound is due to simultaneous closure of both the semilunar valves.

It is short, sharp and high pitched sound. The duration of the second heart sound is 0.4-0.14 second.

Both the first and second heart sound are occasionally split.

39) Which of the following adaptations will be apt to increase the work capacity at high altitude

- a) increasing workload, decreasing duration of exercise
- b) increasing workload, increasing duration of exercise
- c) decreasing workload , increasing duration of exercise
- d) decreasing workload , decreasing duration of exercise

repeat from AIPGMEE 2007

Ans) (decreasing workload , increasing duration of exercise)

Ref-- guyton 11th/540

Expln--

The limiting factor at high altitude is the 'rate of oxygen uptake' which is a function of workload (Resistance).

Increasing the workload (Resistance) will increase the required rate of oxygen uptake which is not available.

Hence a higher working capacity cannot be obtained by increasing the workload.

To increase the work capacity therefore we should increase the duration of exercise

What is the limiting factor for deciding work capacity at high altitude.

- ❖ At high altitude the maximum rate of oxygen uptake is reduced

- ❖ Work capacity is reduced in direct proportion to the decrease in the maximum rate of oxygen uptake.

The limiting factor at high altitude is the rate of oxygen uptake.

How can we increase the work capacity at high altitude?

- ❖ Work capacity is directly proportional to the workload (Resistance) and duration of exercise.
- ❖ To increase work capacity we can theoretically either:-
 - a. Increase the workload (requires increased rate of oxygen uptake) and/or
 - b. Increase the duration of exercise.
- ❖ As the rate of oxygen uptake is limited we shall not be able to achieve an increase in work capacity by increasing the workload
To increase the work capacity we shall therefore have to increase the duration of exercise.

An increase in workload requires a higher rate of oxygen uptake which is not available at high altitude. Thus if we increase workload (Resistance) at high altitude, early exhaustion will occur because the available oxygen will lag behind the required oxygen and this will limit work capacity.

Work capacity at high altitude can be increased by increasing the duration of exercise and reducing (or maintaining) the workload at an optimum level corresponding to the maximum rate of oxygen uptake (so that all available oxygen can be utilized.)

40) To check objective pain response, which is best used?

- a) Facial pain scale
- b) H Reflex
- c) knee jerk reflex
- d) R III reflex

ans) Facial pain reflex.

Ref—journal “pain volume 93, issue 2 , august 2001, pages 173-183” and internet.
expln—

Pain scale measures a patient's pain intensity or other features. Pain scales are based on self-report, observational (behavioral), or physiological data. Self-report is considered primary and should be obtained if possible.

Examples of pain scales:

Self-report Observational Physiological

Infant — Premature Infant Pain Profile; Neonatal/Infant Pain Scale —

Child Faces Pain Scale - Revised; Wong-Baker FACES Pain Rating Scale; Coloured

Analogue Scale FLACC (Face Legs Arms Cry Consolability Scale); CHEOPS (Children's Hospital of Eastern Ontario Pain Scale) Comfort

Adult Numerical Rating Scale (NRS-11, NRS-101); Visual Analog Scale; Brief Pain Inventory.

so, this makes 1 thing clear that self-observational scale is the most objective scale for pain response.

now coming 2 R III reflex:

"R III component of electrically elicited blink reflex is present in patients with congenital insensitivity to pain as in hereditary sensory and autonomic neuropathy(HSAN)"--

REF:journal of pain,vol.141/jan.2009

so it naturally rules out R III as an answer!

The other two options can be easily ruled out as following references make us believe so!

"knee jerk reflex helps maintain posture and balance"--REF:ganong/page 129/2nd ed.

"H reflex is used in assessment of fitness of astronauts"--REF:NASA website.

so,obviously they cant be used in assessing objective pain response.

41) Contraction in the heart is due to

- a) extracellular calcium
- b) sarcomeric calcium
- c) extracellular sodium
- d) sarcomeric sodium

Ans) sarcomeric calcium.

Ref-- http://en.wikipedia.org/wiki/Calcium-induced_calcium_release

Expln—

Calcium-induced calcium release (CICR) is a mechanism of calcium release from muscle sarcoplasmic reticulum that was proposed in the 1970s. Originally proposed for skeletal muscle, subsequent research has revealed that it is actually the predominant mechanism in cardiac muscle.

The muscle cell membrane (sarcolemma) contains many ion receptors. One of which is the voltage-gated ion channel DHPR (Dihydropyridine receptor) which allows the entry of calcium ions into the cytosol - this is the calcium-induced part.

The sarcoplasmic reticulum (myocyte version of the endoplasmic reticulum) stores calcium ions. On the sarcoplasmic reticulum there is a receptor called the Ryanodine Receptor, which is sensitive to cytosolic calcium ions. The Ryanodine receptor is a calcium release channel which releases the sarcoplasmic reticulum's calcium stores - this is the Calcium-release part.

The purpose of this mechanism is to release a very small, yet significant, proportion of calcium into the muscle's cytosol. The calcium ions eventually bind to an accessory protein found on the actin filament, which stimulates muscle contraction.

Ca²⁺ ions are a key component to muscle contraction.

42) FSH has a positive regulation on

- a) Inhibin B
- b) Sertoli cells
- c) Testosterone
- d) Leydig cells.

Ans) sertoli cells

Ref— http://en.wikipedia.org/wiki/Inhibin_B#Inhibin

Expln—

A **Sertoli cell** (a kind of sustentacular cell) is a 'nurse' cell of the testes that is part of a seminiferous tubule.

It is activated by follicle-stimulating hormone and has FSH-receptor on its membranes.

Inhibin

In both females and males, inhibin inhibits FSH production and GnRH release from the hypothalamus. However, the overall mechanism differs between the genders:

In females

Inhibin is produced in the gonads, pituitary gland, placenta and other organs.

In women, FSH stimulates the secretion of inhibin from the granulosa cells of the ovarian follicles in the ovaries. In turn, inhibin suppresses FSH.

- *Inhibin B* reaches a peak in the early- to mid-follicular phase, and a second peak at ovulation.

- *Inhibin A* reaches its peak in the mid-luteal phase.

Inhibin secretion is diminished by GnRH, and enhanced by insulin-like growth factor-1 (IGF-1).

In males

In men, it is a hormone that inhibits FSH by ***negative feedback***. It is secreted from the Sertoli cells,^[12] located in the seminiferous tubules inside the testes. Androgens stimulate inhibin production; this peptide may also help to locally regulate spermatogenesis.

Clinical significance

Quantification of inhibin A is part of the prenatal quad screen that can be administered during pregnancy at a gestational age of 16-18 weeks. An elevated inhibin A (along with an increased beta-hCG, decreased AFP, and a decreased estriol) is suggestive of the presence of a fetus with Down syndrome. As a screening test, abnormal quad screen test results need to be followed up with more definitive tests.

It also has been used as a marker for ovarian cancer.

Inhibin B may be used as a marker of spermatogenesis function and male infertility. The mean serum inhibin B level is significantly higher among fertile men (approximately 140 pg/mL) than in infertile men (approximately 80 pg/mL)

43) DOPA & 5 hydroxytryptophan are clinically significant because

- a) they cross blood brain barriers
- b) they are acidic precursors of brain amines
- c) they act as neuromodulators
- d) they are metabolites of various neurogenic amines

ans) they cross blood brain barriers

ref-- ganong 22nd ed 94-96/ K.D.T 5th ed 103,145/Wikipedia.

Expln—

These are not the precursors but derivatives of brain amines—so this option is ruled out.

DOPA is a metabolite of tyrosine and serotonin is a metabolite of tryptophan amino acid, but these amines are not neurogenic, so this option is also ruled out.

Serotonin and dopamine are neromodulators but 5- hydroxytryptophan and DOPA are not neuromodulators so this option is also ruled out.

Now,

DOPA and 5-hydroxytrptophan can cross blood brain barrier and this is clinically important.

L-DOPA is used to increase the dopamine levels for the treatment of parkinson's disease and dopa- responsive dystonia , since it is able to cross blood- brain barrier, whereas dopamine cannot.

5-HTP is a naturally occurring amino acid and synthesized in the body from tryptophan.

It is clinically important because 5-HTP crosses the blood – brain barrier, while 5-HT does not.

In brain 5-HTP is decarboxylated to serotonin with the help of vitamin B6.

5- HTP is marketed as a dietary supplement for use as an antideppressant, appetite suppressant and sleep aid.

GENERAL PATHOLOGY

44) Gene for sex determination is

- a) shh
- b) SRY
- c) AZF
- d) HOX

ans) SRY

Repeat From May Aiiims Dental 2008 And Medial

ref--<http://en.wikipedia.org/wiki/SRY>

expln--

SRY (Sex-determining Region Y) is a -determining on the in the (placental mammals and marsupials).

This gene encodes a that is a member of the (HMG)-box family of DNA-binding proteins.

This

protein is the (TDF), also referred to as the **SRY protein**, which initiates male sex determination.

Mutations in this gene give rise to XY females with gonadal dysgenesis ; translocation of part of the

Y chromosome containing this gene to the X chromosome causes

THE y chromosome is necessary and sufficient for the production of testes and the testes-determining

product is called SRY(FOR SEX -DETERMINING REGION OF THE Y CHROMOSOME.)-ganong 22nd 411

THE GENE FOR SRY IS LOCATED ON THE SHORT ARM OF THE HUMAN Y CHROMOSOME

45). Components of innate immunity that are active against viral cells includes

- a) NK cells
- b) Cytotoxic T cells
- c) B cells
- d) Memory B cell

Ans) (NK cells)

REPEAT FORM AIPGMEE 2007

Ref: - Ananthanarayan 7th/126,
Greenwood microbiology 14th/147,
Harrison's 16th/1025, 1909, 1917t.

Expln—

Amongst the options provided only NK cells are components of innate immunity. T cells and B cells are components of acquired or adaptive immunity.

Natural Killer cells (NK cells) possess spontaneous cytotoxicity towards virus infected cells. NK cells activity is 'Natural' as it does not require sensitization by prior antigenic contact. NK cells form part of the innate immune setup.

Ananthanarayan 7th/126

Interferons and NK cells (innate immunity) are particularly important in containing viral infections for the first several days – Harrison's 16th/1025

Innate Immunity

This is the first line of defence against infectious agents

It is present from birth

Is 'Natural' and does not depend on prior exposure to any particular

Micro-organism

It is non specific

Has no memory

Components of innate immunity

Humoral: acute phase proteins interferons
Lysozymes complement

Cellular: macrophages, dendritic cells, NK cells/ NK-T cells, neutrophils, eosinophils, basophils, mast cells, epithelial cells

Cytokines: Cytokines that mediate host defense and inflammation as well as those that regulate adaptive immune response.

Acquired/ Adaptive immunity

This is the second line of defence against infectious agents and is called into play when innate immunity is breached

It is acquired

Is acquired and to express acquired and to express acquired immunity antigen of the microorganism must come in contact with cells of immune system

Initial exposure causes immunogenic priming

It is specific

Repeat exposures elicit memory (adaptive)

(Subsequent exposure leads to more rapid and vigorous immune response i.e. immunologic memory)

Components of acquired immunity

Humoral: Bone marrow derived B Lymphocytes, Plasma cells and secreted antibodies

Cellular: thymus derived T lymphocytes, Cytotoxic T Lymphocytes

Cytokines: Cytokines that regulate specific T versus B lymphocytic immune responses.

46) A person showing two cells lines derived from two different zygotes is

- a) Chimerism
- b) Mosaicism
- c) Segregation
- d) Pseudo-dominance

Ans) chimerism

Ref-- [http://en.wikipedia.org/wiki/Chimera_\(genetics\)](http://en.wikipedia.org/wiki/Chimera_(genetics))

Expln--

Typically seen in non-human zoology (but also discovered to a rare extent in humans), a **chimera** is an animal that has two or more different populations of genetically distinct cells that originated in **different zygotes**; if the different cells emerged from the same zygote, it is called a mosaicism.

Chimeras are formed from four parent cells (two fertilized eggs or early embryos fused together) or from three parent cells (a fertilized egg is fused with an unfertilized egg or a fertilized egg is fused with an extra sperm). Each population of cells keeps its own character and the resulting animal is a mixture of tissues.

This condition is either inherited, or it is acquired through the infusion of allogeneic hematopoietic cells during transplantation or transfusion. In nonidentical twins, chimerism occurs by means of blood-vessel anastomoses. The likelihood of offspring being a chimera is increased if it is created via in vitro fertilization. Chimeras can often breed, but the fertility and type of offspring depends on which cell line gave rise to the ovaries or testes; varying degrees of intersexuality may result if one set of cells is genetically female and another genetically male.

47) During phagocytosis the metabolic process called respiratory burst involves activation of

- a) Oxidase
- b) Hydrolase
- c) Peroxidas
- d) Dehydrogenase

Ans) oxidase

Ref—chatterjee 6th ed pg18

Expln—

The electron chain system responsible for the respiratory burst is ‘NADPH Oxidase’ (on Oxidase enzyme) – Chatterjee 6th/18

The biochemical mechanism of microbial killing and degradation following phagocytosis is called ‘respiratory burst’.

This is accomplished largely by oxygen dependent mechanisms.

‘the generation of reactive oxygen intermediates is due to rapid activation of an Oxidase (NADPH Oxidase)’ - Robbins.

48) Which of the following procedures as routine technique for karyotyping using light microscopy?

- a) C- banding
- b) G- banding
- c) Q- banding
- d) Brd V- staining.

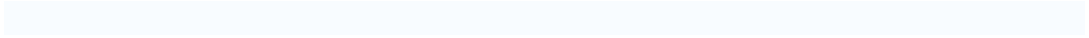
Ans) G- banding

Ref- robbins 6th ed 165

Expln—

G-banding is technique used in cytogenetics to produce a visible karyotype by staining condensed chromosomes. The metaphase chromosomes are treated with trypsin (to partially digest the chromosome) and stained with Giemsa. Dark bands that take up the stain are strongly A,T rich (gene poor). The reverse of G-bands is obtained in R-banding. Banding can be used to identify chromosomal abnormalities, such as translocations, because there is a unique pattern of light and dark bands for each chromosome.

It is difficult to identify and group chromosomes based on simple staining because the uniform color of the structures makes it difficult to differentiate between the different chromosomes. Therefore, techniques like G-banding were developed that made 'bands' appear on the chromosomes. These bands were same in appearance on the homologous chromosomes, thus, identification became easier and more accurate. The acid/saline/giemsa protocol reveals G-bands.



PHARMACOLOGY

49) NOT true about PnG is

- a) destroyed by gastric acid
- b) very active against sensitive gram+ve cocci
- c) used for treatment of meningococcal meningitis
- d) more concentrated in prostatic secretions and intraocular fluid.

Ans) more concentrated in prostatic acid secretion and intraocular fluid.

Repeat from dental aiims may 2008

Ref—5th ed KD tripathi,654

Expln--

Penicillin G is a narrow spectrum antibiotic, activity is primarily limited to gram +ve bacteria and few others...

It is acid labile so destroyed by gastric acid

Streptococci (except grp D or enterococci) are highly sensitive so are pneumococci.

Gram +ve bacilli—majority of B.anthraxis, corynebacterium diphtheriae and practically all clostridia

are highly sensitive..so are spirochetes..but bacteriodes fragilis is largely resistant..

PnG is used for treatment of meningococcal meningitis.

50) 1st generation cephalosporin is

- a) cephadroxil
- b) cefepime
- c) cefotaxime
- d) cefoperazone

ans) cephadroxil

repeat from may dental aiims 2008
and medical aiims nov. 2007

expl---ref---KDT 4th ed-712

FIRST GENERATION		
PARENTERAL	ORAL	Highly active against
Cephalothin	Cephalexin	Gram positive
Cefazolin	Cephradin	Organisms.
Cephaloridin	cephadroxil	
SECOND GENERATION		
PARENTERAL	ORAL	
Cefuroxime cefoxitin	Cefaclor Cefuroxime axetil	Most active against gram positive with some action against anerobes.
THIRD GENERATION		
PARENTERAL	ORAL	
Cefotaxime Ceftizoxime Ceftriaxone Cefoperazone Ceftazidime.	cefixime	Highly active against gram negative enterobactericea with some action against pseudomonas.
FOURTH GENERATION		
PARENTERAL		
Cefipime, cefpirome.		

51) Cephalosporin active against pseudomonas aeruginosa

- a) cefoperazone
- b) cefaclor
- c) ceftriaxone
- d) cefotaxime

ans) cefoperazone

repeat from may aiims dental 2008
and aiims medical nov. 2007

ref—KDT 5th ed 661

expln—

anti- pseudomonas antibiotics are

PENICILLINS-----piperacillin, Mezocillin, Ticarcilin, Carbenicillin
 CEPHALOSPORIN-----Ceftazidime, Cefepime, Cefoperazone
 CARBAPENEMS-----Imipenem, Meropenem
 MONOBACTAM-----Aztrenam
 AMINOGLYCOSIDES-----Gentamicin, Amikacin, Tobramycin
 FLOROQUINOLONES-----Ciprofloxacin, Levofloxacin
 OTHER AGENTS-----Polymyxin B , Colistin

52) NSAID which goes enterohepatic circulation is

- a) phenylbutazone
- b) piroxicam
- c) aspirin
- d) ibuprofen

ans) piroxicam

repeat from may aiims dental 2008
and aiims medical nov. 2007

ref—KDT 5th ed 175

expln--

piroxicam undergoes enterohepatic circulation

it is rapidly and completely absorbed:99% plasma bound

largely metabolized in liver by hydroxylation and glucuronide conjugation

excreted in urine and bile

ENTEROHEPATIC CYCLING OCCURS

Plasma half life nearly 2 days

Single daily admission is sufficient

Good analgesic and anti-pyretic action

Reversible inhibitor of cyclo-oxygenase

Inhibits platelet aggregation—prolongs bleeding time

Decreases production of IgM RHEUMATOID FACTOR

53) Which ATT will cause transient memory loss

- a) Ethionamide
- b) INH
- c) Ethambutol
- d) Pyrazinamide

ans) INH

ref—refer the next question for explanation.

54) Cross resistance of isoniazide is seen with

- a) Rifampicin
- b) Ethionamide
- c) Cycloserine
- d) Ethambutol

Repeat from medical aiims may 2008
And dental aiims nov. 2008

Ans) Ethionamide

Ref: (Goodman Gilman 11th/e p 1205, Katzung 10th/e p772)
http://en.wikipedia.org/wiki/Isoniazid#Side_effects
Expln—

Isoniazide

Isoniazide is still considered the primary drug for the chemotherapy of tuberculosis
Mechanism of isoniazide resistance:-

- The most common cause of resistance in isoniazide is mutation of the **kat G** gene
- **Kat G** gene codes for catalase-peroxidase that activates the isoniazide (isoniazide is a prodrug)
- So mutation of the kat g gene results in an inactive catalase peroxidase, which cause high level of isoniazide resistance because the prodrug cannot be activated now by the catalase peroxidase.
- Another mechanism of resistance in isoniazide is related to mutation in the mycobacterial **inh A** and **kas A** genes.
- These genes are involved in the *mycolic acid biosynthesis* in the bacteria
- Mutation in the gene involved in the biosynthesis of mycolic acid will result in different variety of mycolic acid which cannot be killed by the isoniazide.

- **The unique feature of mutation in inh A gene is that it also leads to cross resistance to ethionamide.**

Goodman Gilman says,

“Cross resistance between isoniazide and other agents used to treat tuberculosis (except ethionamide which is structurally related to isoniazide) does not occur.

Katzung specifically points out the mutation linked to cross resistance

“over producers of inh A express low level isoniazide resistance and cross resistance to ethionamide”

Adverse reactions of isoniazid include rash, abnormal liver function tests, hepatitis, sideroblastic anemia, high anion gap metabolic acidosis, peripheral neuropathy, mild central nervous system (CNS) effects, drug interactions resulting in increased phenytoin (Dilantin) or disulfiram (Antabuse) levels and intractable seizures (status epilepticus)

Headache, **poor concentration**, weight-gain, **poor memory** and depression have all been associated with isoniazid use.

55) Which drug is not acetylated?

- a) INH
- b) Dapsone
- c) Hydralazine
- d) Metoclopramide

Ans) Metoclopramide

Repeat: - medical aiims may 2008

Ref: - K.D.T 6th/e p25 & 5th/e p22

Expln—

Acetylation is a **phase II** metabolic reaction

Phase II reactions serves to attach a conjugate to the drug molecule. After the phase II reactions all drugs becomes **water soluble**, so that they can be readily eliminated from the body.

Phase II reaction includes

- 1) Glucoronidation
- 2) Acetylation
- 3) Methylation
- 4) Sulfation
- 5) Glycine conjugation

Acetylation

Drugs having **amino** or **hydrazine** residues are conjugated with the help of acetyl coenzyme A. examples are:

S – **S**ulfonamides

H – **H**ydralazine

I – **I**soniazid

P – **P**AS

Acetylation is **genetically mediated** condition.

Multiple gene control the **acetyl transferases** and the rate of acetylation shows genetic polymorphism.

56). Which is not a prodrug?

- a) Enalapril
- b) Clonidine
- c) Salmeterol
- d) Acetazolamide

Ans) Enalapril

Repeat from medical aiims may 2008

Ref-- K.D.T 6th/e p23 – 24 & 5th/e p 20

Expln--

Remember,

The end result of a drug metabolism is usually the **abolition of the activity of the drugs** and conversion of drug from **lipid soluble to water soluble** compounds but sometimes the drug may be converted from its **inactive** form to **active form**.

Prodrugs

Few drugs are inactive as such and need conversion in the body to one or more active metabolites. Such a drug is called a prodrug.

The prodrug may offer advantage over the active form in being more stable, having better bioavailability or other desirable pharmaco-kinetic properties or less side effects and toxicity.

Prodrug	Active form
<input type="checkbox"/> Levodopa	<input type="checkbox"/> Dopamine
<input type="checkbox"/> Enalapril	<input type="checkbox"/> Enalaprilat
<input type="checkbox"/> S-methldopa	<input type="checkbox"/> Alpha methylnorepinephrine
<input type="checkbox"/> Dipivefrine	<input type="checkbox"/> Epinephrine
<input type="checkbox"/> Sulindac	<input type="checkbox"/> Sulfide metabolites
<input type="checkbox"/> Hydrazide MAO inhibitors	<input type="checkbox"/> Hydrazine derivatives
<input type="checkbox"/> Proguanil	<input type="checkbox"/> Proguanil triazine
<input type="checkbox"/> Prednisone	<input type="checkbox"/> Prednisolone

- Becampicillin**
 - Sulfasalazine**
 - Cyclophosphamide**

 - Fluorouracil**

 - mercaptopurine**
- Ampicillin
 - 5 Aminosalicylic acid
 - Aldophosphamide,
Phosphoramidate mustard
 - Fluorouridine monophosphate
 - Methylmercaptopurine
ribonucleotide

57) Which drug acts by inhibiting cell wall synthesis?

- a) Cefipime
- b) Aminoglycosides
- c) Erythromycin
- d) Doxycycline.

Ans) cefipime.

REPEAT FROM AIIMS MAY MEDICAL 2008

Ref—K.D.T 6th ed 669

Expln--

Cell wall synthesis inhibitors.

- 1) β lactam antibiotics
 - *penicillins*
 - *cephalosporins*
 - *carbapenems*
 - *monobactams*
- 2) other antibiotics
 - *vancomycin*
 - *bacitracin*

58) Which is not a 2nd generation antihistaminic.

- a) Loratidine
- b) Acrivastatine
- c) Cyclizine
- d) Terfanadine.

Ans) cyclizine

REPEAT FROM AIIMS MAY MEDICAL 2008

Ref—K.D.T 5TH 139

Expln--

	ANTI-HISTAMINIC.		
FIRST GENERATION	MODERATELY SEDATIVE	MILDLY SEDATIVE	SECOND GENERATION
Diphenhydramine	Cyproheptadine	Chlorpheniramine	Terfanadine
Demehydrinate	Meclizine	Methdilazine	Fexofenadine
Promethazine	Buclizine	Mepyramine	Astemizole
Hydroxyzine	Cinnarizine	Triprlolodine	Loratadine
		Cyclizine	Desloratadine
		Clemastine	Mizolastine
		Ebastine	
		Atorvalastine	

59) True about aminoglycoside is all except

- a) Are bacteriostatic.
- b) Distributed only extracellularly.
- c) Excreted unchanged in urine.
- d) Teratogenic.

Ans) are bacteriostatic.

REPEAT FROM AIIMS MAY MEDICAL 2008

Ref—K.D.T 6th ed 718

Expln—the aminoglycosides are bactericidal antibiotics.

They are more active at alkaline pH.

They kill the bacteria by interfering with protein synthesis.

They are used as sulfate salts which are highly water soluble..

They are highly ionised in solution. it is neither absorbed nor destroyed in G.I.T

They are only distributed extracellularly so the volume of distribution is nearly equal to the extracellular fluid volume.

They are not metabolized.. they are excreted unchanged in urine.

They are active against aerobic gram negative bacilli and do not inhibit anaerobe.

60) Loading dose depends upon

- a) Volume of distribution
- b) Clearance
- c) Rate of administration
- d) Half life.

Ans) volume of distribution

REPEAT FROM MAY AIIMS MEDICAL 2008

AND DENTAL AIIMS NOV. 2008

Ref—K.D.T 5th ed 16,17

Expln—

After the drug reaches the blood, it may be distributed to various tissues. This is determined by a hypothetical parameter, volume of distribution.

61) Filgastrim is used in treatment of

- a) Anemia
- b) Neutropenia
- c) Malaria
- d) Filarial

Ans) neutropenia

REPEAT FROM AIPGMEE 2007

Ref—goodman and gillman 11th ed 1439-1432

Expln—filgastrim is a recombinant human granulocytic colony stimulating factor (G-CSF) effective in treatment of severe neutropenia—goodman and gillman 11th ed 1440.

62) Long acting beta-2 agonist?

- a) Albuterol
- b) Salmeterol
- c) Pirlbuterol
- d) Orciprenaline

ans) salmeterol

repeat form AIPG 2009

ref—K.D tripathi 6th ed pg 216, 217,218 and 5th ed pg 200.

Expln—

- 1) β adrenergic drugs are widely used in brochial asthma.
- 2) Adrenergic drugs **causes bronchodilatation** .
- 3) β_2 agonists are the mainstay of treatment of reversible airway obstruction but should be continuously used in hypertensive, heart patients and in those receiving digitalis.
- 4) These drugs are the fastest acting bronchodilators when inhaled.
- 5) Inhaled salbutamol and terbutaline are currently the most popular drugs.
- 6) They are convenient, short acting , effective in most mild to moderately **dose**.

Now, the long acting selective β_2 agonists.

Salmeterol

- 1) It is the first long acitng selective β_2 agonist and has slow onset of aciton.
- 2) It is longer acting because it has lipophilic side chain which anchors the drug inthe membrane adjacent to the receptor, slowing tissue washout.
- 3) It is used by inhalation on twice daily schedule for maintenance therapy and for natural asthma but not for acute symptoms.

Formoterol

It is another long acting selective β_2 agonists which acts for 12 hrs when inhaled.

Orciprenalin

It is a beta adrenergic stimulant acting on both beta 1 and beta 2, more specific for beta 2.

Albuterol

It is selective β_2 receptor agonist.

It is available for inhalational therapy, dosing is typically 6-4 hrs.

63) Which of the following produces dissociated anesthesia

- a) Ketamine
- b) Propofol
- c) Thiopentone
- d) Enflurane

ans) ketamine

ref—neelima malik 1st ed pg 153

<http://en.wikipedia.org/wiki/Ketamine>

questions on inducing agents and about stages of **anesthesia** are being asked everytime..so be thorough with it.

Expln—

Ketamine is a drug used in human and veterinary medicine developed by Parke-Davis in 1962. Pharmacologically, ketamine is classified as an NMDA receptor antagonist. At high, fully anesthetic level doses, ketamine has also been found to bind to opioid μ receptors and sigma receptors. Like other drugs of this class such as tiletamine and phencyclidine (PCP), it induces a state referred to as "dissociative anesthesia" and is used as a recreational drug.

Ketamine has a wide range of effects in humans, including analgesia, anesthesia, hallucinations, elevated blood pressure, and bronchodilation. Ketamine is primarily used for the induction and maintenance of general anesthesia, usually in combination with some sedative drug. Other uses include sedation in intensive care, analgesia (particularly in emergency medicine), and treatment **of bronchospasm**.

64) The drug which is used for long term maintenance in opioid addiction

- a) Naloxone
- b) Nalorphine
- c) Pethidine
- d) Methadone

Ans) methadone

Repeat AIIMS nov. 2008

Ref—K.D.T 5th ed pg 426

Expln—

Methadone is used as a substitution therapy in opioid dependence. 1mg oral methadone can be substituted for 4mg of morphine, 20mg of pethidine.

Another technique is methadone maintenance—sufficient dose of methadone given orally to produce high degree of tolerance so that pleasurable effects of i.v morphine or heroin are not perceived and subject can give up the habit.

65) Which of the following is a leukotriene antagonist?

- a) Montelukast
- b) Zileuton
- c) Omalizumab
- d) Nedocromil

Ans) Montelukast

Repeat from AIPGME 2007

Ref. KDT 5th /205 ; Katzung 10th/326,325

Expln--

Montelukast and Zafirlukast are Leukotriene (LT) Receptor Antagonists.
Zileuton is Lipoxygenase inhibitor, **Nedocromil** is a mast cell stabilizer and **Omalizumab** is an anti IgE monoclonal antibody.

Leukotriene Receptor Antagonists Montelukast/Zafirlukast	Anti IgE Monoclonal Antibodies
<ul style="list-style-type: none"> • These are LTD₄ receptor antagonists (LTD₄ & LTC₄ exert many effects known to occur in Asthma) • Indicated for prophylactic therapy of mild to moderate asthma as alternative to low dose inhaled steroids (Not used to treat acute asthma episode) • Churg strauss syndrome is an important complication reported with these agents 	<p>Omalizumab:</p> <ul style="list-style-type: none"> • Inhibits the binding of IgE to mast cells , but does not activate IgE already bound to these cells and does not provoke mast cell degranulation • Reserved for patients with chronic severe asthma with frequent exacerbation inadequately controlled by high dose inhaled steroids and long acting beta agonist combination.

Zileuton:

- It is 5 – LOX inhibitor that blocks LTC₄/LTD₄ as well as LTB₄ synthesis (it therefore has the potential to prevent all LT induced response)
- Indications in asthma are same as for LT antagonists
- Limitations to use are short duration of action in hepatotoxic potential (elevation in plasma aminotransferases – liver enzymes)

66) FSH, LH, TSH acts through

- a) cyclic AMP
- b) cyclic GMP
- c) cytosolic calcium
- d) adenylate cyclase

ans) cyclic AMP

ref—satyanarayan 2nd ed 481
expln—

TSH acts through mediation of cAMP---satyanarayan 2nd ed 481

The actions of FSH and LH are mediated through cAMP –satyanarayan 2nd ed 482

ABOUT Camp

Cyclic adenosine monophosphate (cAMP, cyclic AMP or 3'-5'-cyclic adenosine monophosphate) is a second messenger important in many biological processes. cAMP is derived from adenosine triphosphate (ATP) and used for intracellular signal transduction in many different organisms, conveying the cAMP-dependent pathway.

cAMP is a second messenger, used for intracellular signal transduction, such as transferring the effects of hormones like glucagon and adrenaline, which cannot pass through the cell membrane. It is involved in the activation of protein kinases and regulates the effects of adrenaline and glucagon. It also regulates the passage of Ca²⁺ through ion channels.

67) Benzodiazepine antagonist?

- a) flumazenil
- b) furazolidone
- c) naloxone
- d) naltrexone

ans) flumazenil

repeat from AIIMS nov. 2008

ref—K.D.T 6th ed 399-400

expln—

flumazenil is a benzodiazepine antagonist which has little intrinsic activity, but it competes with BZD agonists as well as inverse agonists for the BZD receptor and reverses their depressant or stimulant effects respectively.

Flumazenil is the drug of choice for benzodiazepine overdose.

MICROBIOLOGY.

68) In probiotic which organism is used?

- a) bifidobacteria
- b) eschericia
- c) campylobacter
- d) salmonella

ans) bifidobacteria

ref--<http://en.wikipedia.org/wiki/Probiotics>
expln—

Probiotics are live microorganisms thought to be healthy for the host organism. According to the currently adopted definition by WHO, probiotics are: "Live microorganisms which when administered in adequate amounts confer a health benefit on the host". Lactic acid bacteria (LAB) and bifidobacteria are the most common types of microbes used as probiotics; but certain yeasts and bacilli may also be helpful. Probiotics are commonly consumed as part of fermented foods with specially added active live cultures; such as in yogurt, soy yogurt, or as dietary supplements.

69) HIV can be detected and confirmed by

- a) polymerase chain reaction(PCR)
- b) reverse transcriptase - PCR
- c) real time PCR
- d) mimic PCR

ans) reverse transcriptase – PCR

repeat from AIPGMEE 2007

ref—greenwood 16th 532

exp-- ‘

Both direct and indirect diagnostic methods are available to make a laboratory diagnosis of HIV infection. Of these the most important sensitive assay is reverse transcriptase PCR for viral nucleic acid, which can detect a single copy of RNA or proviral DNA from infected cells – Greenwood 16th/532

70) In HIV the cell line affected is

- a) CD4
- b) CD8
- c) Monocyte
- d) B-lymphocyte.

Ans) CD4

Ref—refer the next question for explanation.

71) Maximum risk of transmission of HIV is

- a) Blood transfusion
- b) Drug abuse
- c) Sexually
- d) Mother to child

Ans) blood transfusion.

Ref—Harrison 16th ed pg 1094,
wikepedia

Estimated per act risk for acquisition of HIV by exposure route is	
Exposure Route	Estimated infections per 10,000 exposures to an infected source
Blood Transfusion	9,000

Childbirth (to child)	2,500
Needle-sharing injection drug use	67
Percutaneous needle stick	30
Receptive anal intercourse*	53
Insertive anal intercourse*	6.8
Receptive penile-vaginal intercourse*	18
Insertive penile-vaginal intercourse*	5
Receptive oral intercourse*§	1
Insertive oral intercourse*§	0.5

The pathophysiology of AIDS is complex, as is the case with all syndromes. Ultimately, HIV causes AIDS by depleting CD4⁺ T helper lymphocytes. This weakens the immune system and allows opportunistic infections. T lymphocytes are essential to the immune

response and without them, the body cannot fight infections or kill cancerous cells. The mechanism of CD4⁺ T cell depletion differs in the acute and chronic phases.

During the acute phase, HIV-induced cell lysis and killing of infected cells by cytotoxic T cells accounts for CD4⁺ T cell depletion, although apoptosis may also be a factor. During the chronic phase, the consequences of generalized immune activation coupled with the gradual loss of the ability of the immune system to generate new T cells appear to account for the slow decline in CD4⁺ T cell numbers.

Although the symptoms of immune deficiency characteristic of AIDS do not appear for years after a person is infected, the bulk of CD4⁺ T cell loss occurs during the first weeks of infection, especially in the intestinal mucosa, which harbors the majority of the lymphocytes found in the body. The reason for the preferential loss of mucosal CD4⁺ T cells is that a majority of mucosal CD4⁺ T cells express the CCR5 coreceptor, whereas a small fraction of CD4⁺ T cells in the bloodstream do so.

The virus, entering through which ever route, acts primarily on the following cells:-

- Lymphoreticular system:
 - CD₄⁺ T-Helper cells
 - Macrophages
 - Monocytes
 - B-lymphocytes
- Certain endothelial cells
- Central nervous system:
 - Microglia of the nervous system
 - Astrocytes
 - Oligodendrocytes
 - Neurones – indirectly by the action of cytokines and the gp-120

72) Which is false about *S. mutans*

- a) it is acidogenic & aciduric
- b) requires carbohydrates
- c) do not multiply
- d) it plays role in causing decay of tooth.

Ans) do not multiply

Ref—shafer 4th ed pg 415

Expln—

Guys even if u think logically...option “ do not multiply” is the answer...still..i will give u explanation

Streptococcus mutans is a Gram-positive, facultatively anaerobic bacterium commonly found in the human oral cavity and is a significant contributor to tooth decay. The microbe was first described by Clarke in 1924.

S. mutans plays a major role in tooth decay, metabolizing sucrose to lactic acid. The acidic environment created in the mouth by this process is what causes the highly mineralized tooth enamel to be vulnerable to decay. *S. mutans* is one of a few specialized organisms equipped with receptors that help for better adhesion to the surface of teeth. Sucrose is utilized by *S. mutans* to produce a sticky, extracellular, dextran-based polysaccharide that allows them to cohere to each other forming plaque. *S. mutans* produces dextran via the enzyme dextranucrase (a hexosyltransferase) using sucrose as a substrate .

73) the best technique useful to know the initial viral load is

- a) real time PCR
- b) widal test
- c) electrophoresis
- d) immunofluorescence

ans) real time PCR

ref—Harrison 16th ed 365

expln—

In molecular biology, **real-time polymerase chain reaction**, also called *quantitative real time polymerase chain reaction* (Q-PCR/qPCR) or *kinetic polymerase chain reaction*, is a laboratory technique based on the PCR, which is used to amplify and simultaneously quantify a targeted DNA molecule. It enables both detection and quantification (as absolute number of copies or relative amount when normalized to DNA input or additional normalizing genes) of one or more specific sequences in a DNA sample.

PCR can also be used to study mRNA. In this case the enzyme RT is first used to convert RNA into DNA, which can then be amplified by PCR.—harrison 16th ed pg 365

The procedure follows the general principle of polymerase chain reaction; its key feature is that the amplified DNA is detected as the reaction progresses in *real time*, a new approach compared to standard PCR, where the product of the reaction is detected at its end. Two common methods for detection of products in real-time PCR are: (1) non-specific fluorescent dyes that intercalate with any double-stranded DNA, and (2) sequence-specific DNA probes consisting of oligonucleotides that are labelled with a fluorescent reporter which permits detection only after hybridization of the probe with its complementary DNA target.

The **Widal test** is "a test involving agglutination of typhoid bacilli when they are mixed with serum containing typhoid antibodies from an individual having typhoid fever; which may be used to detect the presence of Salmonella typhi and S. paratyphi."

Immunofluorescence is the labeling of antibodies or antigens with fluorescent dyes. This technique is often used to visualize the subcellular distribution of biomolecules of interest. Immunofluorescent-labeled tissue sections or cultures are studied using a fluorescence microscope or by confocal microscopy.

Electrophoresis is the motion of dispersed particles relative to a fluid under the influence of a spatially uniform electric field.

DENTAL ANATOMY AND HISTOLOGY

74) Less calcified structure is

- a) cellular cementum
- b) acellular cementum
- c) cementoid
- d) dentin

ans) cementoid

repeat from MAY AIIMS DENTAL 2007

ref—orbans 11th ed 183

<http://medical-dictionary.thefreedictionary.com/cementoid>

expln--

the cementum matrix produced by the cementoblasts, which forms the most recent uncalcified layer covering the surface of cementum.

75) Highest phosphate concentration in calcified tissues of oral cavity is?

- a) bone
- b) dentin
- c) enamel
- d) gingival

ans) enamel

ref--INTERNET SOURCES

MINERAL CONTENT

HIGHEST PHOSPHATE	ENAMEL
HIGHEST MAGNESIUM	DENTIN
HIGHEST CARBONATE	BONE
HIGHEST FLUORIDE	CEMENTUM

DENTAL MATERIALS

76) Which of the following is used as a surface hardner in impression material

- a) 2% K_2SO_4
- b) 0.2% K_2SO_4
- c) 2% Na Sulfate
- d) 4% K_2SO_4

ans) 2% K_2SO_4

repeat from may AIIMS dental 2008

ref—phillips 10th ed—134

expln—

The impression is immersed in hardening solution before stone is poured.

Various chemicals are used such as potassium sulfate, Zinc sulfate, manganese sulfate and potash

alum

The most effective is 2% POTASSIUM SULFATE solution.

77) The working time of elastomeric impression is defined as

- a) the time from start of mixing til the material is fully set.
- b) the time elapsed form beginning of mixing untill curing has advanced.
- c) the time from start of mixing till just before the elastic properties have fully developed.
- d) none of the above.

Ans) **C) The** time from start of mixing till just before the elastic properties have fully developed.

Repeat from AIPG 2007.

ref—phillips 11th ed pg 210
expln—

The working time, begins at the start of mixing and ends just before the elastic properties have fully

developed..must exceed the time required for mixing , filling the syringe and or tray, injecting the material on to the tooth preparation and seating the tray.

Setting time is described as the time elapsed from the beginning of the mixing until curing has

advanced sufficiently so that the impression can be removed from the mouth with minimum of distortion.

78) The rough surface of elastomeric impression results from

- a) inadequate mixing
- b) air bubbles
- c) too rapid polymerization
- d) incomplete polymerization caused by premature removal from mouth.

Ans) Incomplete polymerization caused by premature removal from mouth.

Repeat from AIPG 2007

expln-- phillips 11th ed 249

Rough or uneven surface of impression

---incomplete polymerization caused by premature removal from mouth.

---Improper ratio of mixing components

---for addition silicone, agents that contaminate the **material** inhibit polymerization.

---Too rapid polymerization caused by high humidity or temperature.

There are other failures too ..for them open phillips and be thorough with them...this is frequently asked.

79) Which of the following has a single wavelength.

- a) QTH
- b) PAC
- c) LED
- d) argon laser

ans) argon laser

ref—Ramya Raghu pg 327

expln—

Argon Laser Curing Lights.

These lasers are found to be well suited for curing composites. They are monochromatic and have a wavelength of 470nm.

ADVANTAGE

increased degree of polymerization compared to QTH units.

Greater depth of curing.

Polymerization is uniform even if the light guide is at a distance from the composite material.

DISADVANTAGE

adjacent restorations may be affected by lasers.

Rise in temperature due to lasers may damage the pulp.

LED CURING LIGHTS

ADVANTAGE

no need for filters to produce blue light long life of 10,000 hrs small , portable and very quiet as they do not have a fan low power consumption as they work on batteries.

DISADVANTAGE

narrow spectrum of use as they are suitable only for composites based on camphoroquinone photoinitiator.

PLASMA ARC CURING

It consists of two tungsten electrodes separated by a small gap, between which a high voltage is generated. The resulting spark ionizes the xenon gas that is present in the environment to produce conductive gas known as plasma.

The unit produces high intensity light over 2000 mW / cm². And can rapidly polymerize composite in 6-10 secs.

DISADVANTAGES

-expensive

-rapid polymerization can increase polymerization shrinkage.

HIGH INTENSITY QUARTZ-TUNGSTEN-HALOGEN.

They produce a SOFT START polymerization which gradually increases to maximum intensity through a RAMPED programme. This technique produces lesser polymerization stresses at the initial stages and maximum degree of cure and physical properties at the end of curing cycle.

80) Which of the following can be used in presence of moisture

- a) cyanoacralates
- b) Bis -gma
- c) methylmethacrylate
- d) all of the above

ans) cyanoacrylate

repeat from AIPG 2007

ref- rosenstiel 3rd ed 433

Expln—

cyanoacrylates is a low viscosity resin used as moisture active adhesives. Its major use is as a die hardener.

81) Impression material with high tear strength

- a) Polysulphide
- b) Polyether
- c) Condensation silicone.
- d) Addition silicone

Ans) polysulphide

Repeat from 2007 AIPG

Refer the next question for explanation.

82) The major disadvantage of polysulphide impression material in clinical practice is

- a) poor biocompatibility
- b) poor tear strength
- c) it is radiolucent
- d) it stains clothes and has an unacceptable odour

ans) it stains clothes and has unacceptable odour

Repeat from AIPG 2007

Phillips 10th ed 232, 233

Characteristics of elastomers:-

Type	Advantage	Disadvantages
Polysulphide	Long working time High tear resistance. Modest cost.	Requires custom tray Stretching leads to distortion. Stains clothes, has obnoxious odor Pour within 1hr
Condensation silicone	Clean and pleasant Good working time Easily seen margins.	High shrinkage Volatile by product Low tear strength Hydrophobic Pour immediately.
Addition silicone	Auto mix dispense Clean and pleasant Easily seen margins Ideally elastic Can delay pour upto 1 week.	Hydrophobic. No flow if sulcus is moist Low tear strength High cost. Difficult to pour cast.
Polyether.	Fast setting Clean Auto mix dispense.	Stiff, high modulus of elasticity. Bitter taste.

	<p>Good stability. Delay pour Good shelf life.</p>	<p>Need of block undercut. Absorbs water. Leaches components. High cost.</p>
<p>Reversible hydrocolloid (agar)</p>	<p>Accurate and pleasant. Hydrophilic. Low cost. Long shelf life.</p>	<p>Requires special equipments. Thermal discomfort. Tears easily. Pour immediately. Difficulty to see margins.</p>
<p>Irreversible hydrocollid (alginate)</p>	<p>Clean and pleasant. Hydrophilic. Low cost. Long shelf life.</p>	<p>Not accurate. Tears easily. Pour immediately. Can retard setting of gypsum.</p>

83) True about condensation silicone is

- a) only one functional group is repeated in polymerization
- b) no by-product is formed
- c) elimination of small molecules as by-product occurs
- d) polymerization is accompanied by repeated elimination of small molecules.

Ans) polymerization is accompanied by repeated elimination of small molecules

Repeat from AIPG 2007

Ref- phillips 11th ed 215

Expln—

condensation polymerization is also called as a “step growth polymerization”.

-polymerization is accompanied by repeated elimination of small molecules or

- the functional groups are repeated in polymer chain.

The primary compound reacts often with formation of by product such as water, alcohol, etc.

84) Which part of the flame is used for melting the metal alloys?

- a) Reducing zone
- b) Combustion zone.
- c) Oxidising zone.
- d) Central zone.

Ans) reducing zone.

Repeat from AIPG 2007

Ref—Phillips 10th ed 510

Expln—

PARTS OF FLAME:-

- 1) The first long cone emanating directly from the nozzle is the zone where the air and gas are mixed before combustion. No heat is present in this zone.
- 2) The next cone which is green and immediately surrounding the inner cone, is called as the combustion zone, here the gas and air are partially burned. *This zone is definitely oxidising, and should be kept away from the molten metal during fusion.*
- 3) The next zone dimly blue is the reducing zone. It is the hottest part of the flame and is just beyond the tip of the green combustion zone.
this area should be kept constantly on the METAL DURING MELTING.
- 4) The outer cone (oxidising) zone is an area in which the combustion occurs with oxygen in the air. Under no circumstances should this flame be employed to melt the alloy.

85) Spines on casting is due to

- a) Prolonged heating
- b) Too rapid heating
- c) Water film
- d) Temperature.

Ans) too rapid heating

Ref—Phillips 11th ed pg 339

Expln—

Rapid heating may result in fins or spines on the casting.

Also, a characteristic surface roughness may be evident because of flaking of investment when the water or steam pours into mould.

Prolonged heating of the mold at casting temperature is likely to cause a disintegration of the gypsum bonded investment, and the walls of the mold are roughened as a result.

Temperature of the alloy

If the alloy is heated to too high temperature before casting, the surface of the investment is likely to be attacked, and a surface roughness might result.

Water films.

Wax is repellent to water, and if the investment becomes separated from the wax pattern in some manner, a water film may form irregularly over the surface. Occasionally, this type of surface irregularity appears as a minute ridges or veins on the surface.

MEDICINE

86) Carbon monoxide poisoning leads to

- a) hypoxic hypoxia
- b) the Hb-oxygen curve shifts to the left
- c) cyanosis
- d) decreased lung basilar perfusion.

Ans) the Hb-oxygen curve shifts to the left.

Ref—Harrison 16th ed pg 147,169,209,600,1502,1634-1635.

Expln--

Carbon monoxide poisoning occurs after enough inhalation of carbon monoxide (CO). Carbon monoxide is a toxic gas, but, being colorless, odorless, tasteless, and non-irritating, it is very difficult for people to detect.

Symptoms of mild acute poisoning include headaches, vertigo, and flu-like effects; larger exposures can lead to significant toxicity of the central nervous system and heart, and even death. Following acute poisoning, long-term sequelae often occur. Carbon monoxide can also have severe effects on the fetus of a pregnant woman. Chronic exposure to low levels of carbon monoxide can lead to depression, confusion, and memory loss. Carbon monoxide mainly causes adverse effects in humans by combining with hemoglobin to form carboxyhemoglobin (HbCO) in the blood. This prevents oxygen binding to hemoglobin, reducing the oxygen-carrying capacity of the blood, leading to hypoxia. Additionally, myoglobin and mitochondrial cytochrome oxidase are thought to be adversely affected. Carboxyhemoglobin can revert to hemoglobin, but the recovery takes time because the HbCO complex is fairly stable.

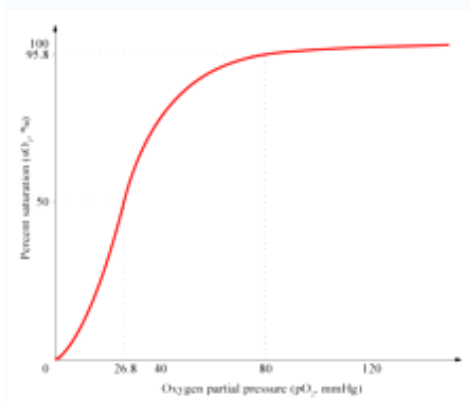
Concentration	Symptoms
---------------	----------

35 ppm (0.0035%)	Headache and dizziness within six to eight hours of constant exposure
100 ppm (0.01%)	Slight headache in two to three hours
200 ppm (0.02%)	Slight headache within two to three hours; loss of judgment
400 ppm (0.04%)	Frontal headache within one to two hours
800 ppm (0.08%)	Dizziness, nausea, and convulsions within 45 min; insensible within 2 hours
1,600 ppm (0.16%)	Headache, tachycardia, dizziness, and nausea within 20 min; death in less than 2 hours
3,200 ppm (0.32%)	Headache, dizziness and nausea in five to ten minutes. Death within 30 minutes.
6,400 ppm (0.64%)	Headache and dizziness in one to two minutes. Convulsions, respiratory arrest, and death in less than 20 minutes.
12,800 ppm	Unconsciousness after 2-3 breaths. Death in less than three minutes.

(1.28%)	
---------	--

The precise mechanisms by which the effects of carbon monoxide are induced upon bodily systems, are complex and not yet **fully understood**. Known mechanisms include carbon monoxide binding to hemoglobin, myoglobin and mitochondrial cytochrome oxidase, and carbon monoxide causing brain lipid peroxidation

Hemoglobin



Carbon monoxide shifts the oxygen-dissociation curve to the left.

Following absorption carbon monoxide binds to hemoglobin which is the principal oxygen-carrying compound in blood; this produces a compound known as carboxyhemoglobin. The traditional belief is that carbon monoxide toxicity arises from the formation of carboxyhemoglobin, which decreases the oxygen-carrying capacity of the blood and inhibits the transport, delivery, and utilization of oxygen by the body. The affinity between hemoglobin and carbon monoxide is approximately 230 times stronger than the affinity between hemoglobin and oxygen so carbon monoxide binds to hemoglobin in preference to oxygen.

87) Hepatolenticular degeneration is caused by

- a) copper
- b) lead
- c) cadmium
- d) aluminium

ans) copper

REFER THE NEXT QUESTION FOR EXPANATION.

88) In Wilson's disease what is true

- a) urinary copper increases
- b) urinary copper decreases
- c) serum ceruloplasmin increases
- d) urinary copper increases and serum ceruloplasmin decreases

ans) urinary copper increases and serum ceruloplasmin decreases.

Ref—harrison 16th ed pg 2313.

Expln—

(two questions from the same subject...makes knowing of this topic important...go through the explanation).

Wilson's disease or **hepatolenticular degeneration** is an autosomal recessive genetic disorder in which copper accumulates in tissues; this manifests as neurological or psychiatric symptoms and liver disease. It is treated with medication that reduces copper absorption or removes the excess copper from the body, but occasionally a liver transplant is required

Various medical conditions have been linked with copper accumulation in Wilson's disease:

- Eyes: Kayser-Fleischer rings (KF rings) may be visible around the iris. They are due to copper deposition in Descemet's membrane of the cornea.
- Kidneys: renal tubular acidosis, a disorder of bicarbonate handling by the proximal tubules leads to nephrocalcinosis (calcium accumulation in the kidneys), weakening of the bone (due to calcium and phosphate loss) and occasionally aminoaciduria (loss of amino acids, needed for protein synthesis).
- Heart: cardiomyopathy (weakness of the heart muscle) is a rare but recognized problem in Wilson's disease; it may lead to heart failure (fluid accumulation due to

decreased pump function) and cardiac arrhythmias (episodes of irregular and/or abnormally fast or slow heart beat).

- Hormones: hypoparathyroidism (failure of the parathyroid glands, leading to low calcium levels), infertility and habitual abortion.

Levels of ceruloplasmin are abnormally low (<0.2 gram/liter) in 80-95% of cases)

Serum copper is paradoxically low but urine copper are elevated in Wilson's disease. Urine is collected for 24 hours in a bottle with a copper-free liner. Levels above 100 $\mu\text{g}/24\text{h}$ (1.6 $\mu\text{mol}/24\text{h}$) confirm Wilson's disease, and levels above 40 $\mu\text{g}/24\text{h}$ (0.6 $\mu\text{mol}/24\text{h}$) are strongly indicative.

89) Which of the following is not included in parenteral therapy?

- a) carbohydrates
- b) fats
- c) proteins
- d) fibres

Ans) fibres

Ref— Harrison 16th ed pg 415

http://en.wikipedia.org/wiki/Parenteral_nutrition

Expln--

Parenteral nutrition (PN) is feeding a person intravenously, bypassing the usual process of eating and digestion. The person receives nutritional formulas containing salts, glucose, (carbohydrates) amino acids,

(proteins), lipids (fats), and added vitamins. It is called **total parenteral nutrition** (TPN) when no food is given by other routes.

The preferred method of delivering PN is with a medical infusion pump. A sterile bag of nutrient solution, between 500 mL and 4 L, is provided. The pump infuses a small amount (0.1 to 10 mL/hr) continuously in order to keep the vein open. Feeding schedules vary, but one common regimen ramps up the nutrition over one hour, levels off the rate for a few hours, and then ramps it down over a final hour, in order to simulate a normal metabolic response resembling meal time. This should be done over 12 to 24 hours rather than intermittently during the day.

Chronic PN is performed through a central intravenous catheter, usually through the subclavian or jugular vein with the tip of the catheter at the superior vena cava without entering the right atrium. Another common practice is to use a PICC line, which originates in the arm, and extends to one of the central veins, such as the subclavian with the tip in the superior vena cava. In infants, sometimes the umbilical vein is used.

So fibres become the answer by exclusion.

90) A 12 yr old child is HIV positive hemodynamically stable and comes to the dental clinic with severe pain due to abscess in oral cavity and is **recommended for extraction**. What will u do?

- a) take the CD4 count
- b) send the child to HIV clinic
- c) do nothing
- d) sputum test

ans) sputum test

ref-- <http://en.wikipedia.org/wiki/Tuberculosis>

I could not get a direct reference for this question..but I think my explanation can satisfy your queries..

Firstly..the option of “ do nothing”..does not come in to picture so that is eliminated.

Taking CD4 count will just give the status of immunosuppression for which antibiotics have to be given during extraction and as such it does not pose a big risk for either the dentist or the patient....besides the question mentions that the patient is hemodynamically stable.

A HIV infected patient can be treated as a normal patient atleast for the purpose of extraction till he is on proper antibiotics..so sending him to a hiv clinic also does not make any sense.

Now lets come to sputum test.

Sputum test is done for tuberculosis.

Tuberculosis or **TB** (short for Tubercles Bacillus) is a common and often deadly infectious disease caused by mycobacteria, usually *Mycobacterium tuberculosis* in humans. Tuberculosis usually attacks the lungs but can also affect other parts of the body. It is spread through the air, when people who have the disease cough, sneeze, or spit. Most

infections in humans result in an asymptomatic, latent infection, and about one in ten latent infections eventually progresses to active disease, which, if left untreated, kills more than 50% of its victims.

Immunocompromised patients (30-40% of AIDS patients in the world have TB)

When people suffering from active pulmonary TB cough, sneeze, speak, or spit, they expel infectious aerosol droplets 0.5 to 5 µm in diameter. A single sneeze can release up to 40,000 droplets. Each one of these droplets may transmit the disease, since the infectious dose of tuberculosis is very low and inhaling less than ten bacteria may cause an infection. Transmission can only occur from people with active — not latent — TB . The probability of transmission from one person to another depends upon the number of infectious droplets expelled by a carrier, the effectiveness of ventilation, the duration of exposure, and the virulence of the *M. tuberculosis* strain.

The golden test for diagnosis of TB is sputum culture.

So if the patient has TB, he should be started on anti- tuberculose drugs and the dentist should isolate the patient and take utmost precautions while extracting the tooth.

The chain of transmission can, therefore, be broken by isolating patients with active disease and starting effective anti-tuberculous therapy. After two weeks of such treatment, people with non-resistant active TB generally cease to be contagious. If someone does become infected, then it will take at least 21 days, or three to four weeks, before the newly infected person can transmit the disease to others

Hence, the answer is sputum test.

91) Most difficult source of infection among the following to control is

- a) airborne
- b) man to man
- c) vector
- d) vertical

ans) airborne

ref-- http://en.wikipedia.org/wiki/Airborne_disease

expln—

Airborne diseases are those diseases which are caused by pathogenic microbial agents which get discharged through coughing, sneezing, laughing or through close personal contact. These pathogens ride on either dust particles or small respiratory droplets and can stay suspended in air and or are capable of travelling distances on air currents.

Many common infections can spread by airborne transmission at least in some cases, including:

Anthrax (inhalational), Chickenpox, Influenza, Smallpox and Tuberculosis

The rest three options are logically easier to control but airborne is difficult and hence the answer of choice.

92) In case of hypercapnia there is

- a) increased Ph
- b) decreased Ph
- c) remains same
- d) none of the above

ans) decreased Ph

ref-- satyanarayan 2nd ed 531.

Expln--

Hypercapnia or **hypercapnea** (from the Greek *hyper* = "above" and *kapnos* = "smoke"), also known as hypercarbia, is a condition where there is too much carbon dioxide (CO₂) in the blood. Carbon dioxide is a gaseous product of the body's metabolism and is normally expelled through the lungs.

Symptoms and signs of early hypercapnia include flushed skin, full pulse, extrasystoles, muscle twitches, hand flaps, reduced neural activity, and possibly a raised blood pressure

Now, hypercapnea is basically retaining of carbon dioxide which results in increase in carbonic acid and this condition is called as respiratory acidosis.

And in respiratory acidosis the blood pH DECREASES.---- satyanarayan 2nd ed 531.

Every year all exams have been asking questions on disorders in acid base balance..so be thorough with it.

93) A child is brought with drowsiness, decreased deep tendon reflexes and seizures. On examination the child has a blue line on gums. There is history of constipation. Which will be most appropriate drug that should be used in this child?

- a) EDTA
- b) DMSA
- c) BAL
- d) Penicillamine

ans) EDTA

REPEAT FROM AIGMEE 2007

Ref—KDT 5th ed 812-815

Expln—

The child in question is presenting with signs and symptoms of plumbism as suggested by the blue line on gums.(bertonian line). Gastrointestinal manifestations like constipation and symptoms of lead encephalopathy.(seizures and drowsiness).

Choice of chelation agent is based on blood levels, which have not been provided in the question.

DMSA is the chelating agent of choice for blood lead levels between 45 and 70 μ /dl.

According to nelson, changes in mentation, lethargy and seizures suggest blood lead levels of > 70 μ /dl. As the patient in question is presenting with lethargy, changes in mentation and drowsiness, he is likely to have blood lead levels > 70 μ /dl and hence, EDTA is the single most important agent for treatment.

94) all are transcription repressors except

- a) insulin
- b) thyroid
- c) vitamin D
- d) steroids

ans) steroids

REPEAT FROM AIIMS MAY MEDICAL 2008

Ref—harper 26th ed 458

Expln—

steroid hormone receptors are located within the cytoplasm in complex with heat shock proteins. The steroid hormones diffuse through plasma membrane and bind to steroid receptor.

Ligand binding causes dissociation of the heat shock protein from the receptor.

The receptor ligand complex then moves into the nucleus and bind with a DNA sequence called hormone response element.

This complex then serves a binding site for **transcription activator** proteins and this complex then activates gene transcription.

In contrast to steroid receptors , receptors for thyroid hormones lie within the nucleus already bound to hormone response element..but this complex is fixed with transcription repressor.

95) bronchial circulation is associated with

- a) air conditioning
- b) drug absorption
- c) gaseous exchange
- d) reserve volume

ans) air conditioning.

Ref—sembulingum 2nd ed 537

Expln--

the part or the respiratory tract where gaseous exchange cannot take place is known as dead tract.

The anatomical dead space extends from nose upto the terminal bronchiole.

Now,

The gaseous exchange takes place in alveolar air. drug absorption also takes place from alveolus.

Reserve volume

Some amount of air always remains in the lungs inspite of forceful expiration and this amount of air is called as residual **volume (reserve volume)**. This amount of air is not related to bronchial circulation.

Air conditioninig is nothing but passage of air without being exchanged.

Hence the answer by exclusion.

96) melanin pigmentation in pregnancy is known as

- a) melasma
- b) melanoma
- c) epulis
- d) melanosis

ans) melasma

ref—Harrison 16th ed pg 285, 320
expln--

Melasma (also known as "Chloasma faciei" or the **mask of pregnancy** when present in pregnant women) is a tan or dark skin discoloration. Although it can affect anyone, melasma is particularly common in women, especially pregnant women

The symptoms of melasma are dark, irregular patches commonly found on the upper cheek, nose, lips, upper lip, and forehead. These patches often develop gradually over time. Melasma does not cause any other symptoms beyond the cosmetic discoloration

Melasma is thought to be the stimulation of melanocytes or pigment-producing cells by the female sex hormones estrogen and progesterone to produce more melanin pigments when the skin is exposed to sun. Women with a light brown skin type who are living in regions with intense sun exposure are particularly susceptible to developing this condition.

Genetic predisposition is also a major factor in determining whether someone will develop melasma.

The incidence of melasma also increases in patients with thyroid disease. It is thought that the overproduction of melanocyte-stimulating hormone (MSH) brought on by stress can

cause outbreaks of this condition. Other rare causes of melasma include allergic reaction to medications and cosmetics.

Melasma Suprarenale (*Latin - of the adrenals*) is a symptom of Addison's disease, particularly when caused by pressure or minor injury to the skin,

Melasma is usually diagnosed visually or with assistance of a Wood's lamp (340 - 400 nm wavelength). Under Wood's lamp, excess melanin in the epidermis can be distinguished from that of the dermis.

Treatment

The discoloration usually disappears spontaneously over a period of several months after giving birth or stopping the oral contraceptives or hormone replacement therapy.

Treatments to hasten the fading of the discolored patches include:

- Topical depigmenting agents, such as hydroquinone (HQ) either in over-the-counter (2%) or prescription (4%) strength. HQ is a chemical that inhibits tyrosinase, an enzyme involved in the production of melanin.
- Tretinoin, an acid that increases skin cell (keratinocyte) turnover. This treatment cannot be used during pregnancy.
- Azelaic acid (20%), thought to decrease the activity of melanocytes.
- Facial peel with alpha hydroxyacids or chemical peels with glycolic acid.

97) Man is a natural reservoir of

- a) y.enterocolitica
- b) e.histolytica
- c) Campylobacter
- d) salmonella

ans) salmonella

ref—Harrison 16th ed pg 897

wikipedia.

expln--

Salmonella are strict parasites of animals or humans. they cause the following clinical syndromes in human beings.

Enteric fever

Septicemia

Gastroenteritis or food poisoning.

The growth of salmonella typhi and salmonella paratyphi is restricted to human hosts—harrison 16th ed pg 897.

One to four percent of untreated patients become chronic carriers, defined as individuals who excrete Salmonella for more than 1 year. Some individuals may continue to excrete the bacterium for decades. (various internet sources)

Hence the answer of choice.

E. histolytica, as its name suggests (*histo-lytic* = tissue destroying), is pathogenic; infection can lead to amoebic dysentery or amoebic liver abscess. Symptoms can include fulminating dysentery, bloody diarrhea, weight loss, fatigue, abdominal pain, and amoeboma. The amoeba can actually 'bore' into the intestinal wall, causing lesions and intestinal symptoms, and it may reach the blood stream. From there, it can reach different

vital organs of the human body, usually the liver, but sometimes the lungs, brain, spleen, etc. A common outcome of this invasion of tissues is a liver abscess, which can be fatal if untreated. Ingested red blood cells are sometimes seen in the amoeba cell cytoplasm

Campylobacteriosis is an infection by campylobacter. The common routes of transmission are fecal-oral, person-to-person sexual contact, ingestion of contaminated food or water, and the eating of raw meat. It produces an inflammatory, sometimes bloody, diarrhea, periodontitis or dysentery syndrome, mostly including cramps, fever and pain. *The infection is usually self-limiting* and in most cases, symptomatic treatment by reposition of liquid and electrolyte replacement is enough in human infections.

- 98) Risus sardonicus is seen in
- a) Tetanus
 - b) Chicken pox
 - c) Tetany
 - d) herpes

Ans) tetanus

Ref—Harrison 16th ed pg 840

Expln-- ***Risus sardonicus*** is a highly characteristic, abnormal, sustained spasm of the facial muscles that appears to produce grinning

It is most often observed as a sign of tetanus. Poisoning with strychnine may result in a *risus sardonicus*.

99) reilly bodies are seen in hurler's disease are inclusion bodies seen within

- a) Neutrophills
- b) Lymphocytes
- c) Monocytes
- d) Nucleus

Ans) lymphocytes

Ref—shafer 4th ed pg 631

Expln—

Laboratory findings of hurler syndrome

Gardner has reported the demonstration of “hurler cells or gargoyle cells” in the gingival tissue of affected patients.

There is an elevated level of mucopolysaccharides in the urine.

In addition METACHROMATIC GRANULES OR REILLY BODIES can be demonstrated in the CIRCULATING LYMPHOCYTES.

100) prostate specific antigen

- a) Tumor marker
- b) Proto oncogene
- c) Oncogene

Ans) tumour marker

Ref-- http://en.wikipedia.org/wiki/Tumour_marker
http://en.wikipedia.org/wiki/Prostate_specific_antigen

expln--

A **tumor marker** is a substance found in the blood, urine, or body tissues that can be elevated in cancer, among other tissue types. There are many different tumor markers, each indicative of a particular disease process, and they are used in oncology to help detect the presence of cancer. An elevated level of a tumor marker can indicate cancer; however, there can also be other causes of the elevation.

Tumor markers can be produced directly by the tumor or by non-tumor cells as a response to presence of a tumour.

Example: elevated prostate specific antigen suggests prostate cancer.

Prostate-specific antigen (PSA) is a protein produced by the cells of the prostate gland. PSA is present in small quantities in the serum of normal men, and is often elevated in the presence of prostate cancer and in other prostate disorders. A blood test to measure PSA is considered the most effective test currently available for the early detection of prostate cancer

101) In falciparum malaria..causes of anemia are due to all except

- a) hemolysis
- b) malabsorption
- c) hypersplenism and rbc sequestration
- d) bone marrow depression

Ans) malabsorption

ref— Harrison 16th ed pg 1218

<http://en.wikipedia.org/wiki/Malaria>

expln—

Symptoms of malaria include fever, shivering, arthralgia (joint pain), vomiting, anemia (caused by hemolysis), hemoglobinuria, retinal damage, and convulsions.

. Splenomegaly is usually associated with increased workload (such as in hemolytic anemias , malaria being one of the causes), which suggests that it is a response to hyperfunction. It is therefore not surprising that splenomegaly is associated with any disease process that involves abnormal red blood cells being destroyed in the spleen.

Because the bone marrow is the manufacturing center of blood cells, the suppression of bone marrow activity causes a deficiency of blood cells. This condition can rapidly lead to life-threatening infection, as the body cannot produce leukocytes in response to invading bacteria and viruses, as well as leading to anaemia due to a lack of red blood cells and spontaneous severe bleeding due to deficiency of platelets.

So, by exclusion the answer is malabsorption.

102) not a feature of hutchinson's triad

- a) interstitial keratosis
- b) fifth nerve injury
- c) eight nerve injury
- d) congenital syphilis

ans) fifth nerve injury

ref—shafer 4th ed pg 353

expln--

Hutchinson's triad is named after Sir Jonathan Hutchinson (1828–1913). It is a common pattern of presentation for congenital syphilis, and consists of three phenomena: interstitial keratitis, Hutchinson incisors, and eighth nerve deafness.

103) a patient of type 2 diabetes mellitus is given nutrition rich in

- a) Proteins
- b) Carbohydrates
- c) Fat
- d) Fibre rich diet

Ans) D) fibre rich diet

Ref-- http://en.wikipedia.org/wiki/Diet_for_Diabetics

Expln--

The diet most often recommended for DM II is high in dietary fiber, especially soluble fiber, but low in fat (especially saturated fat)

High fiber diet - It has been shown that a high fiber diet works better than the diet recommended by the American Diabetes Association in controlling diabetes, and may control blood sugar levels with the same efficacy as oral diabetes drugs.

Low Carb Diet - It has been suggested that the gradual removal of carbohydrates from the diet and replacement with fatty foods such as nuts, seeds, meats, fish, oils, eggs, avocados, olives, and vegetables may help reverse diabetes.

104) leptospirosis all are true except

- a) faeces & urine of rodents is the cause
- b) it is detected from IgM in 5 days
- c) incubation period is 10 days
- d) it is sensitive to penicillin

Ans) it is detected from IgM in 5 days

Ref—anantharayan 6th ed 361

Expln—

humans are infected when the leptospire in water contaminated with urine from infected animals enters the body through cuts or abrasions on the skin or through the intact mucosa of the mouth, nose or conjunctiva.

The incubation period is usually 10 days (2-26)

Leptospire is sensitive to penicillin and tetracycline...anantharayan 6th ed 363

Serological diagnosis.

Antibodies appear in serum towards the end of the first week of the disease and increase till the fourth week. (a week comprises of 7 days so obviously IgM CANNOT be detected in 5 days....so the answer of choice and by exclusion too)

ELISA has been used to detect IgM and IgG separately, in order to indicate the stage of infection.

105) In bacterial meningitis, CSF has

- a) high protein
- b) high glucose
- c) high lymphocytes
- d) high leukocytes

ans) high protein

ref— Harrison 16th ed pg 2474

http://en.wikipedia.org/wiki/Bacterial_Meningitis

expln--

CSF findings in different forms of meningitis

Type of meningitis	<u>Glucose</u>	<u>Protein</u>	<u>Cells</u>
Acute bacterial	Low	high	<u>PMNs</u> , often > 300/mm ³
Acute viral	Normal	normal or high	<u>mononuclear</u> , < 300/mm ³

Tuberculous	Low	high	mononuclear and PMNs, $< 300/\text{mm}^3$
Fungal	Low	high	$< 300/\text{mm}^3$
<u>Malignant</u>	Low	high	usually mononuclear

SURGERY

106) Fibrin degradation product help in detection of

- a) Hemophilia
- b) DIC
- c) Thrombocytopenic purpura
- d) Thrombasthenia

Ans) DIC

Ref—harrison 16th ed pg 685

Expln--

Fibrin degradation product (FDPs), also known as fibrin split products, are components of the blood produced by clot degeneration. These are produced by the action of plasmin on deposited fibrin.

The levels of these FDPs rises after any thrombotic event.

It can be used to test for disseminated intravascular coagulation.

107) which is a T cell tumor

- a) Burkitt's lymphoma
- b) Mycosis fungoides
- c) Mantel cell leukemia
- d) Hairy cell leukemia

Ans) mycoises fungiodes

Ref—Harrison 16th ed pg 653

Expln—

Mycosis fungoides is also known *as* CUTANEOUS T CELL LYMPHOMA.

Occurs in mid fifties and more common in males and in blacks.

Mycosis fungoides – skin lesion progress from patch stage to plaque stage to cutaneous tumors.

Burkitt's lymphoma and hairy cell leukemia are B cell tumors.

Mantle cell leukemia is caused by HTLV-1 retrovirus.

COMMUNITY DENTISTRY

108) Percentage of NaF in APF solution is

- a) 2%
- b) 1.23%
- c) 3%
- d) 8%

ans) 1.23%

Repeat from AIPG 2007

ref—soben peters 2nd ed 313

expln—

currently available acidulated phosphate fluoride preparation all contain sodium fluoride (NaF) as the active ingredient.

The general formulation has 1.23% of fluoride as sodium fluoride, buffered at a pH of 3-4 in a 0.1 M phosphoric acid.

109) In which of the following disease, the overall survival is NOT increased by screening procedure

- a) Lung
- b) Breast
- c) Cervix
- d) Oral

Ans) lung

<http://www.tandurust.com/respiratory-lung-disease/lung-cancer-survival-rate.html>

LUNG CANCER

- **Prognosis of the lung cancer or the survival rate – unless surgical treatment is practicable, the average period of survival, after diagnosis is made, is less than a year.**
- **Resection of the lung** (pneumonectomy) or in some cases, of the lobe containing tumor (lobectomy) offers the best prospect of survival. The operation can be performed only on the small number of the cases (about 20%) in which the tumor is discovered at an early and relatively localized stage and pulmonary function is adequate. The tumor is liable to recur even after an apparently successful operation **and only 30% of such patients survive for more than 5 years.**
- Early diagnosis provides slightly better results, but the prognosis depends to an even greater extent on the histological type of tumor and on the presence or absence of metastatic deposits in the hilar lymph nodes.

The median survival time for limited-stage disease is 20 months, with a five-year survival rate of 20%.

- According to data provided by the National Cancer Institute, the median age of incidence of lung cancer is 70 years, and the median age of death by lung cancer is 71 years.
- (http://en.wikipedia.org/wiki/Lung_cancer#Prognosis)

Breast cancer.

Health care professionals are able to predict a patient's survival rate based on the determined stage of breast cancer

5-year Relative Survival Rate	
0	100%
I	100%
IIA	92%
IIB	81%
IIIA	67%
IIIB	54%
IV	20%

When found early, oral cancers have an 80 to 90 % survival rate.
(<http://oralcancerfoundation.org/>)

Oral cancer

Survival rates for oral cancer depend on the precise site, and the stage of the cancer at diagnosis. Overall, survival is around 50% at five years when all stages of initial diagnosis are considered. Survival rates for stage 1 cancers are 90%, hence the emphasis on early detection to increase survival outcome for patients.

(http://en.wikipedia.org/wiki/Oral_cancer)

Cervical cancer

Prognosis depends on the stage of the cancer. With treatment, the 5-year relative survival rate for the earliest stage of invasive cervical cancer is 92%, and the overall (all stages combined) 5-year survival rate is about 72%. These statistics may be improved when applied to women newly diagnosed, bearing in mind that these outcomes may be partly based on the state of treatment five years ago when the women studied were first diagnosed.

With treatment, 80 to 90% of women with stage I cancer and 50 to 65% of those with stage II cancer are alive 5 years after diagnosis. Only 25 to 35% of women with stage III cancer and 15% or fewer of those with stage IV cancer are alive **after 5 years**.

(http://en.wikipedia.org/wiki/Cervical_cancer#Epidemiology)

So from the above explanations it is fairly clear that the answer should be lung cancer.

110) All are measures of dispersion except

- a) mode
- b) range
- c) variance
- d) standard deviation.

Ans) mode

REPEAT FROM MEDICAL AIIMS NOV 2007

Ref—park 19th ed 700

Expln—mode is measure of central tendency

Measures of central tendency are able to describe the entire distribution by one value.

Measures of central tendency are

- a) mean
- b) median
- c) mode.

Measures of dispersion are

- a) range
- b) mean deviation
- c) standard deviation
- d) root mean square
- e) interquartile range
- f) trimmed variance
- g) percentile

h) quartiles.

111) Active search for disease in an apparently healthy individual is called as

- a) monitoring
- b) case finding
- c) screening
- d) sentinel surveillance.

Ans) screening

REPEAT FROM AIIMS NOV. MEDICAL 2007

Ref—park 19th ed 115

Expln—screening is defined as “ the search for unrecognized disease or defect by means of rapidly applied tests, examination or other procedures in apparently healthy individual”

Other terms

Case finding:- is the use of clinical and/or laboratory tests to detect disease in individual seeking health care for other reasons.

Eg:- ELIZA FOR HIV IN PREGNANT WOMAN.

Monitoring:- is performing and analysing routine measurements to detect changes in health status of population or changes in the environment.

Eg:- monitoring of air pollution, water quality, growth and nutritional status etc.

Sentinel surveillance:- as no routine notification system can detect all cases of infection or disease, sentinel surveillance is a method to identify the missing ones.

112) In epidemiology study, the first case which comes to the attention of the investigator is

- a) reference case
- b) index case
- c) primary case
- d) secondary case.

Ans) index case

REPEAT FROM AIIMS MEDICAL 2007 NOV.

Ref—park 19th ed 90

Expln—epidemiological terminology

Primary case:- is the first case of a communicable disease introduced in the population until under study.

Index case:- is the first case that comes under the attention of the investigator, it is not always the primary case.

Secondary cases:- are those cases arising from direct contact with the primary case.

113) Eicosapentaenoic acid is found in

- a) fish
- b) corn
- c) soya

ans) fish

ref—park 19th ed 500

expln—

nutritional profile of fish

fish provides essential nourishment especially quality proteins and fats , vitamins and minerals.

Fats from fatty fish species contain the polyunsaturated fatty acids namely EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) (omega 3 fatty acids)

Fish liver oils are richest source of calcium, phosphorus and fluorides.

114) High amount of polyunsaturated fatty acids is found in

- a) Palm oil
- b) Soyabean oil
- c) Groundnut oil
- d) Margarine

Ans) soya bean oil

REPEAT FROM AIPGME 2007

Ref—park 19th ed 482

Expln--

Oil	PUFA	Saturated.
Safflower	75	8
Sun flower	65	8
Corn	65	8
Soyabean	62	14
Margarine	50	25
Cotton	50	25
Groundnut	31	19
Palm	10	46
Butter	3	60
Coconut	2	92

115) sleeping sickness is caused by

- A. house fly
- B. sand fly
- C. tick
- D. redwid bug

ans) house fly

ref—refer the next question for explanation.

116) Which of the following is not transmitted by lice?

- a) Q fever
- b) Trench fever
- c) Relapsing fever
- d) Epidemic typhus.

Ans) Q fever

REPEAT FROM AIPGME 2007

Ref—park 19th ed 622

Expln—

trench fever, relapsing fever and epidemic typhus are transmitted by lice.

Arthropods	Arthropod borne	Diseases
1) Mosquito	1) Anopheles	Malaria
	2) Culex	Japanese encephalitis West Nile fever Bancroftian filariasis Viral arthritis.
	3) Aedes	Yellow fever Dengue Dengue hemorrhagic fever Chikungunya fever Rift valley fever
	4) Mansonoides	Brugian filariasis.
2) Sandfly	Kala azar Oriental sore Oraya fever	

	Sandfly fever	
3) tse tse fly	Sleeping sickness	
4) louse	Epidemic typhus Relapsing fever Trench fever	
5) rat flea	Bubonic plague Endemic plague Chiggerosis Hymenolepis diminui	
6) black fly	Onchocerciasis	
7) reduviid bug	Chagas disease	
8) hard tick	Tick typhus Viral encephalitis Viral hemorrhagic fever KFD Tularemia Tick paralysis Human babesiosis	
9) soft tick	Q fever, relapsing fever	
10) trombiculid mite	Scrub typhus, rickettsial pox	
11) itch mite	Scabies	
12) Cyclops	Guinea worm disease Fish tape worm.	

117) Compared to cow's milk, mother's milk has more

- a) Lactose
- b) Vitamin D
- c) Proteins
- d) Fat.

Ans) lactose

REPEAT FROM AIPGME 2007

Ref—park 19th ed 499

Expln—

human milk contains more lactose than cow's milk.

Ingredients	Cow's milk	Human milk	Comments
Proteins	More total protins	Less total proteins	Human milk contains greaater amounts of tryptophan and sulfur containing amino acids specially cystein.
Fats	More total fat	Less total fat	Human milk contains higher percentage of linoleic acid and oleic acid in comparison to animal milk.
Sugar(lactose)	Less sugar (lactose)	More sugar (lactose)	Sugar found in all milk is lactose. human milk

			contains more lactose than animal milk.
Minerals	More minerals	Less minerals	Milk is good source of all minerals except iron. (milk is poor source of iron)

118) Any loss or abnormality of psychological, physiological or anatomical structure or function is

- a) Disease
- b) Impairment
- c) Disability
- d) Handicap

Ans) impairment

Ref—soben peters 2nd ed 832

Expln—

impairment:- In physical therapy it is any loss or abnormality of physiological, psychological, or anatomical structure of function, whether permanent or temporary.

Disability (WHO 1982)

Is any restriction or lack of ability (resulting from impairment) to perform an activity in the manner or within the range considered normal for a human being.

Handicap (WHO 1980)

Is a disadvantage for a given individual resulting from a impairment or disability that limits or prevents the fulfilment of a role is normal (depending on age , sex and social and cultural factors) for that individual.

Disease

A **disease** or **medical condition** is an abnormal condition of an organism that impairs bodily functions, associated with specific symptoms and signs. It may be caused by external factors, such as infectious disease, or it may be caused by internal dysfunctions, such as autoimmune diseases. In holistic medicine and alternative medicine tradition,

disease is said to be caused by energetic imbalances in physical, emotional, spiritual, social and/or environmental needs.

119) True about ASHA

A) One ASHA worker for every 1000 people.

Im sorry i could not get other options..but this is the right answer as i will justify by following explanation and give the details of the same.

Ans) One ASHA worker for every 1000 people.

Ref-- <http://www.mohfw.nic.in/NRHM/asha.htm>

Expln—

One of the key strategies under the National Rural Health Mission (NRHM) is having a Community Health Worker i.e. ASHA (Accredited Social Health Activist) for every village with a population of 1000. Detailed guidelines have been issued by the Government of India in matter of selection and training of ASHA.

About ASHA

One of the key components of the National Rural Health Mission is to provide every village in the country with a trained female community health activist – ‘ASHA’ or Accredited Social Health Activist. Selected from the village itself and accountable to it, the ASHA will be trained to work as an interface between the community and the public health system. Following are the key components of ASHA:

- .. ASHA must primarily be a woman resident of the village – married/ widowed/ divorced, preferably in the age group of 25 to 45 years.
- .. She should be a literate woman with formal education up to class eight. This may be relaxed only if no suitable person with this qualification is available.
- .. ASHA will be chosen through a rigorous process of selection involving various community groups, self-help groups, Anganwadi Institutions, the Block Nodal officer, District Nodal officer, the village Health Committee and the Gram Sabha.
- .. Capacity building of ASHA is being seen as a continuous process. ASHA will have to undergo series of training episodes to acquire the necessary knowledge, skills and confidence for performing her spelled out roles.
- .. The ASHAs will receive performance-based incentives for promoting universal immunization, referral and escort services for Reproductive & Child Health (RCH) and other healthcare programmes, and construction of household toilets.
- .. Empowered with knowledge and a drug-kit to deliver first-contact healthcare, every ASHA is expected to be a fountainhead of community participation in public health programmes in her village.
- .. ASHA will be the first port of call for any health related demands of deprived sections of the population, especially women and children, who find it difficult to access health services.
- .. ASHA will be a health activist in the community who will create awareness on health and its social determinants and mobilise the community towards local health planning and increased utilisation and accountability of the existing health services.
- .. She would be a promoter of good health practices and will also provide a minimum package of curative care as appropriate and feasible for that level and make timely referrals.

- .. ASHA will provide information to the community on determinants of health such as nutrition, basic sanitation & hygienic practices, healthy living and working conditions, information on existing health services and the need for timely utilisation of health & family welfare services.
- .. She will counsel women on birth preparedness, importance of safe delivery, breast-feeding and complementary feeding, immunization, contraception and prevention of common infections including Reproductive Tract Infection/Sexually Transmitted Infections (RTIs/STIs) and care of the young child.
- .. ASHA will mobilise the community and facilitate them in accessing health and health related services available at the Anganwadi/sub-centre/primary health centers, such as immunisation, Ante Natal Check-up (ANC), Post Natal Check-up supplementary nutrition, sanitation and other services being provided by the government.
- .. She will act as a depot older for essential provisions being made available to all habitations like Oral Rehydration Therapy (ORS), Iron Folic Acid Tablet(IFA), chloroquine, Disposable Delivery Kits (DDK), Oral Pills & Condoms, etc.
- .. At the village level it is recognised that ASHA cannot function without adequate institutional support. Women's committees (like self-help groups or women's health committees), village Health & Sanitation Committee of the Gram Panchayat, peripheral health workers especially ANMs and Anganwadi workers, and the trainers of ASHA and in-service periodic training would be a major source of support to ASHA.

The above said guidelines also clearly bring out the role of ASHA vis-à-vis that of Anganwadi Worker (AWW) and the Auxiliary Nurse Midwives (ANM).

Please refer the mentioned site for more detailed information.

120) The PHP index describes

- a) performance of hygiene of patient after brushing and self evaluation
- b) measures oral hygiene & gingival bleeding
- c) scores plaque and gingivitis
- d) evaluate plaque & calculus on specific tooth surface

ans) performance of hygiene of patient after brushing and self evaluation

ref- - soben peters
2nd ed 141

REPEAT FORM AIPG 2007

Expln—

this index was introduced by PODSHADLEY A.G and HALEY J.V in 1968

Uses of this index

- 1) it may be used to both document and assist in motivating changes in oral habits.
 - 2) It is used to score the patient before and after oral hygiene instruction and at the follow up visit.
 - 3) It can be used to analyse and evaluate effectiveness of home care methods that are being used in the program.
 - 4) It is used for individual patient education i.e as an education aid.
- This index is favourite of AIPG EXAMINERS so be thorough of it.

121) Sample size is

- a) expected prevalence
- b) expected frequency
- c) measured prevalence
- d) population size.

Ans) expected prevalence

Ref—soben peters 2nd ed 28

Expln—

A common question while conducting an investigation is about the size of the sample.

Bigger the sample, higher will be the precision of the estimates of the sample.

For instance if the field survey is conducted to estimate the prevalence rate of the disease, the sample size is calculated by the formula

$$n = \frac{Z_a^2 * p * (1-p)}{L^2}$$

Where n is the sample size

P is the approximate or expected prevalence of the disease.

L is the permissible error in estimation of p and

$Z\alpha$ is the normal value for probability level.

So from the equation also it is seen that the sample size is dependent on the expected prevalence.

122) Number of new caries cases occurring within one year in a patient is referred to as

- a) Caries incidence
- b) Caries experience
- c) Caries prevalence
- d) Caries rate

Ans) caries incidence.

Ref—soben peters 2nd ed 832

Expln—

incidence rate is defined as “ the number of new cases occurring in a defined population during a specified period of time.”

Prevalence refers to all current and old cases existing at a given point in time or over a period of time in a given population.

Rate

Rate is the frequency of a disease or characteristic expressed per unit of size of the population in which it is observed.

123) All can be incinerated except

- a) Cytotoxic wastes
- b) Sharps
- c) Anatomic waste
- d) Infectious waste

Ans) sharps

REPEAT FROM AIPGME 2007

Ref—park 19th ed 648

Expln—sharps are not treated or disposed by means of incineration.

Option	Waste category	Treatment and disposal
Cat. 1	Human anatomical waste	Incineration / deep burial
Cat. 2	Animal waste	Incineration/deep burial
Cat.3	Microbiological and biochemical waste. (infectious waste)	Local autoclaving/microwaving/incineration
Cat.4	Waste sharps (needles , syringes, scalpels, blades, glasses)	Disinfection/microwaving/mutilation shredding
Cat.5	Discarded medicines and cytotoxic drugs.	Incineration
Cat.6	Solid wastes(items contaminated with blood and fluids and fluids containing cotton, dressings ,soiled plaster etc.)	Incineration/ autoclaving/microwaving
Cat.7	Solid waste(wastes	Disinfection

	generated from disposable items other than the waste sharps such as tubings, catheters, intravenous sets, etc.)	
Cat.8	Liquid waste	Disinfection
Cat.9	Incineration ash	Disposal in municipal landfill
Cat.10	Chemicals used in production of biologicals, chemicals used in disinfection as insecticides,etc.	Chemical treatment.

Colour coding and type of container for disposal of bio-medical waste.

Colour coding	Type of container	Waste category	Treatment options
Yellow	Plastic bag	Cat 1,2,3,6	Incineration/ deep burial
Red	Disinfected container / plastic bag	Cat 3 ,6,7	Autoclaving / microwaving/ chemical treatment
Blue/ white translucent	Plastic bag / puncture proof container	Cat 4,7	Autoclaving / microwaving / chemical treatment.
Black	Plastic bag	Cat 5,9,10	Disposal in secured landfill.

124) Which is the following vaccine is not included in EPI schedule?

- a) DPT
- b) MMR
- c) BCG
- d) OPV

Ans) MMR

REPEAT FROM AIPGME 2007

Ref—park 19th ed 105,106, 363,364

Expln—the WHO expanded programme of immunization targets protection of all children of the world against six vaccine preventable diseases namely

Diphtheria

Whooping cough

Tetanus

Polio

Tuberculosis

Measles.

Protection against mumps and rubella is not included and the recommended vaccine against measles is measles vaccine not MMR

So MMR vaccine is the single best answer of exclusion.

125) Chronic carrier state is seen in all except

- a) Measles
- b) Typhoid
- c) Diphtheria
- d) Gonorrhoea

Ans) measles

REPEAT FROM AIPGME 2007

Ref—park 19th ed 127,136

Expln—the only source of measles infection is a case of measles..

Carriers are not known to occur.

Chronic carriers are known to occur in typhoid , gonorrhoea and diphtheria.

ORAL PATHOLOGY

126) Pernicious anemia is caused due to deficiency of

- a) iron
- b) cyanocobalamine
- c) folic acid
- d) nicotinic acid

Ans) cyanocobalamin

Ref—shafer 4th ed 721

Expln--

Pernicious anemia (or pernicious anemia - also known as **Biermer's anemia**, **Addison's anemia**, or **Addison–Biermer anemia**) is a form of megaloblastic anemia.

Usually seated in an atrophic gastritis, the autoimmune destruction of gastric parietal cells leads to a lack of intrinsic factor, and since the absorption from the gut of vitamin B-12, is dependent on intrinsic factor this leads to vitamin B-12 deficiency, one of the many causes of megaloblastic anemia.

Vitamin B-12 cannot be produced by the human body, and must be obtained from diet.

Normally, dietary vitamin B-12 is absorbed by the body in the small bowel only when it is bound by the Intrinsic Factor produced by parietal cells of the gastric mucosa. Pernicious Anemia is thought to occur when the body's immune system mistakenly targets the Intrinsic Factor, with a loss of parietal cells. Insufficient IF results in insufficient absorption of the vitamin. Although the normal body stores three to five years' worth of vitamin B-12 in the liver, the usually undetected auto-immune activity in one's gut over a prolonged period of time leads to vitamin B-12 depletion and PA. Inhibition of DNA synthesis in red blood cells, results in the formation of large, fragile megaloblastic erythrocytes.

Oral manifestations:-

The tongue is generally inflamed, often described as “beefy red” in color, either in entirety or in patches scattered over the dorsum and lateral borders.— shafer 4th ed 721.

127) Dentin islands are most commonly associated with

- a) maxillary canine and mandibular premolars
- b) maxillary incisors and canine
- c) mandibular premolars and maxillary 1st molar
- d) mandibular 1st molar and maxillary premolars.

Ans) maxillary canine and mandibular premolars.

Repeat from AIPG 2007

This question is taken from national boards, refer question 70 dental anatomy dec 1977 released
1979 national boards.

128) Infectious mononucleosis is caused by

- a) EBV
- b) HSV
- c) CMV
- d) VZV

ans) EBV

Repeat from AIPG 2007

ref—shafer 4th ed pg 736

expln—

infectious mononucleosis is a disease now known to be caused by Epstein barr virus, a herpes like virus.

Also called glandular fever, kissing disease.

Fever, soar throat, headache ,chills, cough, nausea,vomiting,lymphadenopathy, splenomegaly are clinical features.

The oral manifestation consisted of acute ginigivitis and stomatitis, the appearance of grey membrane in various areas, palatal petechiae and occasional ulcers.

In Paul bunnel test the titre from normal of 1:8 is raised to 1:4096.

The disease runs its course in 2-4 weeks and there is seldom any complication.

129) Beefy red tongue is seen in

- a) cobalamine deficiency
- b) riboflavin deficiency
- c) folic acid deficiency
- d) scarlet fever

ans) cobalamine deficiency

ref-- shafer 4th ed 721

Expln—

Oral manifestation :- glossitis is one of the more common symptoms of vit.B12 deficiency i.e **cyanocobalamin deficiency**. The patients complain of painful and burning lingual sensations.

The tongue is generally inflamed, often described as “beefy red” in colour, either in entirety or in patches scattered over the dorsum and lateral borders.

Guys..please be thorough with tongue and its pathology....its asked in every exam...!!

130) Tooth with abnormal curvature

- a) fusion
- b) **concrecence**
- c) gemination
- d) dilaceration

ans) dilaceration

ref—shafer 4th ed pg 40

expln—

Dilaceration is a developmental disturbance in shape of teeth. It refers to an angulation, or a sharp bend or curve, in the root or crown of a formed tooth.

The condition is thought to be due to trauma during the period in which tooth is forming.

The result is that the position of the calcified portion of the tooth is changed and the remainder of the tooth is formed at an angle.

The curve or bend may occur anywhere along the length of the tooth, sometimes at the cervical portion, at other times midway along the root or even just at the apex of the root, depending upon the amount of root formed when the injury occurred.

Such an injury to a permanent tooth, resulting in dilaceration, often follows traumatic injury to the deciduous predecessor in which that tooth is driven apically into the jaw.

131) Pigmentation is seen in all except

- a) peutz jegers syndrome
- b) addison's disease
- c) cushing's syndrome
- d) Albright syndrome

Ans) cushings syndrome

Repeat from AIPG 2007

Ref— burket 10th ed pg 132-33

Expln—

Peutz jeghers syndrome-- shows a characteristic oral pigmentation, which is usually pathognomic . multiple focal, melanotic , brown macules are concentrated around the lips. These can also be seen on fingers, hands, anterior tongue, buccal mucosa and mucosal surface of lips.

Addison's syndrome—bronze pigmentation of skin and ink thrown upon the palate are characteristic pigmentations **seen in this syndrome**.

Albrights syndrome—is a very serious form of fibrous dysplasia that nearly involves all bones in the skelton, skin pigementations and endocrinopathies.

Shafer 3rd ed pg 664 describes cushing syndrome as a manifestin with a buffalo hump at the base of neck, alternation in hair distribution, dusky plethoric appearance with purple striae, muscular weakness, hypertension , albuminuria and glycosuria not controlled by insulin.

So according to shafer pigmentation doesn't appear to be a very prominent feature of cushing. Hence the answer of choice.

132) osteitis fibrosa cystica is

- a) Hyperparathyroidism
- b) Paget's disease
- c) Fibrous dysplasia
- d) Cherubism

Ans) hyperparathyroidism

Ref—shafer 4th ed 659

Expln—

Osteitis fibrosa cystica also known as **osteitis fibrosa**, **osteodystrophia fibrosa**, or **Von Recklinghausen's disease of bone**) is a skeletal disorder caused by a surplus of parathyroid hormone from over-active parathyroid glands. This surplus stimulates the activity of osteoclasts, cells that break down bone, in a process known as osteoclastic bone resorption. The over-activity of the parathyroid glands, or hyperparathyroidism, can be triggered by parathyroid adenoma, hereditary factors, parathyroid carcinoma, or renal osteodystrophy. Osteoclastic bone resorption releases minerals, including calcium, from the bone into the bloodstream. In addition to elevated blood calcium levels, over-activity of this process results in a loss of bone mass, a weakening of the bones as their calcified supporting structures are replaced with fibrous tissue (peritrabecular fibrosis), and the formation of cyst-like brown tumors in and around the bone. The symptoms of the disease are the consequences of both the general softening of the bones and the excess calcium in the blood, and include bone fractures, kidney stones, nausea, appetite loss, and weight loss.

133) Persistence of tubercular impar results in

- a) median rhomboid glossitis
- b) geographic tongue
- c) fissured tongue
- d) lingual thyroid

ans)) median rhomboid glossitis

ref—shafer 4th ed 26

expln—

Median rhomboid glossitis is a condition characterized by a shiny oval or diamond-shaped elevation, invariably situated on the dorsum of the tongue in the midline immediately in front of the circumvallate papillae.

It is classified as a congenital abnormality, which is due to failure of retraction of tubercular impar before fusion of lateral halves of the tongue, so that a structure devoid of papillae is interposed between them.

Occurs more frequently in men than in women.

134) Taurodontism is seen in

- a) klinefelter's syndrome
- b) turners syndrome
- c) **sturge weber syndrome**
- d) down's syndrome

ans) klinefelter's syndrome.

Ref—shafer 4th ed pg 43

Expln—

Taurodontism is a condition found in molar teeth where the body of the tooth and pulp chamber is enlarged vertically at the expense of the roots. As a result, the floor of the pulp and the furcation of the tooth is moved apically down the root. The underlying mechanism of taurodontism is the failure or late invagination of Hertwig's root sheath, which is responsible for root formation and shaping causing an apical shift of the root furcation. The constriction at the amelocemental junction is usually reduced or absent. Taurodontism is most commonly found in permanent dentition although the term is traditionally applied to molar teeth. In some cases taurodontism seems to follow an autosomal dominant type of inheritance. Taurodontism is found in association with amelogenesis imperfecta , ectodermal dysplasia and tricho-dento-osseous syndrome. The term means "bull like" teeth derived from similarity of these teeth to those of ungulate or cud-chewing animals.

According to Shaw these can be classified as hypotaurodont, hypertaurodont and mesotaurodont.

According to Mangion taurodontism may be:

1. A retrograde character
2. A primitive pattern
3. Mendelian recessive character
4. Atavistic feature
5. A mutation

The condition is of anthropological importance as it was seen in Neanderthals. It has also been reported in Klinefelter's syndrome. The teeth involved are invariably molars, sometimes single and at the other times multiple teeth may be involved. The teeth themselves may look normal and do not have any particular anatomical character on clinical examination.

On a dental radiograph, the involved tooth looks rectangular in shape without apical taper. The pulp chamber is extremely large and the furcations may be only a few millimeters long at times.

135) Feature of acanthosis nigricans is

- a) insulinoma , obesity & cutaneous hypopigmentation
- b) insulin resistance, obesity, cutaneous hyperpigmentation
- c) thickening of spinous layer, insulin resistance, obesity
- d) thickening of spinous layer, insulin resistance, lean

ans) insulin resistance, obesity, cutaneous hyperpigmentation

ref— shafer 4th ed 827

expln—

Acanthosis nigricans is a brown to black, poorly defined, *velvety hyperpigmentation* of the skin. It is usually found in body folds, such as the posterior and lateral folds of the neck, the axilla, groin, umbilicus, forehead, and other areas.

It typically occurs in individuals younger than age 40, may be genetically inherited, and is associated *with obesity* or endocrinopathies, such as hypothyroidism or hyperthyroidism, acromegaly, polycystic ovary disease, insulin-resistant diabetes, or Cushing's disease.

ORAL RADIOLOGY

136) Cotton wool appearance of bone is a radiographic feature of

- a) fibrous cortical defect
- b) multiple myeloma
- c) fibrous dysplasia
- d) Paget's disease

ans) Paget's disease.

Repeat AIPG 2007

Ref—shafer 5th ed pg 1005

Expln—

RADIOGRAPHIC FEATURE OF PAGET'S DISEASE.

Pagets disease has been described as disorder characterized by an initial phase of deossification and softening followed by a bizzare dysplastic type of re-ossification not **related to functional** requirements.

The isolated lesion in the skull when large, is sometimes called as “osteoporosis circumscripta”.

More characteristic feature is the finding of normal trabecultion and the appearance of irregular osteoblastic activity , giving rise to typical “cotton wool” appearance.

HISTOLOGICALLY

Jig saw..or ..mosaic pattern is seen.

137) Cementosis is commonly seen in

- a) females in maxilla
- b) females in mandible
- c) males in maxilla
- d) males in mandible.

Ans) females in mandible

Repeat from AIPG 2007

Ref—shafer 4th ed 297

Expln—

CEMENTOSIS means PERIAPICAL CEMENTAL DYSPLASIA..i.e PCD
RADIOGRAPHIC FEATURES ARE

The epicenter of PCD usually lies at the apex of the tooth.

*This condition has high predilection for the periapical bone of mandibular anterior teeth.
Also it is more prevalent in females than in males.*

The teeth are essentially vital and a pulp vitality test can be used to differentiate it from periapical pathosis.

138) Most common primary bone tumour is

- a) multiple myeloma
- b) osteosarcoma
- c) ewings sarcoma
- d) chondrosarcoma

ans) multiple myeloma

REFER THE NEXT QUESTION **FOR EXPLANATION.**

139) Multiple punched out radiolucencies is a part of

- a) multiple myeloma
- b) thalessemia
- c) fibrous dysplasia
- d) ewing's sarcoma

ans) multiple myeloma

repeat from AIPG 2007

ref—Shafer 3rd ed pg 191-93
 expln—

Somehow this question is such a favorite of examiners that it is asked in almost every exam.

The most common primary malignancy of bone is multiple myeloma..its given in ROBBINS and harrison.

Also called as plasmacytoma

Shows characteristic numerous, sharply, PUNCHED OUT , regular, radiolucent lesions, commonly seen in skull radiographs.

The lesion commonly involves vertebrae, ribs , skull, jaws and ends of long bones.

Similar but IRREGULAR punched out lesions are seen in EOSINOPHILIC GRANULOMA.

Bence – jones proteins are found in urine of 60-85% of the patients.

This protein is also seen in polycythemia and leukemia.

HISTOLOGICAL FEATURES

It includes closely packed round or ovoid cells with eccentrically placed nuclei exhibiting chromatin clumping in a “ cart wheel” or “ checker board pattern”.

Russel bodies are also seen in this lesion.

Treatment of choice is chemotherapy combined with radiotherapy.

Infection, anemia , kidney failure are the most common causes of death.

140) Campbells lines are seen in **which view**

- a) transorbital
- b) transpharyngeal
- c) occipitomenal
- d) transcranial.

Ans) occipitomenal

Repeat from AIPG 2007

Ref—various internet sources

Expln—

McGregor and Campbell's lines

Are seen in occipitomenal view / Para nasal sinus view.

First line

Path from the zygomatico-frontal suture to superior orbital margin across the glabella region to the superior orbital margin and the zygomatico-frontal suture of the other side.

Second line

from zygomatico tubercle to continuous line of zygomatic arch till it blends into zygomatic bone and the line continuous along inferior orbital margin , across the frontal process of maxilla and lateral wall of nose through septum and then same courses on the opposite side.

Third line

From condyle across the mandibular notch, coronoid process of the mandible to lateral wall of the antrum and continuous through the medial wall of the antrum or lateral wall of the nose at the nasal floor level and same course on the opposite side.

Fourth line

Occlusal curve of the unilateral arches.

Fifth line.

Lower border of the mandible from one angle to other side angle.

141) The radiographic view of choice for diagnosing horizontally favorable/ unfavorable fracture is

- a) OPG
- b) occlusal
- c) lateral oblique view
- d) transpharyngeal

ans) lateral oblique view

repeat from AIPG 2007

ref-- white and pharoh 5th ed pg 211

Expln—

STRUCTURE	BEST VIEW
Fracture of zygomatic arch	Submandibular
Base of skull	Submandibular
Fracture of zygoma	Water's view
Max. Sinus	Water's view
Nasal septum Nasal fracture	Water's view True lateral.
Condylar neck fracture	Reverse townes's
Medially displaced condylar fracture	PA view
Mid mandibular ramus to condylar apex	Transpharyngeal view
Coronoid process of mandible	PA view of skull
Fracture of ramus of body of mandible	Lateral oblique 15 ⁰
HORIZONTALLY FAVORABLE AND UNFAVORABLE FRACTURE OF MANDIBLE	Lateral oblique 30 ⁰
Bony ankyloses of TMJ	CT scan
Fibrous ankyloses of TMJ	MRI
Lateral derangement of disc	MRI
Disk perforation.	Arthrography

142) The radiographic view for nasal fracture is

- a) true lateral
- b) lateral oblique
- c) PA view
- d) OPG

Ans) true lateral

REPEAT FROM 2007 AIPG

Refer the above question for explanation.

143) Moth eaten appearance is characteristic of

- a) chondrosarcoma
- b) ewings sarcoma
- c) chronic osteomyelitis
- d) fibrous dysplasia

ans) chronic osteomyelitis

ref—white and pharoh 4th ed 350-351

expln-

In acute osteomyelitis little or no radiographic features are seen for atleast one or two weeks.

Later diffuse lytic changes in the bone begin to appear.

Individual trabacular bone fuzzy and indistinct and radiolucent areas begin to appear.

In earlier stages of chronic ostiomyelitis, mottled appearances is seen in radiographs.

In established cases “ moth eaten appearance” is seen because of enlargement of medullary spaces and widening of wolkmann’s canals.

144) The cyst which is found at the junction of globular process, the lateral nasal process and the maxillary process is

- a) naso-alveolar cyst
- b) globulomaxillary cyst
- c) naso-palatine cyst
- d) mid-palatine cyst.

Ans) naso-alveolar cyst.

Repeat from AIPG 2007

Ref—shafer 5th ed 88-92

Expln—

YES!! This is the answer..please don't confuse yourself with gobulomaxillary cyst...coz The gobulomaxillary cyst is found at the junction of the **MEDIAN** nasal process, and maxillary process, the globulomaxillary fissure and between incisor and the cuspid teeth.. While,

The nasoalveolar cyst is found at the **LATERAL** nasal process(given in shafer 5th ed 88-92) , globular process and the maxillary process..

So guys, reading each and every word is the key in solving AIPG and preventing suicidal blunders....afterall an MDS seat is at stake!!!

Please be thorough with the theory of other options as well from shafer.

145) Which of the following is least ionizing?

- a) radiography
- b) MRI
- C) CT scan
- d) bone scan

ans) MRI

REPEAT FROM AIPG 2007

ref-- white and pharoh 5th ed 149

Expln-

MRI--- uses a magnetic field and radiofrequency pulses rather than ionizing radiations to produce multiple digital image slices.

Rest all other options utilize ionizing radiations..among them bone scan produces highest exposure to the patient.

146) The radiographic appearance of ossifying fibroma is

- a) multilocular and radiolucent
- b) multilocular and radioopaque
- c) unilocular and radioopaque
- d) unilocular and radiolucent

ans) all can be answers...it is a controversial question..

REPEAT FROM AIPG 2007

THE QUESTION IS INCOMPLETE COZ THE EXAMINERS HAVE NOT SPECIFIED THE STAGE OF THE LESION and each and every option is true for a certain stage...

ref—shafer 5th ed 183

expln—

It has extremely varying feature on a radiograph.

These features depend upon the stage of its development.

Yet, despite its stage of development it is always well circumscribed.

In early stages, it paradoxically appears as a radiolucent area with an evidence of internal radioopacities.

As the tumour matures, the radiolucent areas become flecked with opacities until, the lesion appears uniformly radioopaque mass.

i wrote unilocular and radioopaque...u can choose your own...

147) Vertical angulation of a bite wing radiograph is

- a) 5° downwards
- b) 5° upwards
- c) 10° downwards
- d) 10° upwards

ans) **C** 10° downwards

repeat from AIPG 2007

ref—WHITE AND PHAROAH 5TH ED 149

expln—

vertical bitewing films are generally used when the patient have moderate to extensive alveolar bone loss.

The principles of orientations and positioning the film for X ray are similar to horizontal bitewing projections.

The aiming cylinder is positioned about +10° (downwards) to project the beam parallel with the occlusal plane.

This minimises the probability of detecting early occlusal lesions at the DEJ.

148) and 149) In paralleling technique , a long cone open ended cylinder OR a greater focal spot distance is used in order to

- a) increase apparent size of the focal spot.
- b) to prevent distraction (distortion) of image.
- c) to prevent magnification / elongation of image
- d) to prevent shortening of image.

Ans) to prevent magnification / elongation of image.

REPEAT FROM AIPG 2007

THIS QUESITON WAS REPEATED TWICE IN EXAM

Ref- white and pharoh 5th ed 123

Now, guys i know many would have thought why is the answer not “ to prevent distortion of image”...for them..

the textbook mentions that long cone cylinder is used to prevent mamgnification of image...

This question and the options are a direct pick from national boards..clinical sciences and it was a repeat from KARNATAKA 2004 PAPER where the key was “ to prevent magnification of the image.”

So i hope i rest all ur doubts about this one.

Paralleling technique is called as right angle or long cone technique.

In this the X ray film is supported parallel to the teeth and the central ray of the X ray beam is directed at right angles to the teeth and the film.

The use of long source to object distance reduces the apparent size of the focal spot.

These factors results in less magnification and increased definition.

150) Most radioresistant cells are

- a) Spermatogenic and oocytes
- b) Nerve, muscle and erythrocytes.
- c) Nerve, connective tissue and cartilage
- d) Lymphocytes and connective tissue.

Ans) nerve, muscle and erythrocytes.

Ref—white and pharoah 5th ed 30-31

Expln—

french radiologists BERGONIE AND TRIBONDEAU in 1906 , observed that the most radiosensitive cells are those that

- have high mitotic rate
- undergo many future mitosis
- are most primitive in differentiation.

These findings are still true except for lymphocytes and oocytes, which are RADIOSENSITIVE even though they are highly differentiated and non- dividing.

Mamalian cells can be divided into 5 categories.

1) *Vegetative intermitotic cells.*

These are most rediosensitive.

Eg:- spermatogenic or erythtoblastic series and basal cells of oral mucous membrane.

2) *Diffenrentiating intermitoitic cells.*

Somewhat less radiosensitive.

Eg:- intermediate dividing and replicating cells of inner enamel epithelium of developing teeth, cells of haematopoietic series that are in intermediate stages of differentiation, spermatocytes and oocytes.

3) *Multipotential connective tissue cells.*

Have intermediate radiosensitivity.

Show limited differentiation.

Eg:- vascular endothelial cells, fibroblast and mesenchymal cells.

4) *Reverting post-mitotic cells.*

Generally radioresistant.

Eg:- acinar and ductal cells of salivary glands, pancreas, parenchymal cells of liver, kidney and thyroid.

5) *Fixed post mitotic cells.*

Most resistant to direct effects of radiation.

Eg:- neurons, **striated muscle** cells, differentiated squamous epithelial cells close to the surface of oral mucous membrane and erythrocytes. (hence the answer).

OPERATIVE DENTISTRY

151) Odontoblasts regenerate in

- a) 15days
- b) 1 week
- c) 4 weeks
- d) 30 days

ans) 15days

Repeat from AIPG 2007

Ref-- STURDEVANT 4th ed 773

Expln—

In about 15 days, new odontoblasts differentiate from mesenchymal cells of the pulp, and these replacement odontoblasts lay down reparative dentin.

Guys, also got through the types of dentin on page 26 and their histologic features....its been a hot topic for examiners in past 2 yrs..

152) Percentage of NaOCl present in Carisolv?

- a) 5-7%
- b) 0.5-1%
- c) 1-1.5%
- d) 1.5-2%

ans) **B**) 0.5-1%

ref—British dental journal 2000: 188:427-430.

Expln—

CARISOLV

It consists of lysine, leucine and glutamic acid.

It is composed of two solutions

Solution A- red gel

It consists of 0.1 M amino acids (L- glutamic acid, L-leucine and L-lysine), NaCl, NaOH, erythrosine and purified water.

Solution B- clear liquid

It consists 0.5% W/V NaOCl. The two separate gels, which has been stored at 48°C before use, were allowed to return to room temperature prior to use.

Its resultant pH is 11 and application time is 30-60 seconds.

CARIDEX

IT is N-monochloro-DL- 2-aminobutyric acid (NMAB)

COMPOSITION – solution 1 (dilute DL-2 amino butyric acid)

Solution 2 (sodium hypochlorite in weak alkaline solution)

Its resultant pH is 12, and application time is 20 minutes.

153) Burs can be autoclaved by

- a) 2% sodium nitrite
- b) 2% sodium nitrate
- c) 2% potassium nitrate
- d) 4% sodium nitrate.

Ans) 2% sodium NITRITE

REPEAT FROM AIPG 2007

Ref—sturdevant 4th ed pg 372

Expln—

For autoclave sterilization, burs can be protected by keeping them submerged in a small amount of 2% sodium nitrite solution.

154) A man presents with medium sized class I cavity which is the best restoration of choice

- a) Amalgam
- b) Gold Foil
- c) Ceramic Inlay
- d) Composite Inlay

ans) amalgam

ref—sturdevant 4th ed pg 656

expln—

amalgam is most appropriately considered for

- 1) Moderate to large class I and class II restorations.(especially including those with heavy occlusion, that cannot be isolated well, or that extend onto the root surface)
- 2) Class V restorations (including those that are not esthetically critical, cannot be well isolated or are located entirely on the root surface)
- 3) Temporary caries control restorations (including those teeth that are badly broken down and require subsequent assessment of puplal health before a definitive restoration).

Class I direct gold restorations are one option for the treatment small carious lesions in pits and fissures of most posterior teeth and lingual surfaces of anterior teeth.—sturdevant 4th ed 878.

So though the text mentions both as options, i choose amalgam. You can choose your own.

155) Which of the following is most caries promoting?

- a) Sucrose
- b) Fructose
- c) Lactose
- d) Glucose.

Ans) sucrose.

REPEAT FROM AIPG 2008

Ref—clinical pedodontics—FINN 4TH 479

Expln—sucrose has been indicated as the *ARCH CRIMINAL* of dental caries because of its wide dietary usage in large amounts and its reported ability to support growth and proliferation of cariogenic bacteria more efficiently than any other known dietary ingredient. Hence the answer of choice.

156) Corrosion in high copper amalgam except

- a) Chemical
- b) Electrochemical
- c) Penetrating
- d) Corrosion does not occur.

Ans) penetrating.

REPEAT FROM AIPG 2008

Ref—Sturdevant 4th ed 153,154

Expln—both low and high copper amalgam undergo two types of corrosion i.e chemical and electrochemical

Penetrating corrosion is attributed to gamma two phase.(which is absent in high copper amalgam---hence the answer).

This phase is more prone to corrosion in clinical restorations , a process that proceeds from the outside of the amalgam , along the crystals , connecting to new crystals at intercrystalline contacts.

It generates a porous and spongy amalgam with minimal mechanical resistance.

157) In self threaded pins, the pin hole is smaller than pin channel by:

- a) 0.001 inch
- b) 0.002 inch
- c) 0.003 inch
- d) 0.004 inch

Ans) 0.004

Ref--- ramya raghu pg 257

Expln—

Self threaded pins were developed by Dr. Going in 1966.

The pins are 0.0015-0.004 larger than the pin channels and therefore retained by elasticity of dentin.

There are several styles of self- threaded pins. One popular variety is thread mate system(TMS) pins.

Cemented pins have diameters from 0.018-0.30

Friction locked pins are 0.001” larger than the pin channels.

158) which amongst the following is not used for sterilization of handpiece

- a) ethylene oxide
- b) chemical vapour
- c) autoclave
- d) dry heat

ans) chemical vapour.

ref—ramya raghu 169-171

expln—

Autoclave

- 1) most rapid and effective means of sterilization. Method of choice for sterilization of handpiece.—pg 169.
- 2) Provides excellent penetration of packages.
- 3) Corrosion if carbon steel instruments (antirust agent may be used to prevent them).

Dry heat sterilization

- 1) burs and carbon steel instruments do not rust if they are well dried before sterilization.
- 2) Heat sensitive items like rubber or plastics may be damaged.
- 3) The instrument should be wrapped lightly in aluminium foil.

Ethylene oxide sterilization

- 1) Most gentle for sensitive equipment like handpieces.
- 2) Operate effectively at low temperature.
- 3) High cost, prolonged time.

- 4) It has potentially mutagenic and carcinogenic.

Chemical vapour pressure sterilization/ chemiclave.

- 1) Rapid and efficient cycle time.
- 2) Handpieces cannot be sterilized by this method.—ramya raghu pg 170.

159) What is the limit of eccentricity of an air rotor bur, beyond which it stops working

- a) 0.001mm
- b) 0.002mm
- c) 0.003mm
- d) 0.004mm

Ans) 0.003mm

Ref—<http://jada.highwire.org/cgi/content/full/132/4/517>

Eccentricity is the linear displacement of the bur when operated without load at the recommended air pressure. Linear displacement refers to the distance that the bur wobbles during operation of the handpiece. The limit for eccentricity is 30 micrometers (i.e 0.003mm), according to ISO 7785.1.

Other important notes:-

The power of a handpiece can be described as the ability to remove tooth structure, which is a function of torque and turbine speed (Leonard and Charlton¹). High-speed airturbine handpieces are designed to operate at free-running speeds in excess of 300,000 rpm (revolutions per minute). The power can range from approximately 9 to 15 watts. Handpieces operating below 5 watts are compromised in their ability to remove tooth structure.

The maximum noise generated should not exceed 80 dB on the A-weighted scale according to ISO 7785.1. Increasing torque and decreasing turbine speed can reduce noise levels.

The ADA Acceptance Program Guidelines for High-Speed Handpieces state that handpieces that bear the Seal of Acceptance must demonstrate the capability of withstanding a minimum of 250 sterilization cycles without significant deterioration of performance. Deterioration of performance is described as a 20 percent reduction in speed, light output or sound level. Because the repeated sterilizations take a toll on the performance of high-speed handpieces, it is critical to follow the manufacturer's instructions for lubrication and routine care.

ENDODONTICS

160) Which of the following properties have almost similar size at the tip?

- a) S1-Sx
- b) S2-F1
- c) S1-S2
- d) S2-Sx

ans) S2-F1
ref—INGLE 5th ed pg 544

this topic is important and a little complicated...so i have tried to simplify for your understanding.

PROTAPER.

THERE ARE TWO TYPES OF FILES IN PROTAPER—HAND INSTRUMENTATION.

Shaping and finishing.

Shaping files are further divided into—

Sx
S1
S2

Sx has D_0 (DIAMETER AT TIP) -----→ 0.19mm
 D_2 (diameter at 9.0mm)-----→ 1.1mm

S1 has D_0 -----→ 0.17mm

D_2 -----→ 1.2mm

S2 has D_0 -----→ 0.20 mm

D_2 -----→ 1.2mm

Finishing files are

F1 , F2, F3

F1 has D_0 -----→0.20mm (it has a taper of 7% i.e 0.07)

F2 has D_0 -----→ 0.25mm (it has a taper of 8% i.e 0.08)

F3 has D_0 -----→ 0.30mm (it has a taper of 9% i.e 0.09)

So guys, u can see that that diameter at D_0 is same for S2 AND F1...hence the answer...

Please memorize these values by heart, **as even** AIPG 09 had a question on these values...and this seems to be the hot topic among examiners...

161) The most important criteria for success of irrigation in root canal is

- a) volume of irrigation
- b) type of irrigant
- c) concentration of irrigant
- d) none

ans) volume of irrigant

REPEAT FROM AIPG 2007

ref—grossman 11th ed 187

expln—irrigation

it is the most neglected phase of endodontic treatment.

A principle of surgery is that before a wound is ready for disinfection all necrotic material and debris must be removed.

During and following cleaning, shaping the canal should be irrigated to wash out fragments of pulp tissue and dentinal shavings that have accumulated.

Much debris and organic tissue which are removed by the flushing action of irrigating solution that is used.

162) size of ultrasonic tip scaler used to remove dentinal obstructions is

- a) CPP1
- b) CPR 2 & 3
- c) CPR 4 & 5
- d) CPR 2

Ans) CPR 2

Expln--

Function and Uses:

CPR instruments have been designed to function on most brands of Piezo-Electric type dental ultrasonic Scalers that use a M3x0.6 thread.

The operator should be aware that ultrasonic tips

with small diameters are subject to breakage at any time.

All CPR instruments incorporate a contra-angled shape allowing for improvement in procedural access for both anterior and posterior teeth. This is the same design found in virtually all dental instruments as well as ultrasonic tips for scaling and periodontal use. The following are guidelines for the various uses of CPR Instruments.

CPR-1 Intensity Setting – Medium to High.

The CPR-1 can be used to safely remove a variety of posts retained with various cementing agents. The CPR-1 is activated and placed directly on the post and moved circumferentially around for approximately 10 minutes. If this does not loosen and free the post then move to an alternate method. If using a post removal system or steiglitz pliers you may place the CPR-1 tip directly on device. This transfers vibration to the post that aids in the post loosening process. This process is called “indirect ultrasonics”.

CAUTION! DO NOT PLACE THE CPR-1 DIRECTLY ON A CERAMIC CROWN OR BRIDGE. The CPR-1 should be placed 2-3mm above the metal margin to vibrate it loose. It may cause severe damage to the prosthesis if placed directly on ceramics.

CPR-2D Intensity Setting – Medium to High

The CPR-2 is an all-purpose, tapered instrument used primarily within the pulp chamber. The CPR-2 is used for eliminating pulp stones, removing dentin, trephine around obstructions within the pulp chamber and locating hidden orifices, such as MB2 systems. The CPR-2 can also be used to safely and efficiently remove restorative materials and amalgams, and is capable of eliminating materials extending below the orifice.

CPR-3D – CPR-5D Intensity Setting – Low

Due to their small cross sectional diameters and lengths, the 3-5 tips must be used on very low power. It is not necessary to apply force to the instruments as the diamond coating will aggressively remove dentin and debris along the lateral sides of the tips.

CPR's 3, 4, and 5 are used in the coronal, middle and apical one-thirds of roots. Each instrument gets progressively smaller in the cross-sectional diameter and longer in overall length. The three sizes allow the clinician greater control as the instruments are selected according to safe access and depth of the procedure. Uses include: Trephine around posts, chasing calcified canals, eliminating brick-hard paste-type material, broken instrument removal, and other intra-canal obstructions.

CPR-6 – CPR-8 Intensity Setting – Low

The CPR 6, 7, and 8 ultrasonic instruments have a smaller cross-sectional diameter compared to the CPR3, 4, and 5. The instruments are made of titanium alloy, not NiTi. They will hold a bend if applied forcefully. The titanium alloy results in a smoother cutting action with less chatter, thereby increasing tactile sense. They are generally used in the mid and apical portion of the root with illumination and magnification. These instruments are end cutting only and are commonly used to ditch around broken files, aiding in their removal.

Sterilization Instructions – Ultrasonic Tips

Instruments must be cleaned and sterilized before each use.

1. Pre-clean using a high quality pH neutral ultrasonic solution.
2. Dry thoroughly with a towel and compressed air.
3. Place instrument in sterilization bag avoiding contact with other instruments.
4. Operate sterilization cycle according to the instructions for your brand and model, but not less than 135° C for 3 minutes in an autoclave, or

190° C for dry heat.

5. Allow instruments to cool to room temperature before use.

163) What is the Ph of set MTA

- a) 12.5
- b) 14
- c) 10
- d) 8

ans) 12.5

ref—ingle 5th ed pg 705

Expln—

1) The tissue reaction to implanted **MTA was the most favorable** observed at both implantation sites; in every specimen, it was **free of inflammation**.

2) Mineral trioxide aggregate was also the material most often observed with direct bone apposition.

3) Mineral trioxide aggregate was developed by Torabinejad and his associates at Loma Linda University.

4) The main molecules present in MTA are calcium and phosphorous ions, derived primarily from tricalcium silicate, tricalcium aluminate, tricalcium oxide, and silicate oxide.

5) Its pH, when set, is 12.5 and its setting time is 2 hours and 45 minutes.

6) The compressive strength of MTA is reported to be 40 MPa immediately after setting and increases to 70 MPa after 21 days.

7) Mineral trioxide aggregate has been extensively evaluated for microleakage (dye penetration, fluid filtration, bacterial leakage), marginal adaptation (SEM), and biocompatibility (cytotoxicity, tissue implantation, and in vivo animal histology).

8) The **sealing ability of MTA** has been shown to be **superior to that of Super-EBA** and was not adversely affected by blood contamination.

Its marginal adaptation was shown to be better than amalgam, IRM, or Super-EBA. Mineral trioxide aggregate has also been shown to be **less cytotoxic than amalgam, IRM, or Super-EBA.**

Animal usage tests in which MTA and other commonly used root-end filling material were compared have resulted in less observed inflammation and better healing with MTA.(hence the material of choice)

In addition, **with MTA, new cementum was observed being deposited on the surface of the material.**

Usage in some clinical cases

Pulp capping

In case of mechanical exposure that occurs during cavity preparation and not a pathological exposure due to caries . Proper isolation should be done using a rubber dam and cotton pellet. Disinfection of the cavity with sodium hypochlorite. then application of MTA over the exposure area. restoration of the cavity with amalgam or composite is done. MTA provides a higher incidence and faster rate of reparative dentin formation without the pulpal inflammation.(hence the material of choice for pulp capping, apexification, root end filling)

Internal and external root resorption

In internal resorption... root canal therapy is performed, putty mixture of MTA is inserted in the canal using gutta percha. The MTA will provide structure and strength to the tooth by replacing the resorbed tooth structure. In external resorption... after root canal therapy is performed. Flap is done over the tooth and remove the defect on the root surface with a round bur. Application of MTA to the root surface.

Lateral or furcation perforation

Lateral perforation occurs due to wrong direction of instrumentation during cleaning & shaping of the canal. If it accidentally happened... . finish cleaning & shaping of the canal , irrigate the canal with sodium hypochlorite to disinfect it and dry it with a paper point. When the perforation occurs at the furcation (between roots) area... it also can be fixed by using MTA material . the perforation can be sealed with MTA mixture. Make sure that you can locate the canal while the MTA has not set and remove the excess material from the area. Close the tooth as above and do the root canal the next visit.

Apexification

When the root is not completely formed ... in case of vital pulp: 1. Isolate the tooth with a rubber dam 2. Perform a pulpotomy procedure. 3. Place the MTA over the pulp and close the tooth with temporary cement until the apex is completely formed.

In case of non-vital pulp: 1. Isolate the tooth with a rubber dam 2. perform root canal treatment. 3. Mix the MTA and plug it down to the apex of the tooth, creating a 2 mm thickness of plug. 5. Wait for it to set; then fill in the canal with cement and gutta percha.

164) Root end filling material of choice

- a) super EBA
- b) MTA
- c) Amalgam
- d) ZOE

Ans) MTA

Refer the above explanaiton.

165) Not true about virulence of endodontic microflora is

- a) endotoxin
- b) exotoxin
- c) bacterial enzymes
- d) microbial interferences

ans) exotoxin

ref--

<http://books.google.co.in/books?ei=yoevS8SMOITDrAeRkPWmAQ&ct=result&q=exotoxins&btnG=Search+Books>

<http://www.pua.edu.eg/PUASite/uploads/file/Dentistry/fall2009/RDE421/6-1-2010/ENDODONTIC%20MICROBIOLOGY,%20pharos%202009.pdf>

expln—

the microorganisms in root canal samples from deciduous as well as permanent teeth predominantly the same bacteria as found in dental plaque, periodontal pockets and carious lesions. the majority of isolates in initial cultures are obligate anaerobic bacteria.

Direct tissue damage is caused by proteases, cytotoxic metabolites and lipopolysaccharide endotoxins of gram negative bacteria. These agents act as antigenic and toxic compounds, which cause inflammation and bone resorption.

Bacteria exert its virulence through

Lipopolysaccharides exert numerous biologic functions when released from cells in form of endotoxins. These endotoxins have a capability to diffuse into the dentin. various studies have shown relationship between endotoxins and periapical inflammation.

Extracellular vesicles.

These are produced by gram negative bacteria in form of endotoxins. These vesicles consist of numerous enzymes and toxic products which are responsible for hemagglutination, hemolysis and bacterial adhesion.

Enzymes.

Enzymes produced by bacteria have numerous activities like:-

They help in spread of infection, neutralization of immunoglobulin and the complement component.

Capsules

Other virulent factors like capsules present in gram negative black pigmented bacteria, enable them to avoid phagocytosis.

Most commonly gram positive organisms are found in the root canals, but during infection gram negative and obligate anaerobes have been found in root canals.(microbial interference)

Types of bacteria inside the root canal.

Most commonly seen bacteria in root canals

Streptococci, staphylococcus, gram negative and anaerobic bacteria.

Bacterial mix is present in necrotic pulps.

So, endotoxins, bacterial toxins and microbial interference have been mentioned in above discussion and not exotoxins which are mainly produced by gram positive bacteria..hence the answer of choice by exclusion.

166) File with alternate cutting edge is

- a) real world endo
- b) endotech endodontic instrument
- c) RACE
- d) K-3

Ans) RACE

Ref-- <http://www.scribd.com/doc/7602224/ENDODONTIC-INSTRUMENT>

Expln—

RaCe is an acronym standing for **Reamer with Alternate Cutting Edges**. The cross section of the RaCe instruments is a convex triangle, with the exception of the **two** smallest instruments, #15/02 and #20/02 (taper 02), which both have a square cross-section. Each RaCe instrument has a constant taper throughout the working area, ranging from 02 taper to 10 taper, depending on the instrument. The instrument has a rounded tip and three sharp cutting edges, it is made up of nickel titanium.

These instruments are used with low torque speed of 300-600rpm.

This instrument must never be forced in the canal, manual instruments should be used to negotiate obstacles.

RaCe is recommended to be used with safety memory disks(SMD).

Guys, the AIPG people have focussed their attention on rotary instruments since AIPG2009..and they have asked questions on it every paper ever since then...so be thru with it and do the topic nicely from Ingle and Cohen. But there are a list of few instruments which have not been mentioned in textbooks.

Describing all of them is beyond the scope of this book but i list them here and u people search it on internet.

- 1) Protaper
- 2) Great taper
- 3) Pro file
- 4) Quantec
- 5) Flex master
- 6) K3
- 7) Endosequence

ORTHODONTICS

167) The occipital condyle is represented by the following cephalometric point.

- a) bolton's point
- b) broadbent registration point
- c) basion
- d) articulare

ans) A) bolton's point

Repeat from AIPG 2007

ref—bhalaji-3rd ed-147

expln—

BOLTON'S POINT—the highest point at the post – condylar notch of the occipital bone. Do other landmark points from textbook and be thorough with it.

168) Center of ramus is indicated by which of the following cephalometric point

- a) PM point
- b) ptm
- c) Xi point
- d) bolton's point

ans) Xi point

Repeat from AIPG 2007

ref—gurkeerat singh 1st ed 98

expln—

Xi point---a point located on the geographic center on the ramus

Location of the Xi point is keyed geometrically to PR-OR perpendicular through PT in the following

steps

--by construction of a plane perpendicular to FH plane

--these constructed planes are tangents of points(R1,R2,R3,R4) on borders of the ramus

--these constructed planes form a rectangle enclosing the ramus

--Xi is located in the center of the rectangle at the intersection of the diagonal.

169) If the center of rotation is the tip of the apex, **then the** orthodontic movement which results is

- a) uncontrolled tipping
- b) controlled tipping
- c) torquing
- d) rotation

ans) controlled tipping

Repeat from AIPG 2007

ref—bhalaghi—3rd ed-199

expln—

Tipping

It is a simple type of tooth movement, where a single force is applied to the crown which results in the movement of the crown in the direction of the force and the root in the opposite direction.

Its of two types

CONTROLLED TIPPING—occurs when the tooth tips about a **CENTER OF ROTATION AT THE APEX**.

Here there is lingual movement of the crown with minimum movement of the root in the labial direction.

UNCONTROLLED TIPPING—the movement of the tooth that occurs about a center of a rotation apical to and very close to center of resistance. It is characterized by the crown moving in one direction and the root in another.

170) Dontrix gauge is used to

- a) measure strength of wire
- b) measure force
- c) measure wire distortion
- d) measure wire deformation

ans) measure force

Repeat from AIPG 2007

ref—www.gacintl.com, begg orthodontic theory and technique by begg and kesling.
Expln—

Dontrix gauge is a precision instrument designed to accurately measure the forces used in orthodontics.

It measures the forces of the coil springs and elastics up to 16ounces

171) In normal edge and centroid relationship

- a) edge and centroid are in one plane
- b) edge is in front of centroid
- c) edge is behind centroid
- d) none of the above

ans) edge is front of the centroid

Repeat from AIPG 2007

ref—textbook of orthodontics by Houston, Stephens-2nd 102-103

expln—

edge—is the tip of the crown of the most prominent lower incisor

centroid—mid point of the root axis of the most prominent upper incisor

it is measured as the distance between the perpendicular projections of lower incisor edge and

centroid of the upper incisor root on maxillary plane.

Edge –centroid relation on different malocclusions—

CLASS I

Interincisal angle is normal

Lower incisor edge lies in advance of upper incisor centroid.

CLASS 2 DIV 1

Interincisal angle is decreased because of maxillary incisor protrusion

Lower incisor edge lies in line with or behind the upper incisor centroid.

CLASS 2 DIV 2

Interincisal angle is increased

Lower incisor edge lies behind the upper incisor centroid.

SIGNIFICANCE

This relationship is closely associated with the overbite depth in that the further behind the centroid the lower edge lies, the deeper the overbite is liable to be, except of course if the overbite is incomplete.

This relationship allows for the influence on the incisor relationship of both the skeletal pattern and the lower dentoalveolar compensataion.

172) Which of the following bones are used for determination of growth pattern in an individual?

- a) clavical
- b) capitate
- c) cervical vertebrae
- d) mandible

ans) cervical vertebrae

Repeat from AIPG 2007

ref—balajhi 3rd ed- 171

expln—

skeletal maturation using cervical vertebrae

Hasse and Farman developed this system

The shapes of different vertebrae were seen to differ at each level of skeletal development.

This provides a means to determine the skeletal maturity of a person and thereby determine the

possibility of potential growth existed.

The shapes of the vertebral bodies of C3 and C4 **changed** from somewhat wedge shaped to rectangular to square.

They became taller as the maturity progresses.

Among the wrist bones only sesamoid can be used **to** determine the skeletal maturity system.

Clavical is the first bone to calcify so completes its ossification at a very early age so cannot be used.

Mandible is the second bone to calcify so also cannot be used to indicate skeletal maturity.

173) The point which changes with the orthodontic treatment is

- a) gonion
- b) nasion
- c) Point A
- d) porion

ans) Point A

Repeat form AIPG 2007

Expln--

all options except point A are skeletal points, which cannot be changed by dental i.e orthodontic movements.

The remaining points can be changed by orthopedic forces and not by orthodontic forces.

174) During which orthodontic tooth movement center of rotation is at the bracket slot?

- a) controlled movement
- b) torque
- c) rotation
- d) translation

ans) torque

Repeat form may aiims dental 2008

ref—3rd ed bhalajhi 197

expln—

In torquing :- center of rotation is at the incisal edge.

In controlled tipping:- center of rotation is at the root apex.

In uncontrolled tipping:- center of rotation is away from the root apex.

In intrusion or extrusion:- center of rotation is outside the tooth.

In translation:-the center of rotation is infinity.

175) The most common cause of anterior cross bite is

- a) premature exfoliation of primary tooth
- b) over retained anterior primary teeth.
- c) habits
- d) supernumery teeth.

Ans) over retained anterior primary teeth

Repeat from AIPG 2007

ref—Damle 2nd 131

expln—

Anterior cross bite

Seen most of the times in relation to central incisors and usually affects a single tooth.

Mostly associated with an over retained deciduous primary central incisor i.e an anterior tooth.

Correction of it can be done on status of eruption.

Tongue blade therapy

Catalan's appliance

Springs in removable orthodontic appliance.

PEDODONTICS

176) The minimum incidence of cleft palate is seen in the following

- a) mongoloid
- b) afghans
- c) negroes
- d) south americans

ans) negroes

Repeat from AIPG 2007

ref—bhalajhi 3rd 439

expln—

INCIDENCE OF CLEFT LIP AND PALATE

The incidence is found different among different races.

The negroid race has the least 1:2000

Mongoloids have the highest incidence.

Cleft lip is common among males

Cleft palate is more common in females.

Cleft lip more common on left side.

177) The most common type of epilepsy in children is

- a) grand mal epilepsy
- b) infantile spasm
- c) petit mal
- d) none of the above.

Ans) petit mal

Repeat from AIPG 2007

ref—harrison 16th ed 2858

expln—

Absence seizures usually begin in childhood ages 4-8 yrs and are the main seizures in childhood.

Absence seizures are also called as PETIT MAL SEIZURES.

These seizures are prevalent in children and last for ½ min. (KDT 5TH ed)

There is momentary loss of consciousness, patient apparently freezes and stares in one direction, no

muscular movement or little bilateral jerking may be present.

178) 1st sign after formocresol therapy failure is

- a) internal resorption
- b) pain
- c) external resorption
- d) bleeding

ans) pain

Guys, i don't have a direct reference for this.

But internal and external resorption though present in formocresol failure therapy (as give in cohen), can be diagnosed and seen on radiograph, The patient can present with a complaint of only pain and hence my answer of choice..

You can choose your own.

179) The approximate time in which ferric sulphate dampened in a cotton pellet is put to the root stump is

- a) 10-14 secs
- b) 30-60 secs
- c) 5 mins
- d) 10 mins

Ans) 10-14 secs.

Ref-- <http://www.ncbi.nlm.nih.gov/pubmed/12870985>

Shobha tendon 1st ed 347

Expln—

Ferric sulphate

Ferric sulphate is applied for 15 secs and it forms a metal protein clot at the surface of the pulp stump and this acts a barrier to irritating components of the sub-base.

Ferric sulphate showed similar clinical and radiographic success rate as a pulpotomy agent for primary molar teeth after long term evaluation period, compared with formocresol. Ferric sulphate, because of its lower toxicity, may become a replacement for formocresol in primary molar teeth.

180) Best revascularization is when the root is treated with

- a) Doxycycline
- b) Ledermix
- c) amoxicillin
- d) declomethasone.

Ans) doxycycline.

Ref-- <http://www.aapd.org/upload/articles/Lee-23-04.pdf>

Expln--

Cvek and colleagues⁶ demonstrated that immature teeth soaked **in Doxycycline** solution have a greater rate of pulpal revascularization. It appears that antibiotic treatment reduces the chances of micro-abscesses in the pulpal lumen and this enhancement aids revascularization. based on these findings it is recommended that immature teeth should be soaked in a 1% Doxycycline solution for five minutes. 1% Doxycycline solution can be prepared as follows: 1 mg/20 ml Doxycycline solution or 50 mg/Doxycycline capsule/1000 ml saline.

Preserving the periodontal ligament attachment apparatus

Immediate replantation after avulsion is the best option for the preservation of the attachment apparatus because this prevents dessication of the periodontal ligament cells leading to their death. Because immediate replantation is often not practical, it should be stored in HBSS or milk.

The condemned periodontal ligament

While revascularization is not essential for the long-term success of the replanted avulsed tooth, maintenance of the periodontal ligament is essential for long-term success and the

clinician must pay careful attention to this detail. This decision analysis focuses on extraoral time and storage conditions, both of which have been shown to be critical for the success of replantation.

When a tooth has been out of the oral cavity for greater than 60 minutes with dry storage, the periodontal ligament has no chance of survival. When such a tooth is replanted it will undergo replacement resorption and over time it will become ankylosed. The ankylosed tooth will be lost ultimately because osseous tissue will replace cementum and the root structure will be replaced by bone.

Although ankylosis is an unfortunate outcome for a replanted avulsed tooth, an ankylosed tooth is often a desirable outcome as a transitional circumstance for a child or adolescent. Therefore, for the tooth that has been out of the oral cavity for greater than 60 minutes with dry storage, the goal is to delay ankylosis for as long as possible. To slow the ankylosis process, the remaining periodontal ligament should be removed because it acts as a stimulus for inflammation. The remaining ligament is removed by scaling and root planing or by soaking the tooth in citric acid for three minutes to debride the remaining ligament.

Following periodontal ligament debridement, the tooth should be soaked in fluoride (APF or NaF) for 20 minutes.

181) Epilepsy with absence of jerks and seizures is

- a) Petit mal
- b) Tonic clonic
- c) Atonic aclonic
- d) Grandmal epilepsy

Ans) petit mal

Ref—refer question 177 also.

wikipedia

Expln--

Absence seizures are one of several kinds of seizures. These seizures are sometimes referred to as **petit mal seizures** (from the French for "little illness", a term dating from the late 1700s).

In **absence seizures**, the person may appear to be staring into space with or without jerking or twitching movements of the eye muscles. These periods last for seconds, or even tens of seconds. Those experiencing absence seizures sometimes move from one location to another without any purpose. Under normal circumstances thalamocortical oscillations maintain normal consciousness of an individual, however in certain circumstances the normal pattern can become disrupted; thereby leading to an episode of absence.

Absence seizures may occur in several forms of epilepsy. Absence epilepsy refers to epilepsy in which the only seizures are absence seizures. Absence epilepsy is often characterized by age of onset, e.g., childhood absence epilepsy for epilepsy beginning in childhood between the ages of 4 and 12. Absence seizures may also continue to adolescence or even adulthood. Some people are diagnosed with absence epilepsy in their

teens. Absence epilepsy has also been termed **pyknolepsy** (from the Greek "pyknos", meaning closely packed, dense, or aggregated); that term was commonly used in early 20th century German psychiatry.

The primary goal of treatment of recurrent absence seizures is to prevent accidental injury that may occur through the lapses of consciousness that accompany seizures. For those with frequent seizures, treatment also seeks to prevent them from interfering with learning or other activities of daily life.

The purpose of medication of absence seizures is to accomplish the goals above, by eliminating or reducing the frequency of the absence seizures, without causing side-effects more serious than the epilepsy itself.

Medications

Certain anticonvulsant drugs are used to minimize the number of seizure episodes. Absence seizures appear to respond well to sodium valproate, ethosuximide, and lamotrigine.

PERIODONTOLOGY

182) Which of the following hematological disease is associated with periodontitis.

- a) AIDS
- b) wegener's granulomatosis
- c) hypophosphatasia
- d) peutz-jegher's syndrome

ans) AIDS

REPEAT FROM AIPG 2007
AND FROM AIPG QUESTION BANK.

Ref—Carranza 9th ed 90,221,423,424.

Expln--

AIDS elevates the risk for development of severe periodontitis. AIDS is caused by HIV and is characterized by destruction of lymphocytes , rendering the patients susceptible to opportunistic infections, including destructive periodontal lesions and malignancies.

ADDITIONAL POINTS TO REMEMBER

Hypophosphatemia:- causes gingivitis (shafer 4th ed 645)

Wegener's granulomatosis is a rare disease characterized by acute granulomatous necrotising lesions of respiratory tract, nasal and oral defects.

The initial manifestations of this disease may involve gingival enlargement.

183) Dendritic cells located in the basal layer are

- a) merkel cells
- b) basket cells
- c) melanocytes
- d) plasma cells

ans) melanocytes.

Repeat from AIPG 2007 AND FROM AIPG

QUESTION BANK.

Expln—

MELANOCYTES

--dendritic cells located in the basal and spinous layer of the epithelium.
They synthesize melanin in organelles called premelanosomes.

LANGERHANS CELLS

Dendritic cells located at suprabasal layers.
Considered as macrophage with antigenic property
Absent in junctional epithelium of normal gingival.

MERKEL CELLS

Located in deep layer of epithelium
They serve as tactile receptors.

184) Width of the attached gingiva is least in

- a) maxillary central incisor
- b) maxillary 1st premolar
- c) mandibular 1st premolar
- d) mandibular central incisor.

Ans) mandibular 1st premolar

Repeat from AIPG 2007 AND AIPG

QUESTION BANK.

Width of the attached gingiva is greatest at the incisor region.

Maxilla	3.5-4.5mm
Mandible	3.3-3.9mm

Least width in the 1st premolar region

Maxilla	1.9mm
Mandible	1.8mm

Width of the attached gingiva increases with age and in supraerupted tooth.

185) in gingivitis the role of immunoglobulins is consistent with increase in the number of

- a) fibroblsts
- b) neutrophills
- c) lymphocytes
- d) plasma cells

ans) plasma cells

repeat from AIPG 2007

ref— refer the next question for explanation.

186) Plasma cells are present in which stage of gingivitis.

- a) type I
- b) type II
- c) type III
- d) type IV

ans) type III

repeat from AIPG 2007 AND AIPG QUESTION

BANK.

Ref-- CARRANZA 9TH ED 264-266

Expln—

A key feature that differentiates the established lesion (type III) is the increase in the number of plasma cells, which become the preponderant inflammatory cell type. Plasma cells invade the connective tissue not only immediately below the junctional epithelium, but also deep into the connective tissue around blood vessels, and between bundles of collagen fibres. The predominance of plasma cells is a primary characteristic of the established lesion. Plasma cells are concerned with production of immunoglobulins.

187) the advantage of the modified widman flap procedure includes the following except

- a) adaptation of the healthy tissue to the tooth surface
- b) post operative interproximal architecture is normal
- c) the procedure is feasible when implantation of bone is contemplated
- d) conservation of bone and optimal coverage of root surfaces by the soft tissues.

Ans) post operative interpxoximal architecture is normal.

Ref—Carranza 9th ed pg 775

FROM AIPG QUESTION BANK

Expln—

Modified widman flap was described by ramfjord and nissle in 1974.

This technique offers the possibility of an intimate postoperative adaptation of healthy callagenous connective tissue to tooth surfaces and provides access for adequate instrumentation of the root surface and for immediate closure of the area.

Bone architecture is not corrected except if it prevents good tissue adaptation to the necks of the teeth(i.e it ensures conservation of bone) every effort is made to adapt the facial and lingual interproximal tissue adjacent to each other in such a way that no interproximal bone remains exposed at time of suturing.

Healing after flap surgery.

Loss of bone occurs in the initial stages of both radicular bone and in interdental bone areas. However in interdental areas which have cancellous bone, the subsequent repair stage results in total restitution without any loss of bone, whereas in radicular bone particularly if thin and unsupported by cancellous bone, bone repair results in loss of marginal bone.==Carranza 9th ed pg 773.

So by exclusion option “ post operative interproximal architecute is normal” becomes the answer.

188) Indications for mucogingival surgery includes the following except

- a) a shallow vestibule
- b) insufficient attached gingiva
- c) infrabony pocket
- d) a high frenum attachment.

Ans) infrabony pocket.

From AIPG question bank.

ref—carranza 9th ed 854 / 10th ed 1008

Expln—

the following are the mucogingival (plastic) surgical techniques.

- 1) Techniques of increasing the width of attached gingiva.
Eg:- free gingival grafts, apically displaced flap.
- 2) Techniques for coverage of denuded roots.
Eg:- laterally displaced pedicle graft, coronally displaced flap, free gingival graft etc.
- 3) Techniques to deepen the vestibule.
Eg:- free autogenous graft.
- 4) Techniques for removal of frenum.

For infrabony pocket, flap surgery is required not mucogingival surgery.

189) Following a flap procedure, pressure is applied to the tissues for one minute in order to

- a) achieve hemostasis
- b) facilitate suturing
- c) reduce post operative swelling /edema
- d) adapt the tissues against the bone.

Ans) adapt the tissues against the bone.

TAKEN FROM AIPG QUESTION BANK

Ref—still searching.

This question is a direct pick up from aipg question bank where the answer is “ to adapt the tissues against bone”.

So the answer of choice.

190) bone blending is a technique employed for

- a) transplanting cortical bone
- b) transplanting cancellous bone
- c) transplanting a mix of cancellous bone and hydroxyapatite crystals.
- d) transplanting resorbable hydroxyapatite crystals only.

Ans) transplanting cortical bone.

TAKEN FROM AIPG QUESTION BANK.

Ref--Carranza 9th ed 796

Expln—

Bone blending is a step of osseous reshaping technique, is an extension of vertical grooving. It is an attempt to gradualize the bone over the entire radicular area to provide best results from vertical grooving. This provides a smooth, blended surface for good flap adaptation.

Since this procedure is carried out as an osteoplasty procedure, it is entirely on the alveolar bone and since alveolar bone is composed of cortical bone—(Orban's 12th ed 201)..transplanting cortical bone becomes the answer of choice.

191) the reverse bevel incision is made to

- a) allow atraumatic reflection of the gingival margin
- b) remove the infected tissue in the sulcus.
- c) provide access to the alveolar crest.
- d) all of the above.

Ans) remove the infected tissue in the sulcus.

TAKEN FROM AIPG QUESTION BANK.

Ref—Carranza 9th ed pg 765

Expln--

The internal bevel incision –the first incision(also called as reverse bevel incision, since the blade to tissue angle is the reverse of the gingivectomy- is designed to thin the tissues internally, leaving the surface keratinisation intact- just the opposite of gingivectomy.)

The internal bevel incision accomplishes three important objectives.

- 1) It removes the pocket lining.(infected tissue in the sulcus)
- 2) It conserves the relatively uninvolved outer surface of the gingival.
- 3) It produces sharp, thin flap margin for adaptation to the bone- tooth junction.

To cover the other types of incision is beyond the scope of this book...so open Carranza and be thorough with it.

192) In children below 5 yrs of age the most common cause of gingivitis is

- a) local irritating factor
- b) herpes
- c) vitamine deficiency
- d) trauma

ans) local irritating factor

ref—Carranza 9th ed 309

expln—

chronic marginal gingivitis is the most prevalent type of gingival change in childhood.

The gingival exhibits all the changes in color, size, consistency and surface texture characteristic of chronic inflammation.

In children, as in adults, the cause of gingivitis is plaque, local conditions such as material alba and poor oral hygiene favour its accumulation.—carranza 9th ed 310

Since plaque is a local irritating factor..it is my answer of choice.

193) As compared to adult tooth brush the child tooth brush should have

- a) soft bristles
- b) small head size
- c) less tufts of bristles
- d) small size of handle.

ans) small head size

TAKEN FROM AIPG QUESTION BANK

Expln—

The key in the question bank has given small head size as an answer.

Logically too this should be the answer..i don't have a reference ..but i marked the same.

194) feature of aging periodontium

- a) Increased cellularity
- b) Increased cell size
- c) Increased cell number
- d) Scalloping of cementum & alveolar bone surface

Ans) Scalloping of cementum & alveolar bone surface

Ref—Carranza 9th ed

Expln—with aging there is decreased number of fibroblasts, decreased organic matrix production. (so the options increased cellularity and increased cell number and increase cell size are ruled out).

Although cementum has limited capacity for remodelling, an accumulation of resorption bays explains the finding of increasing surface irregularity.

Regarding alveolar bone, aging results in more irregular periodontal surface of bone and less regular insertion of collagen fibres.

195) Dental plaque adheres to the tooth surface by

- a) bacteria
- b) sucrose
- c) dextran
- d) epithelial cells

ans) dextran

ref—Carranza 9th ed 97.

dental plaque can be defined as the soft deposits that form the biofilm adhering to the tooth surface or other hard surfaces in the oral cavity , including removable and fixed restorations.

Plaque consists of microorganisms and extracellular matrix.

The microorganisms that form the biofilm are mainly Streptococcus mutans (**which synthesizes insoluble dextran form carbohydrates by means of which plaque adheres to tooth surface**) and anaerobes, with the composition varying by location in the mouth. Examples of such anaerobes include fusobacterium and Actinobacteria.

The extracellular matrix contains proteins, long chain polysaccharides and lipids.

The microorganisms present in dental plaque are all naturally present in the oral cavity, and are normally harmless. However, failure to remove plaque by regular tooth brushing means that they are allowed to build up in a thick layer. Those microorganisms nearest the tooth surface convert to anaerobic respiration; it is in this state that they start to produce acids.

- Acids released from dental plaque lead to demineralization of the adjacent tooth surface, and consequently to dental caries. Saliva is also unable to penetrate the

build-up of plaque and thus cannot act to neutralize the acid produced by the bacteria and remineralize the tooth surface.

- They also cause irritation of the gums around the teeth that could lead to gingivitis, periodontal disease and tooth loss.
- Plaque build up can also become mineralized and form calculus (tartar).

ORAL SURGERY

196) Last choice of local anaesthesia

- a) intrapulpal
- b) intraligamentary
- c) intraosseous
- d) infiltration

ans) intrapulpal

ref--ingle 5th ed 390

malamed 4th ed pg 229.

expln--

Intraosseous (IO) Anesthesia.

Experience with the intraosseous technique has shown that the perforation of the interproximal bone is usually entirely atraumatic.

This technique can provide anaesthesia to a single tooth or multiple teeth in a quadrant.

Areas anesthetized –bone soft tissue, root structure in the area.

In true IO anesthesia, local anesthetic is injected directly into the bone surrounding the root of a tooth.

Conceptually the IO injection is quite simple: the impediment to local anesthetic diffusion through bone in the adult mandible is the thickness of the cortical plate.

Intrapulpal Anesthesia.

Indications—when pain control is required for pulpal extirpation or other endodontic **treatment in the absence of adequate anesthesia form other techniques.---****malamed 4th ed pg 229**

When the pulp chamber has been exposed and, because of exquisite sensitivity, treatment cannot proceed, intrapulpal anesthesia should be considered.

With the increased interest in the very successful IO technique, however, the need for intrapulpal anesthesia should diminish.—ingle 5th ed 390

Areas anesthetized—tissues within the injected area.

Disadvantage—traumatic, bitter taste if leakage occurs, may be difficult to enter root canals.

So though i did not get a direct reference mentioning as to which technique should be used last, going by the above discussion i choose intrapulpal as my answer.

197) Feature of Ludwig's angina is

- a) raised tongue
- b) trismus
- c) elevation of ear lobe
- d) infection in mandibular 1st molar.

ans) raised tongue

ref—neelima malik 1st ed 582

expln--

Ludwig's angina, otherwise known as **angina ludovici**, is a serious, potentially life-threatening infection of the tissues of the floor of the mouth, usually occurring in adults with concomitant dental infections. It is named after the German physician, who first described this condition in 1836. Other names include "angina Maligna" and "Morbus Strangularis

(in odontogenic cause, the most common teeth involved are mandibular second and third molars)

The symptoms include swelling, pain and raising of the tongue, swelling of the neck and the tissues of the submandibular and sublingual spaces, malaise, (difficulty swallowing) and, in severe cases, or difficulty breathing. Swelling of the submandibular and/or sublingual spaces are distinctive in that they are hard and classically 'boardlike'.

Important signs include the patient not being able to swallow his/her own saliva and the presence of audible stridor as these strongly suggest that airway compromise is imminent.

Treatment

Treatment involves appropriate antibiotic medications, monitoring and protection of the airway in severe cases, and, where appropriate, urgent maxillo-facial and/or consultation to incise and drain the collections.

198) Technique 2 block mental, incisive, mylohyoid n lingual nerves in a patient with trismus

- a) akinosi technique
- b) gowgates technique
- c) incisive nerve block
- d) maxillary nerve block.

Ans) akinosi technique.

Ref—malamed 4th ed pg

Expln—

Gow- gates technique cannot be used as mouth has to be kept wide open in order to give anesthesia which is not possible in case of trismus.

Dr. Joseph Akinosi reperted on a closed mouth approach to mandibular anesthesia. The primary indication of this technique is in those situations in which limited mandibular opening precludes the use of other mandibular injection techniques. For eg. Trismus.

Nerves anesthetized

Inferior alveolar

Incisive

Mental

Lingual

Mylohyoid.

Areas anesthetized

- 1) Mandibular teeth to midline.
- 2) Body of mandible and inferior portion of the ramus.
- 3) Buccal mucoperiosteum and mucous membrane in front of the mental foramen.
- 4) Anterior two thirds of the tongue and floor of the oral cavity (lingual nerve)

- 5) Lingual soft tissues and periosteum.(lingual nerve)

Indications

- 1) Limited mandibular opening
- 2) Multiple procedure on mandibular teeth
- 3) Inability to visualize landmarks for IANB.

199) The average time for distraction osteogenesis after surgery is

- a) 4-6 weeks
- b) 5-7 days
- c) 2-3 months
- d) 10-12 months

Ans) 5-7 days

Ref—

<http://www.uihealthcare.com/topics/medicaldepartments/dentistry/distraction/index.html>

Distraction osteogenesis, also called **callus distraction**, **callotaxis** and **osteodistraction** is a surgical process used to reconstruct skeletal deformities and lengthen the long bones of the body. A corticotomy is used to fracture the bone into two segments, and the two bone ends of the bone are gradually moved apart during the distraction phase, allowing new bone to form in the gap. When the desired or possible length is reached, a *consolidation phase* follows in which the bone is allowed to keep healing. Distraction osteogenesis has the benefit of simultaneously increasing bone length and the volume of surrounding soft tissues.

After completion of surgery , the device will be activated between 2 and 5 days after surgery. The patient will be closely monitored during the active phase of distraction with follow-up every 3 to 5 days. After the completion of the distraction, the patient is seen every 1 or 2 weeks during the retention phase of treatment...and then monthly for 3 to 6 months.

200) Ankylosis in growing child is treated

- a) Wait till growth ends
- b) Gap arthroplasty
- c) Slowly opening the jaw
- d) Gap arthroplasty with condylectomy

Ans) **D)** gap arthroplasty with condylectomy.

Ref—neelima malik 1st ed pg 210

Expln—

The treatment of TMJ ankylosis is always surgical. Early surgical correction of the ankylosed joint is highly desirable, if satisfactory function is to be regained.

Condylectomy is advocated in cases of ankylosis, after which the site of fused joint is mobilized, then after recontouring by arthroplasty, an alloplastic material can be used to maintain the joint space, satisfactory occlusion and joint movements.

