

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Q.1) Answer for this question is (d)

Anti VZV antibody

Ref: Nelson 20th /p-1582, Ghai Essential of Pediatrics 8th /p 214,

- Hypoplasia of limb, with chorioretinitis and cerebral atrophy in a newborn suggests **Varicella-Zoster Virus Fetopathy**
- So we should measure Anti VZV antibody.

CHICKEN POX

Epidemiology	<ul style="list-style-type: none"> • Varicella-zoster virus (VZV) causes primary, latent, and recurrent infections.^Q • The primary infection is manifested as varicella (chickenpox) and results in establishment of a lifelong latent infection of sensory ganglion neurons. • Reactivation of the latent infection causes herpes zoster (shingles or Zona)^Q. It is confined to unilateral segment of sensory nerve. Trigeminal N (Ophthalmic branch) is common. Affect Genuiculate ganglia – Ramsay hunt syndrome characterized by- Tetrad of facial Nerve palsy + vesicle on tympanic membrane, External auditory meatus & tongue^Q • Incubation period :2-3 weeks • Man is the only reservoir and transmitted by direct contact ^Q • Air borne infection is much less important.^Q • Period of infectivity: from 24–48 hr before the rash appears and until vesicles are crusted, usually 3–7 days after onset of rash.^Q • Secondary attack rate 65–86% 	
Clinical feature	<ul style="list-style-type: none"> • Rash: appears on 1st day, centripetal pleomorphic , new rash appear for 1-7 days.^Q • 5-10 mm vesiculopapular lesions with erythematous base(dew drops on rose petal) .skin lesions occur in crops for 3-4 days. • Vesicles involve mucosal surfaces.^Q • Histopathologically it causes ballooning degeneration^Q of cells in vesicles • Severity more pronounced in adults, immunocompromised , pregnancy and steroid therapy.^Q 	
Complications:	Cutaneous: <ul style="list-style-type: none"> • The most common infectious complication of varicella is secondary bacterial superinfection of the skin, which is usually caused by streptococcus pyogenes^Q or Staphylococcus aureus • ITP 	Systemic: <ul style="list-style-type: none"> • The most common extracutaneous site of involvement in children is CNS^Q • Acute cerebellar ataxia (most common CNS complication)^Q • GBS^Q • Transverse myelitis^Q • Optic neuritis^Q • Facial nerve palsy^Q • Post chicken pox encephalitis^Q • Pneumonia • Others such as arthritis, hepatitis and glomerulonephritis and Reye syndrome^Q
Treatment:	<ul style="list-style-type: none"> • Varicella pneumonia is the most serious complication following chickenpox in adults^Q • Symptomatic with antipyretic and sedatives.^Q • Aspirin contraindicated due to risk of Rey's syndrome^Q • Acyclovir is recommended in : <ul style="list-style-type: none"> - Children 12 mo of age or older with chronic cutaneous or pulmonary disorders; receiving short-term, intermittent, or Aerosolized corticosteroids or receiving long-term salicylate therapy^Q - Immunocompromised patients - Pneumonia, severe hepatitis, thrombocytopenia or encephalitis 	
Vaccine (VZIG)	<ul style="list-style-type: none"> • Oka strain (live attenuated) ^Q Recommendations for varicella-zoster immune globulin (VZIG)-	

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	<ul style="list-style-type: none"> • Newborns whose mothers develop varicella 5 days before to 2 days after delivery^Q • Every premature infant born to a mother with active chickenpox at delivery (even if present >1 wk)
Breakthrough varicella	is disease that occurs in a person vaccinated more than 42 days before rash onset and is caused by wild-type virus
Perinatal Varicella	<ul style="list-style-type: none"> • Two types of complications depending on the period of gestation • Maternal infection near delivery of pregnancy(mothers develop varicella 5 days before to 2 days after delivery^Q)- Babies may develop Neonatal Chickenpox • Maternal infection during 1st half of pregnancy- Varicella-Zoster Virus Fetopathy

Polycystic Ovary Syndrome (PCOD):At a Glance

- PCOS/PCOD is a syndrome manifested by amenorrhea hirsutism, obesity and enlarged ovaries
- **Besides this - patients of PCOD/PCOS are:** Obese. Have insulin resistance which leads to hyperpigmented velvety patches of skin in nape of neck/ axilla/ below breast or thigh called as acanthosis nigricans and in future patients can develop diabetes.

HAIRAN Syndrome: Hyperandrogenism, Insulin resistance, Acanthosis nigricans

Diagnostic Criteria:

Rotterdam criteria (2003). Any **two** of the following three should be present to diagnose a patient with PCOD. Ovulatory dysfunction such as **oligomenorrhea or amenorrhea**

- Clinical (**hirsutism / acne/alopecia**) or **biochemical evidence of hyperandrogenism**
- **Polycystic ovarian morphology on USG** scan defined as presence of 12 or more cysts (2-9mm) in size in any one ovary or both ovaries with enlarged ovaries (>10ml) and other criterias being excluded (like cushing disease, adrenal hyperplasia)

Hormonal changes in PCOS:

Hormones Increased	Hormones Decreased
<ul style="list-style-type: none"> • Androgens(Testosterone, Androstenedione DHEAS)^Q • Luteinizing hormone(LH > 10 IUI ml)^Q • Estrogen (Estrone > Oestradiol)^Q • Insulin (> 10 m IU / L due to insulin resistance) • Prolactin (in some patients)^Q • LDL/cholesterol and triglycerides 	<ul style="list-style-type: none"> • Follicle stimulating hormone (FSH)^Q • Progesterone (due to^Q anovulation) • Sex hormone binding Globulin^Q • HDL & Apoprotein A-I^Q

Management of PCOD:

Depends on the complain of the patient:

Complaint	Treatment
<ul style="list-style-type: none"> • General 	<ul style="list-style-type: none"> • Weight loss • Cessation of smoking
<ul style="list-style-type: none"> • Obesity 	<ul style="list-style-type: none"> • Life style modifications
<ul style="list-style-type: none"> • Insulin resistance 	<ul style="list-style-type: none"> • Metformin^Q (Can be used in pregnancy also)
<ul style="list-style-type: none"> • Irregular periods 	<ul style="list-style-type: none"> • OCP's
<ul style="list-style-type: none"> • Hirsutism/ acne 	<ul style="list-style-type: none"> • OCP , • Anti androgen drugs <ul style="list-style-type: none"> - Spironolactone^Q - Cyproterone acetate - Finasteride^Q - Flutamide
<ul style="list-style-type: none"> • Infertility 	<ul style="list-style-type: none"> • Ovulation Inducing drugs like clomiphene citrate, letrozole^Q

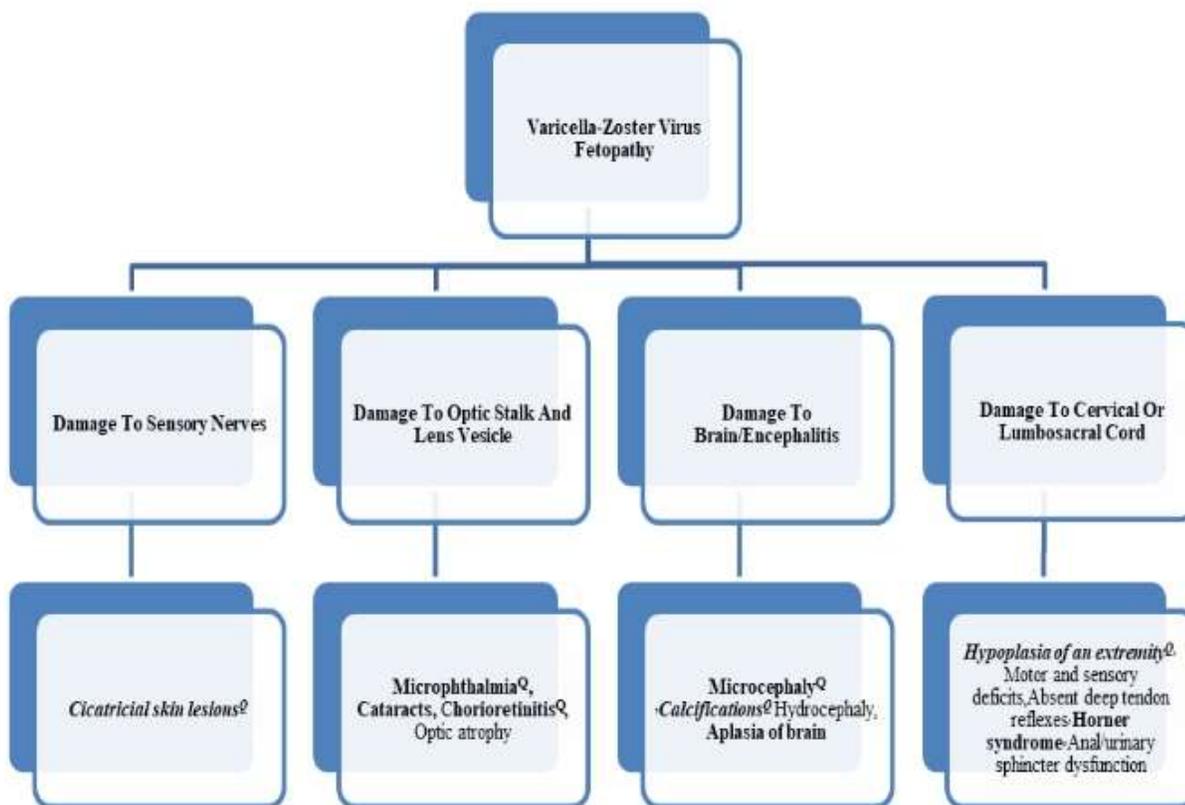
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Surgery for PCOS:

- Reserved for cases not responding to medical therapy
- **Laparoscopic ovarian drilling (LOD) or laparoscopic electrocoagulation of ovarian surface (LEOS)**

-Advantages: no risk of Ovarian hyperstimulation syndrome and multiple pregnancy

- Disadvantages: Risk of premature ovarian failure if excessive ovarian tissue is damaged, and adhesion formation post surgery



Neonatal Chickenpox:

- Infants whose mothers develop varicella in the period from **5 days prior to delivery to 2 days** afterward are at high risk for severe varicella
- **Antiviral treatment** is administered **to children(not to mother)**, only when they develop **neonatal varicella syndrome**
- Newborns whose mothers develop varicella 5 days before to 2 days after delivery should receive 1 vial **varicella-zoster immune globulin (VarizIG)**.^Q
- Clinically apparent disease in the infant is uncommon: up to 2% of fetuses whose mothers had **varicella in the 1st 20 weeks of pregnancy** may demonstrate a **VZV embryopathy**. So **fetopathic effect seen in first and second trimester not in third trimester**

Q.2) Answer for this question is (a)

Deposition of fibrin

Exp:

There may be inconsistent deposition of fibrin called Rohr's stria at the bottom of the intervillous space and surrounding the fastening villi.

Q.3) Answer for this question is (c)

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Tamoxifen

Ref. Shaw's textbook of gynecology 15th ed p 371; Dutta Gynae 6th ed p 470: (Novak 15th/ed p 1076)

Tamoxifen is a SERM used in treatment of breast cancer and has no role in PCOS

Q.4) Answer for this question is (d)

Calcitonin

Exp:

Neither parathormone nor calcitonin crosses the placenta.

Q.5) Answer for this question is (c)

Glycerophospholipids

Exp:

The amnion has got neither blood nor nerve supply nor any lymphatic system. It is a rich source of glycerophospholipids' containing arachidonic acid precursor of prostaglandin E2 and F2a.

Q.6) Answer for this question is (b)

Single 100 microgram dose I.M.

Ref: 1. Text book of Obstetrics, D. C. Dutta -7thed p-412

Carbetocin (long acting oxytocin) 100 microgram is very useful to prevent PPH

- Recently developed with longer half life, used to control postpartum hemorrhage and bleeding after giving birth, particularly following cesarean section.

UTERINE STIMULANTS: (Oxytocic/Abortifacients)

These drugs increase uterine contractions, especially at term. These are:

Hormones of posterior pituitary	Ergot alkaloids	Prostaglandins
<ul style="list-style-type: none"> Oxytocin Desamino-oxytocin (buccal formulation of oxytocin) Carbetocin (longer half life)^Q 	<ul style="list-style-type: none"> Ergometrine (Ergonovine) Mehtylergometrine 	<ul style="list-style-type: none"> PGE2 (dinoprostone)^Q PGF2alpha(dinoprost)^Q 15-methyl PGF2alpha (Carboprost)^Q

Q.7) Answer for this question is (b)

30:2

Component	Adults and Adolescents	Children (Age 1 Year to Puberty)	Infants (Age Less Than 1 Year, Excluding Newborns)	Newborn
Compression-ventilation ratio without advanced airway	1 or 2 rescuers: 30:2	<ul style="list-style-type: none"> 1 rescuer:30:2^Q 2 or more rescuers:15:2^Q 		3:1 ^Q

Q.8) Answer for this question is (b)

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Clarity

Ref: A companion to Fish's psychopathology (by dr. sahur Ameen) p-30

Schneider suggest that there are 3 features of healthy thinking: (COC)

- Constancy,
- Organization, and
- Continuity.

In schizophrenia these normal features change into: transitory thinking (derailment, substitution, and omission), driving thinking (lack of organization), and desultory thinking (sudden ideas forced).

Q.9) Answer for this question is (d)

Determine responsiveness

Exp:

- One cannot automatically assume initially that an individual has had a cardiac or respiratory arrest.
- Therefore, first determine responsiveness by tapping or gently shaking the victim and shouting, "Are you OK?" Then proceed with the ACLS approach.
- Shout or phone for help, then position the victim and yourself.
- Follow this with the ABCDs (establishing the Airway, assessing Breathing, assessing Circulation, and managing any need for Defibrillation).

Q.10) Answer for this question is (a)

Low dose heparin and aspirin

Ref: Harrison, 18th edition, p-2736

Ref: Williams's obs, 23th edition, p-1152

Pathophysiology:

Many patients with lupus have circulating antibodies specifically directed either against phospholipids or against phospholipid-binding proteins such as **β_2 -glycoprotein I (apolipoprotein H)**. Anticardiolipin antibodies apparently bind directly to β_2 -glycoprotein I, and this protein acts as a co-factor in this antigen-antibody reaction.

Antiphospholipid antibody syndrome: Ref: CMDT: 2011, ch-20

Treatment: Antiphospholipid Antibody Syndrome:

- After the first thrombotic event, APS patients should be placed on warfarin for life aiming to achieve an international normalized ratio (INR) ranging from 2.5 to 3.5, alone or in combination with 80 mg of aspirin daily.
- Pregnancy morbidity is prevented by a combination of heparin with aspirin 80 mg daily.
- Intravenous immunoglobulin (IVIg) 400 mg/kg qd for 5 days may also prevent abortions, while glucocorticoids are ineffective.
- Evidence-based treatment of patients with aPL in the absence of any clinical event is not available; however, aspirin 80 mg daily protects patients with SLE positive for aPL antibodies from developing thrombotic events.

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- **Catastrophic APS (CAPS) is defined as a rapidly progress-sive thromboembolic disease involving simultaneously three or more organs, organ systems, or tissues leading to corresponding functional defects.**
- Some patients with APS and patients with CAPS have recurrent thrombotic events despite appropriate anticoagulation. In these cases **IVIg 400 mg/kg qd for 5 days or anti-CD20 monoclonal antibody 375 mg/m² per week for 4 weeks** may be of benefit. Patients with CAPS, who are treated in the intensive care unit, are unable to receive warfarin; in this situation therapeutic doses of low-molecular-weight heparin should be administered.
- In cases of heparin-induced thrombocytopenia and thrombosis syndrome, inhibitors of phospholipid-bound activated factor X (FXa), such as **fondaparinux 7.5 mg SC daily or rivaroxaban 10 mg PO daily** are effective. The above drugs are administered by fixed doses and do not require close monitoring; their safety during the first trimester of pregnancy has not been clearly established.

Q.11) Answer for this question is (c)

Interictal EEG is normal.

Exp:

- Cyanotic spells are more common than pallid spells.
- Oral atropine can be tried in pallid spells which increases the heart rate by anti vagal action.
- Results of interictal EEG are normal in both cyanotic and pallid spells and is used to differentiate with true seizures.

The cry stops in full expiration followed by apnoea.

Q.12) Answer for this question is (a)

Medial circumflex femoral arterie

Ref: Grays Anatomy, 40th ed.p-1436.

Although medial and lateral circumflex arteries at first contribute equally for the supply of femur during childhood; two major branches of the medial circumflex femoral artery provides the final supply in adult life.

Blood supply of the femoral head:	Blood supply of neck of femur:
<p>Derived from an <u>arterial ring around the neck</u> of femur constituted by:</p> <ul style="list-style-type: none"> • Medial and lateral circumflex femoral arteries • Superior and inferior gluteal vessels (minor contributions) <p><u>From this ring</u>, ascending cervical branches ascend the neck and form the retinacular arteries which supply head of femur.^Q</p> <p>Here the vessels are at risk with a displaced fracture of the femoral neck^Q.</p> <p>Interruption of blood supply in this way can lead to avascular necrosis of the femoral head.^Q</p>	<ul style="list-style-type: none"> • The ascending cervical vessels give off metaphyseal branches that enter the neck • In early childhood, branches of the obturator and medial circumflex femoral arteries also contribute • Observations on developmental patterns of supply have revealed that although medial and lateral circumflex arteries at first contribute equally, two major branches of the medial circumflex femoral artery^Q provide the final supply in adult life. The supply from the lateral circumflex diminishes and the arterial ring is interrupted.

Q.13) Answer for this question is (a)

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Zonula adherens

Ref: Textbook of Human Histology by I.B. Singh, 6th edition, p-12. Ganong's Review of medical physiology 25th ed. Page no. 11

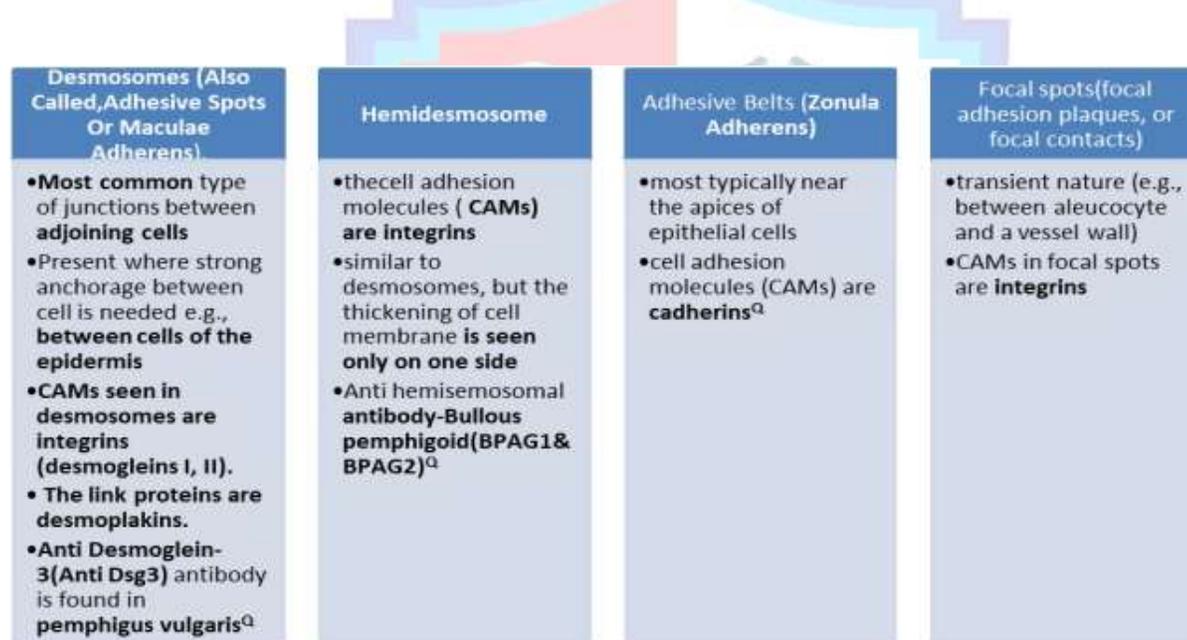
The marked structure is intercalated disc of cardiac muscle.

- Zonula adherens connects epithelial cells. It is not seen in cardiac muscle
- Cardiac muscle cells are connected by- Gap junctions, Macula adherens, Fascia adherens (the structural analog of zonula adherens)

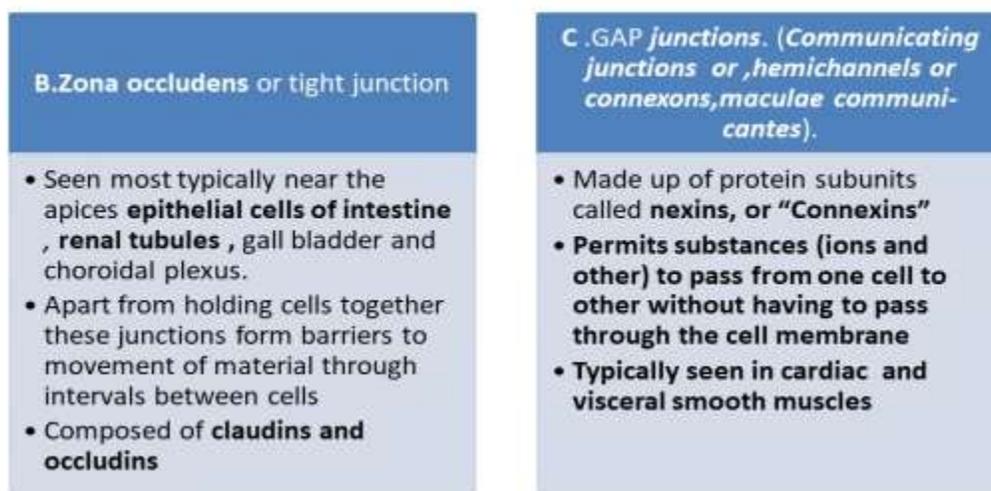
LINKAGE BETWEEN CELLS (INTERCELLULAR JUNCTION):

Specialised junctional structures:

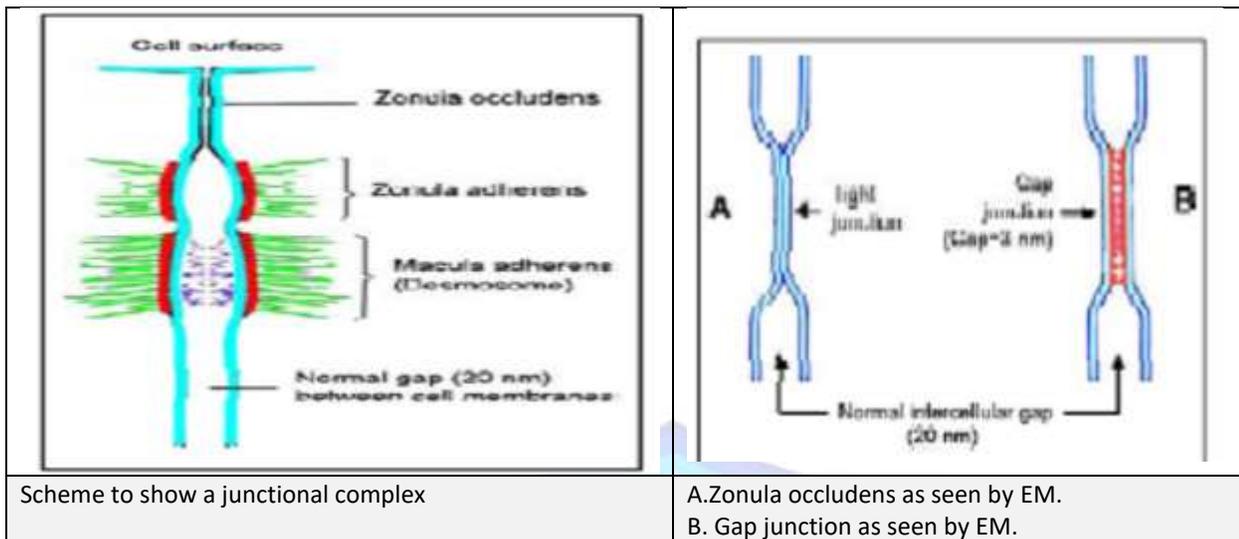
A. Anchoring junctions or adhesive junctions: bind cells together, They can be of the following types.



B. Occluding junctions (zonula occludens or tight junctions) & C. Communicating junctions (or gap junctions).



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Q.14) Answer for this question is (c)

18 kg

Exp:

Ideally weight gain should depend on pre pregnancy body mass index (BMI) level. Weight gain for a woman with normal BMI (20-26) is 11 to 16 kg. An obese woman (BMI > 29) should not gain more than 7 kg, whereas an underweight woman (BMI < 19) may be allowed to gain up to 18 kg.

Q.15) Answer for this question is (a)

High Inguinal Orchidectomy

Ref. Surgery sixer 3'd Page 794

CHEVASSU MANEUVER

- As transcrotal biopsy or FNAC is not advised in testicular cancers due to risk of violating the tumor principle. Biopsy is taken via inguinal approach
- Via inguinal canal cord and testis are exposed
- A soft clamp is applied to the cord at deep ring to prevent dissemination through blood
- Frozen section biopsy taken from that area of suspicion
- If positive high orchidectomy is done. High orchidectomy means removal of cord structures about 2 cm proximal to deep ring along with testis.

Q.16) Answer for this question is (c)

Solid tumors

Exp:

- Lapatinib has dual tyrosine kinase inhibitory properties selective for factors over expressed in some solid tumors.
- Results from preclinical and Phase I/II trials indicate activity in the treatment of solid tumors, especially advanced or metastatic breast cancer.

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- c. Recent advances with anti-angiogenesis therapies and anti-HER2 therapies highlight the next generation of treatments that will be entering clinical practice.
- d. It is used in combination with another drug named capecitabine for treatment of advanced breast cancer.
- e. Lapatinib is an oral receptor tyrosine kinase inhibitor, targeting both the ErbB-1 and ErbB-2 receptors.
- f. Pre-clinical in vitro and in vivo models indicate that lapatinib is active as monotherapy, synergistically in combination with trastuzumab, and in trastuzumab-resistant cell lines.
- g. Early clinical trials also provide evidence in patients that lapatinib is active against breast cancer.
- h. It has a mild adverse effect profile, with the most common adverse events being diarrhea and rash.

Q.17) Answer for this question is (b)

Application of bilateral ankle-foot or toes

Exp:

- a. When spasticity is alleviated by lumbar selective posterior rhizotomy, the resulting limb weakness may cause valgus foot deformities, which are best treated by bracing.
- b. Strength in the limb will return within 1 year of posterior rhizotomy, so further surgery should be deferred for at least 1 year after rhizotomy.

Q.18) Answer for this question is (d)

Negative feedback

Ref: Ganong - Review of Medical Physiology 23rd Ed Page 32

- The increase in plasma insulin lowers the plasma glucose concentration back to normal and is an example of negative feedback. Negative feedback opposes change and results in stability.
- Positive feedback would produce a further increase in plasma glucose concentration.
- In other words, in negative feedback, the stimulus and response are in the opposite direction e.g. if T3 increases (stimulus), the response is decrease in T3 and if T3 decreases, the response is increase in T3. In positive feedback, the stimulus and response are in the same direction.
- Chemical equilibrium indicates a condition in which the rates of reactions in forward and backward directions are equal.
- End-product inhibition occurs when the products of a chemical reaction slow the reaction (for example, by inhibiting an enzyme) that produces them.
- Feed forward control involves a command signal and does not directly sense the regulated variable (plasma glucose concentration).

Q.19) Answer for this question is (c)

Lymphatic penetration

Exp:

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Observe the dotted dimpling on the skin which resembles orange peel, hence the name peau-d-orange. Peau-d-orange is due to cutaneous lymphatic blockage, leading to an appearance like orange skin, this condition is due to lymphatic penetration by tumor cells.

Q.20) Answer for this question is (d)

Constrictive pericarditis

Exp:

A transudate has a low protein concentration (<25 g/l) and can result from a low serum protein concentration, high central venous pressure or portal hypertension. An exudate has a high protein concentration (> 25 g/l). Tuberculous peritonitis, peritoneal malignancy, Budd-Chiari syndrome, pancreatic ascites, chylous ascites and Meigs' syndrome can all give rise to an exudative ascites,

Q.21) Answer for this question is (b)

Less than 0.90

Exp:

- a. The ankle-brachial index is a useful approach for evaluating PAD and is defined as the ratio of noninvasively assessed ankle to brachial (arm) systolic blood pressure.
- b. An ankle-brachial index < 0.90 is considered diagnostic of PAD and is associated with >50% stenosis in at least one major lower limb vessel.

Q.22) Answer for this question is (c)

CB-1 blocker

Exp:

- a. This is a cannabinoid class of CB1 receptor antagonist¹ used in treatment of obesity.
- b. It is the first receptor blocker of its kind to have been given approval in the world.
- c. There is a potential for this drug for smoking cessation as well. Rimonabant is a selective cannabinoid receptor antagonist.
- d. It is indicated in patients with diet and exercises for the treatment of obesity.
- e. Recent data have demonstrated beneficial effects of rimonabant in obesity, smoking cessation, and metabolic syndrome.
- f. Animal studies using rimonabant have shown a positive role for reducing hunger, caloric intake, and body weight and in increasing satiety.
- g. In humans, rimonabant also appears to be effective for smoking cessation.
- h. Nausea has been seen to be most common side effect in clinical trials.
- i. A recent meta-analysis showed that 20 mg of rimonabant may be effective in reducing weight.

Q.23) Answer for this question is (c)

The docking and binding of synaptic vesicles to the presynaptic membrane

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Ref: Ganong - Review of Medical Physiology 23rd Ed Page 87,88

- SNARE (an acronym derived from "SNAP (Soluble NSF Attachment Protein) REceptor") proteins are a large protein superfamily consisting of more than 60 members in yeast and mammalian cells.
- The primary role of SNARE proteins is to mediate vesicle fusion, that is, docking and binding synaptic vesicles to the presynaptic membrane to prepare them for release.
- SNAREs can be divided into two categories: vesicle or v-SNAREs, which are incorporated into the membranes of transport vesicles during budding, and target or t-SNAREs, which are located in the membranes of target compartments.
- Recent classification however takes account of the structural features of the SNARE proteins and divides them into R-SNAREs and Q-SNAREs.
- The best-studied SNAREs are those that mediate docking of synaptic vesicles with the presynaptic membrane. These SNAREs are the targets of the bacterial neurotoxins responsible for botulism and tetanus.

Q.24) Answer for this question is (b)

Aquasomes are being proposed as a carrier system for delivery of peptide based pharmaceuticals.

Aquasomes are most recently developed delivery systems that are making a niche as protein/peptide carriers. They are nanoparticulate carrier systems with three layered self-assembled structures. They are being proposed as a carrier system for delivery of peptide based pharmaceuticals

Q.25) Answer for this question is (d)

Posterior inferior cerebellar artery supplying the cerebellum

Exp:

- The **lateral medullary syndrome (Wallenberg syndrome)** results from occlusion of the posterior inferior cerebellar artery (hence its other name, **PICA syndrome**).
- The signs and symptoms produced are related to the structures of the caudal medulla normally supplied by this vessel.
- These structures include the **vestibular nuclei** (nystagmus, nausea, vomiting, vertigo), **the inferior cerebellar peduncle** (ipsilateral cerebellar signs), **the nucleus ambiguus** (ipsilateral laryngeal, pharyngeal, and palatine paralysis), **the glossopharyngeal nerve roots** (loss of gag reflex), the **vagal nerve roots** (same signs as the nucleus ambiguus), the **spinothalamic tracts** (contralateral loss of pain and temperature sensation from trunk and extremities), the **spinal trigeminal nucleus** (ipsilateral loss of pain and temperature sensation from the face), and the **descending sympathetic tract** (ipsilateral Homer's syndrome), which passes through the lateral aspects of the medulla in the dorsal longitudinal fasciculus.

Note: Wallenberg syndrome is also caused by vertebral artery thrombosis.

Please note PICA is a branch of vertebral artery.

Harrison's says this syndrome is caused by vertebral artery but many of the neuroanatomy books mentioned about it to be caused by PICA. But in the present questions choice D is the best.

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Q.26) Answer for this question is (d)

Abrasion of the face

Exp:

An abrasion on the face is not a grievous injury, rather it is a simple injury. As per Sec. 320 of Grievous Hurt, Grievous injury includes-

- a. Emasculation.
- b. Permanent privation of sight of either eye.
- c. Permanent privation of hearing or either ear.
- d. Privation of any member or joint.
- e. Destruction or permanent impairing of the power of any member or joint.
- f. Permanent disfiguration of the head or face.
- g. Fracture or dislocation of a bone or tooth.
- h. Any hurt (1) which endangers life or (2) which causes the victim to be in severe bodily pain for 20 days or (3) unable to follow his ordinary pursuits for a period of 20 days.

A Simple injury or Slight injury is an injury which is neither extensive nor serious and which heals rapidly without leaving any permanent deformity or disfiguration.

An abrasion heals completely without leaving any deformity or disfiguration on the face and is therefore a simple injury.

Q.27) Answer for this question is (a)

Hydatid cyst

Exp:

- a. Radiographic and related imaging studies are important in detecting and evaluating echinococcal cysts.
- b. Plain films will define pulmonary cysts of *E. granulosus* – usually as rounded masses of uniform density – but may miss cysts in other organs unless there is cyst wall calcification (as occurs in the liver).
- c. MRI, CT, and ultrasound reveal well – defined cysts with thick or thin walls.
- d. When older cysts contain a layer of hydatid sand that is rich in accumulated scolices, these imaging methods may detect this fluid layer of different density Floating 'Water- Lily' sign.
- e. However the most pathognomonic finding, if demonstrable, is that of daughter cysts within the larger cyst.
- f. This finding, like eggshell or mural calcification on CT, is indicative of *E. granulosus* infections and helps to distinguish the cyst from carcinomas, bacterial or amebic liver abscesses, or hemangiomas.

Q.28) Answer for this question is (c)

GIP

Exp:

1. Galanin-like peptide (GALP) is a neuropeptide present in humans and other mammals.
2. It is a 60-amino acid polypeptide produced in the arcuate nucleus of the hypothalamus and the posterior pituitary gland. It is involved in the regulation of appetite and may also have other roles such as in inflammation and stress.

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3. Oxyntomodulin is a naturally occurring 37 amino acid peptide hormone found in the colon, produced by the oxyntic (fundic) cells of the oxyntic (fundic) mucosa. It has been found to suppress appetite. A recent study has found that it can be used as a weight loss treatment.
4. Glucagon-like peptide-1 (GLP-1) is derived from intestinal L cell. The known physiological functions of GLP-1 include:
 - a. Increases insulin secretion from the pancreas in a Glucose-dependent manner.
 - b. Decreases glucagon secretion from the pancreas.
 - c. Increases beta cells mass and insulin gene expression.
 - d. Inhibits acid secretion and gastric emptying in the stomach.
 - e. Decreases food intake by increasing satiety.
 - f. Promote insulin sensitivity
5. GIP is synthesized by K cells, which are found in the mucosa of the duodenum and the jejunum of the gastrointestinal tract. Actions include decrease acid production from stomach & induce insulin secretion. The amount of insulin secreted is greater when glucose is administered orally than intravenously. GIP is also thought to have significant effects on fatty acid metabolism through stimulation of lipoprotein lipase activity in adipocytes

Q.29) Answer for this question is (b)

Prothrombin time

Exp:

Hepatitis in neonate due to specific causes usually is distinguished from the term neonatal hepatitis, which has been used to designate hepatitis inflammation of unknown cause. The levels of serum aminotransferases and Bilirubin are poor predictors of outcome. Because of the short half - life of the coagulation proteins, the prothrombin time (PT) is the **best prognostic indicator**.

Q.30) Answer for this question is (d)

Dermatomyositis

Exp:

- a. Dermatomyositis is an **autoimmune disease** that is one of a group of idiopathic inflammatory myopathies.
- b. The inflammatory myopathies are characterized by immune-mediated inflammation and injury of skeletal muscle and include polymyositis, dermatomyositis, and inclusion-body myositis (**the most common type of myositis in the elderly**).
- c. These disorders are associated with numerous types of autoantibodies, one of which is the **anti-Jo-1 antibody**. The capillaries are the principal target in patients with dermato myositis.
- d. Damage is by complement-mediated cytotoxic antibodies against the microvasculature of skeletal muscle, in addition to proximal muscle weakness, patients typically develop a discoloration around the eye lids with edema.
- e. **Patients may also develop erythema over their knuckles, sign). Histologically** examination of muscles from patients with dermatomyositis reveals perivascular inflammation within the tissue that surrounds muscle fascicles.
- f. In particular inclusion-body myositis is characterized by basophilic granular inclusions around vacuoles (**'rimmed' vacuoles**).

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Q.31) Answer for this question is (c)

Atrial myxoma

Exp:

The LAMB syndrome (lentiginos, atrial myxoma, and blue nevi).

Q.32) Answer for this question is (b)

6 mm

Exp:

- Nuchal pad thickening of fetus of more than or equal to 6 mm at 15 - 20 weeks is considered significant.
- More than 50 % fetuses with nuchal pad thickness of more than 6 mm have chromosomal abnormalities.
- Differential diagnosis includes Trisomy 21, 18, turner's syndrome. Non chromosomal syndromes, and normal (~25%).

Q.33) Answer for this question is (b)

Babcock forceps

Exp:

- The image shows Babcock instrument which is used for grasping tubular structures like fallopian tube in tubectomy in modified Pomeroy's operation or ureter, appendix, etc.
- Babcock Forceps are similar to Allis forceps; however, may be considered less traumatic due to their wider, rounded grasping surface. The jaws are circumferential and the tips are triangular and fenestrated with horizontal serrations.
- They are particularly useful for grasping tube-shaped structures
- The tip is atraumatic as there are no sharp tooth.
- Adson forceps are used for grasping and mainly used for suturing the skin.

Q.34) Answer for this question is (b)

2.3

Ref: Harper's Illustrated Biochemistry 30th /p- 10

Calculation:

Here $[H^+] = 5 \text{ millimoles/L} = 5 \times 10^{-3} \text{ moles/L}$

As we know pH is the negative log of $[H^+]$. $pH = -\log [H^+] = \log 1/[H^+]$

So $pH = \log 1/5 \times 10^{-3} \text{ moles/L} = \log 0.2 + \log 1/10^{-3} = -0.6987 + 3 = 3 - 0.6987 = 2.3$

Also know:

- The **strength of weak acids** is expressed by pKa, the negative log of the acid dissociation constant. Strong acids have low pKa values and weak acids have high pKa values.
- Buffers resist a change in pH when protons are produced or consumed.
- Maximum buffering capacity occurs ± 1 pH unit on either side of pKa.
- The buffering capacity of a buffer is maximum at pH equal to

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- A buffer system is most effective **when the pH of the system** is near its **pka** value.
- Physiologic buffers include bicarbonate, orthophosphate, and proteins.

Q.35) Answer for this question is (a)

Inhaled beta -2 agonists

Exp:

1. Inhaled beta-2 agonists are the drug of choice both for treatment as well as for prevention of an acute attack beta-2 agonists are of 2 types:
 - a. Short acting - Salbutamol
 - b. Long acting - Salmeterol, formoterol
2. Salbutamol is mainly used for aborting an acute attack whereas long acting b2-agonists are used for the prophylaxis of asthma. Inhaled drugs are always preferred over oral drugs as they have:
 - a. Fewer systemic side effects
 - b. Drug directly reaches the site of action
3. Theophylline has low level of safety and is rarely used in pediatric asthma.
4. LT-modifiers are used in pediatric patient more than 6 years of age. Use in children < 6years of age is not recommended.

Q.36) Answer for this question is (c)

Over abdomen

Ref: The Essentials of Forensic Medicine and Toxicology, Dr. Reddy, 28th edition, p-179

Harakiri:

- It is an unusual **type of suicide**, in which the victim inflicts a single large **wound on the abdomen^Q** with a short sword while in sitting position or falls forward upon a ceremonial sword and pulls out intestines.
- The sudden evisceration of the internal organs causes a sudden decrease of intra-abdominal pressure and cardiac return, producing sudden cardiac collapse.

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Q.37) Answer for this question is (a)

Nucleoside analogue

Exp:

- a. It is the water-soluble prodrug and is short acting having half-life of few minutes only.
- b. Nelarabine is a nucleoside analog prodrug of 9-beta-D-arabinofuranosylguanine.
- c. The clearance of drug is higher in children compared to adults. In pediatric and adult patients, neurologic toxicity is dose limiting.
- d. Severe myelosuppression was not consistently observed. Major responses were seen in patients with T-cell malignancies.
- e. Patients who responded had significantly higher intracellular ara-GTP concentrations compared with those who did not respond.

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- f. Nelarabine is indicated for the treatment of adult and pediatric patients with T-cell acute lymphoblastic leukemia or T-cell lymphoblastic lymphoma whose disease has not responded to, or has relapsed after treatment with, at least two chemotherapy regimens.
- g. Nelarabine was granted Orphan Medical Product Status in Europe in June 2005, and accelerated approval by the US FDA in October 2005.
- h. The most common adverse events associated with nelarabine are neurotoxic in nature and have been dose-limiting.

Q.38) Answer for this question is (d)

Argyll-Robertson pupil

Exp:

1. Argyll-Robertson Pupil = Accommodation Reflex Present
2. Causes of myDriasis (Dilated pupil)
 - a. Ho1mes-Adie pupil
 - b. Oculometer nerve palsy
 - c. Traumatic iridoplegia
 - d. Congenital **HOT CP**
 - e. Pheochromocytoma
3. **Drugs causing mydriasis**
 - a. Tropicamide,
 - b. Atropine
 - c. Tricyclic antidepressants **TATA**

Amphetamines

Q.39) Answer for this question is (a)

Distance between two lands of a rifle

Ref: The Essentials of Forensic Medicine and Toxicology, Dr. Reddy, 28th edition, p-184

Calibre or gauge: It is measured by internal dimension of the barrel and is given in decimals of the inch or milli-meter. The dimension of the rifled weapon is measured between **a pair of diametrically opposed lands and not grooves.**

Q.40) Answer for this question is (c)

Glucagon

Exp:

Beta-blocker overdose management: **atropine + glucagon**

Glucagon has a **positive inotropic** action on the heart and decreases renal vascular resistance. It is therefore useful in patients with beta-blocker cardiotoxicity. **Cardiac pacing** should be reserved for patients unresponsive to pharmacological therapy.

Beta-blocker overdose

Features

Bradycardia, Hypotension, Heart failure, Syncope

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Management

- If bradycardic then atropine
- In resistant cases, glucagon may be used

Q.41) Answer for this question is (d)

Haloperidol

Exp:

- Dopamine antagonists are effective in reducing the symptoms of **Tourette's disorder in 60 to 70% of cases.**
- Haloperidol and pimozide are **the most commonly used**, but other antipsychotics including fluphenazine and risperidone have proven to be effective in open clinical trials.
- Clonidine may also be used to avoid the serious side effects associated with the neuroleptics.

Amphetamines, such as methylphenidate, may exacerbate tics.

Q.42) Answer for this question is (b)

Hydrogen sulphide

Exp:

Postmortem Lividity

- The incidence, extent and degree of fixation of postmortem lividity is important.
- In an advanced case of sudden death, it presents as a series of mottled patches over the dependant parts in about 1-3 hours. These patches coalesce in about 3-6 hours. The lividity is fully developed and fixed in about 6-8 hours.
- Lividity will not be seen (1) if the body is constantly altering its position, e.g. drowning (2) if the skin is dark, and (3) if too much blood is lost. e.g. in massive hemorrhage.

The hypostatic areas have distinct colour in certain cases of poisoning:

Hydrogen sulphide	Bluish green
Carbon monoxide	Bright cherry red
Nitrites; potassium chlorate, nitrobenzene, acetanilide, bromates	Chocolate or copper brown
Opium	Almost black
Phosphorus	Dark brown
Potassium cyanide	Pink

Q.43) Answer for this question is (d)

Sphenoid wing meningioma

Exp:

- Foster Kennedy syndrome is characterised by papilloedema in one eye and optic atrophy in the other.
- It results from the simultaneous presence of raised intracranial pressure and optic nerve compression secondary to tumour - classically due to a meningioma of the olfactory groove or more commonly, due to a meningioma of the

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sphenoid wing.

- c. Papilloedema in both eyes is a characteristic feature of raised intracranial pressure caused by the other options given, where compression of the optic nerve is not a feature.

Q.44) Answer for this question is (d)

Delayed aging

Exp:

- The mammalian target of rapamycin (mTOR) is a serine/threonine protein kinase that regulates cell growth, cell proliferation, cell motility, cell survival, protein synthesis, and transcription.
- Function
- Current research indicates that mTOR integrates the input from multiple upstream pathways, including insulin, growth factors (such as IGF-1 and IGF-2), and mitogens.
- mTOR also functions as a sensor of cellular nutrient and energy levels and redox status.
- The dysregulation of the mTOR pathway is implicated as a contributing factor to various human disease processes, especially various types of cancer.
- Rapamycin is a bacterial natural product that can inhibit mTOR through association with its intracellular receptor.
- Cell motility by stimulation of F-actin stress fibers, paxillin
- Decreased TOR activity has been found to slow aging. The mTOR inhibitor rapamycin has been confirmed to increase lifespan in mice.
- mTOR inhibitors are already used in the treatment of transplant rejection

Q.45) Answer for this question is (a)

Malonyl-CoA

Exp:

Carnitine Palmitoyltransferase-I (CPT-I) activity is low in the fed state, leading to depression of fatty acid oxidation and high in starvation, allowing fatty acid oxidation to increase.

Malonyl-CoA, the initial intermediate in fatty acid synthesis is a potent inhibitor of CPT-I.

Q.46) Answer for this question is (d)

Phosphatidate

Exp:

Phosphatidate is a common precursor in the biosynthesis of triacylglycerol, phosphoglyceroyl and cardiolipin.

Q.47) Answer for this question is (a)

Ref: Textbook of Microbiology by Ananthanarayan and Jayaram Paniker, 9th ed., p. 610.

Mucormycosis is the opportunistic infection among the above. Mode of infection for tetanus is usually contaminated wounds, rabies is through dog bite. Typhoid is not an opportunistic infection.

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Q.48) Answer for this question is (d)

Age - specific death rates

Exp:

Rates which are actually ratio are:

- Case fatality rate
- Proportional mortality rate
- Prevalence

Q.49) Answer for this question is (b)

CLL

Exp:

High leukocyte and platelet counts may artificially elevate potassium levels ("pseudohyperkalemia") due to lysis of these cells after the blood is drawn. In these cases, plasma potassium instead of serum potassium should be followed. In pseudohyperkalemia, no electrocardiographic abnormalities are present.

Q.50) Answer for this question is (d)

Decreases IL-2 release by inhibiting calcineurin

Exp:

Tacrolimus

Tacrolimus is a **macrolide** antibiotic and is used as an immunosuppressant to prevent transplant rejection. It has a very similar action to ciclosporin:

Action of ciclosporin

- Decreases clonal proliferation of T cells by reducing IL-2 release, Binds to cyclophilin forming a complex which inhibits calcineurin, a phosphatase that activates various transcription factors in T cells.
- The action of tacrolimus differs in that it binds to a protein **called FKBP** rather than cyclophilin. Tacrolimus is more potent than ciclosporin and hence the incidence of organ rejection is less. However, nephrotoxicity and impaired glucose tolerance is more common.

Q.51) Answer for this question is (a)

Stellate cataract

Exp:

Notice the presence of stellate zig-zag shaped lens opacity which develops when the anterior surface of the eye is struck bluntly, there is a rapid anterior posterior shortening accompanied by equatorial expansion. This equatorial stretching can disrupt the lens capsule, zonules, or both.

Q.52) Answer for this question is (a)

Preterm labour

Exp:

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It does not cause pre term labour but causes
Microcephaly after atrophy & Mental Retardation.

Q.53) Answer for this question is (a)

Scoliosis

Exp:

The signs of scoliosis can include:

- Uneven musculature on one side of the spine.
- A rib prominence or a prominent shoulder blade, caused by rotation of the ribcage in thoracic scoliosis.
- When scoliosis is suspected, weight bearing full spine AP / coronal (front-back view) and lateral / sagittal (side view) x-rays are usually taken to assess the scoliosis curves and the kyphosis and lordosis, as these can also be affected in individuals with scoliosis.
- Full – length standing spine x-rays are the standard method for evaluating the severity and progression of the scoliosis, and whether it is congenital or idiopathic in nature.
- The standard method for assessing the curvature quantitatively is measurement of the Cobb angle, which is the angle between two lines, drawn perpendicular to the upper endplate of the uppermost vertebra involved and the lower end plate of the lowest vertebra involved. For patients with two curves, Cobb angles are followed for both curves. In some patients, lateral bending x-rays are obtained to assess the flexibility of the curves or the primary and compensatory curves.

Q.54) Answer for this question is (c)

First primitive reflex to disappear

Exp:

- The first primitive reflex to disappear is rooting reflex at 4 weeks (nelson 20th edition, 2798) followed by stepping reflex at 6 weeks.
- Moro's reflex appears at 32 weeks, peaks at one months and disappears by 5-7 months. It is postulated to help the infant cling to mother while she carried him around all day. Bilateral absence is seen in severe CNS dysfunction while unilateral absence indicates fractured clavicle or injury to branchial plexus.

Q.55) Answer for this question is (b)

Metalloproteinase

Exp:

- The inter photoreceptor matrix (IPM) is heterogenous chemically and structurally.
- It has the glyco-conjugate molecules like glycolipids, glycoproteins and proteoglycans:
- These molecules are also present in the plasma membrane of the photoreceptor cells.
- These molecules play important role in photoreceptor outer segment formation and interactions between the photoreceptor and pigment epithelium.
- IPM has a protein rich environment and contains chondroitin, collagen and fibronectin.

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- f. Inter photoreceptor matrix proteoglycan-1 (IMPG1) gene has been localized to 6q13-q15 and is implicated in autosomal dominant Stargardt-like disease (ADSTGD), progressive bifocal chorioretinal atrophy (PBCRA), and macular dystrophy (MCDR1).
- g. Dysplastic photoreceptor differentiation occurs in the autosomal recessive retinal degeneration rod-cone dysplasia 1.

Matrix metalloproteinase

- a. Matrix metalloproteinase are a group of endopeptidases that hydrolyze proteins of the extracellular matrix.
- b. They are not present in the inter photoreceptor matrix.
- c. MMPs are important in tissue remodeling and are involved in morphogenesis, angiogenesis, tissue repair, cirrhosis, arthritis and metastasis.
- d. Doxycycline is an MMP inhibitor and is used in periodontal diseases.

Q.56) Answer for this question is (d)

Myxoid lipoma

Exp:

Hyperintense on T1 MRI are:

- a. Highly protein rich lesions
- b. Bone marrow fat
- c. Lipoma
- d. Gelatine sponge
- e. Pituitary gland (due to hormonal secretion)

Q.57) Answer for this question is (d)

May cause ataxia

Exp:

Listeria monocytogenes is a Gram positive bacillus which has the unusual ability to multiply at low temperatures. It is **typically** spread via contaminated food, typically unpasteurized dairy products. Infection is particularly dangerous to the unborn child where it can lead to miscarriage.

Features –

- a. Diarrhea, flu-like illness
- b. Pneumonia, meningoencephalitis
- c. Ataxia and seizures
- d. Suspected Listeria infection should be investigated by taking blood cultures. CSF may reveal a Pleocytosis, with **'tumbling motility'** on wet mounts.

Management

- a. Listeria is sensitive to ampicillin (cephalosporins usually inadequate).
- b. Listeria meningitis should be treated with IV ampicillin and gentamicin.

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Q.58) Answer for this question is (a)

Lymphogranuloma venereum

Exp:

1. Lymphogranuloma venereum is caused by **Chlamydia trachomatis**. Typically infection comprises of **three stage**:
 - a. **Stage 1:** small painless pustule which later forms an ulcer stage
 - b. **Stage 2:** painful inguinal lymphadenopathy
 - c. **Stage 3:** Proctocolitis
2. **Genital herpes is most often** caused by the herpes simplex virus (HSV) type 2 (cold sores are usually due to HSV type 1). Primary attacks are often severe and associated with fever whilst subsequent attacks are generally less severe and localised to one site.
3. **Syphilis** is a sexually transmitted infection caused by the spirochete *Treponema pallidum*. Infection is characterised by primary, secondary and tertiary stages. A painless ulcer (**chancere**) is seen in the primary stage. The incubation period= 9-90 days. **Chancroid** is a tropical disease caused by **Haemophilus ducreyi**. It causes painful genital ulcers associated with inguinal lymph node enlargement.
4. **Other causes of genital ulcers**
 - a. Behçet's disease
 - b. Carcinoma
 - c. Granuloma inguinale: *Calymmatobacterium granulomatis*

Q.59) Answer for this question is (a)

Opioid induced constipation

Exp:

- a. Alvimopan is a peripherally restricted opioid antagonist.
- b. After oral administration, it has activity specific to the gastrointestinal tract.
- c. It has low systemic absorption and a high affinity for mu-opioid receptors¹.
- d. Clinical trials result show that the drug is able to block the peripheral opioid effect such as constipation; which is a prominent side effect of opioid use.
- e. POI presents significant clinical challenges that can delay patient recovery and contribute to increased morbidity and prolonged hospitalization after surgery.
- f. Clinical trials have demonstrated that alvimopan, at oral doses of 6 and 12 mg, can accelerate time to recovery of gastrointestinal function and time to hospital discharge following abdominal surgery.
- g. The incidence of adverse events with alvimopan therapy was shown to be similar to that of placebo.
- h. Alvimopan is well tolerated and effective at accelerating GI recovery and time to discharge in patients who have undergone bowel resection or hysterectomy when administered prior to surgery and twice daily thereafter until discharge or for up to 7 days.
- i. Completed Phase III trials suggest efficacy in accelerating the recovery of gastrointestinal function after abdominal surgery.

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Q.60) Answer for this question is (b)

Rolling---Activation of Integrins---Stable Adhesion--- migration via endothelium

Q.61) Answer for this question is (a)

Band keratopathy

Exp:

1. Band keratopathy is a common condition characterized by the deposition of calcium salts in the anterior portion of Bowman's membrane.
2. **Causes**
 - a. Ocular cause is the most common one which includes chronic
 - b. Iridocyclitis (particularly in children), phthisis bulbi, silicone oil in the anterior chamber and severe chronic keratitis.
 - c. Age-related band keratopathy is common and affects otherwise healthy individuals.
 - d. Metabolic causes (metastatic calcification) which are rare include, increased serum calcium and phosphorus, hyperuricemia and chronic renal failure.
3. In sarcoidosis, eye involvement may present as one of the following:
 - a. Acute iridocyclitis, which is often a presenting sign of sarcoidosis in association with hilar lymphadenopathy and erythema nodosum.
 - b. Chronic iridocyclitis, where multiple discrete granulomata develop in the iris in older individuals; it has a chronic course and poor prognosis.
 - c. Posterior uveitis with choroidal involvement occasionally associated with granulomata in the retina.
 - d. Uveoparotid fever or Heerfordt disease, which is bilateral and characterized by a simultaneous involvement of the entire uveal tract, parotid gland and frequently the cranial nerves.
 - e. Other features are sarcoid granulomata which are conjunctival nodules in the lower fornix, calcification of the cornea associated with hypercalcemia and keratoconjunctivitis sicca.

Q.62) Answer for this question is (c)

More fat in mesentery

Exp:

Small intestine is 6 metres in length. Of this proximal 25 cm is the duodenum and of rest, the proximal 40% is the jejunum and the distal 60% is the ileum. Jejunum is grossly differentiated from the ileum by its thicker walls, larger circumference, less fat in the mesentery and longer vasa recta.

Q.63) Answer for this question is (b)

Tunica albuginea

Exp:

Hydrocele is collection of fluid between the layers of the tunica vaginalis.

The tunica albuginea is a dense, fibrous capsule covering the testis. In turn it is covered by a layer of peritoneum, the tunica

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vaginal is. Thus it is not a part of the scrotal wall.

Q.64) Answer for this question is (a)

Sample size same as simple random sampling

Exp:

- a. Simple Random Sampling: Every person has equal chance of selection and selection is done randomly from a small, homogenous population. Sample size is not fixed.
- b. **Cluster sampling** is a rapid method of sampling commonly used for evaluating immunization status of community.
- c. In cluster sampling whole population is divided in clusters and then sampling is done from the chosen cluster.
- d. It gives a high standard error but quick results.

Q.65) Answer for this question is (b)

TACE

Exp:

- a. **Varicose veins** can usually be treated with conservative measures.
- b. Symptoms often decrease when the legs are elevated periodically, when prolonged standing is avoided, and when elastic support hose are worn.
- c. External compression stockings provide a counterbalance to the hydrostatic pressure in the veins.
- d. Ablative procedures, including sclerotherapy, endovenous radiofrequency or laser ablation, and surgery may be considered to treat varicose veins in selected patients who have persistent symptoms, suffer recurrent superficial vein thrombosis, and/or develop skin ulceration.
- e. Ablative therapy may also be indicated for cosmetic reasons.
- f. Small, symptomatic varicose veins can be treated with sclerotherapy, in which a sclerosing solution is injected into the involved varicose vein and a compression bandage is applied.
- g. Percutaneous, endovenous delivery of radiofrequency or laser energy can be used to treat incompetent greater saphenous veins. Surgical therapy usually involves ligation and stripping of the greater and lesser saphenous veins. endoscopic perforator surgery (SEPS) is a minimally invasive technique to interrupt incompetent communicating veins.
- h. Newer Treatment methods for varicose veins are:**
 - i. RFA
 - ii. SEPS (subfascial endoscopic perforator surgery)
 - iii. TRIVEX
 - iv. ENDOLASER

Q.66) Answer for this question is (a)

IDSP

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Exp. :

- Integrated Disease Surveillance Programme (IDSP) was launched with World Bank assistance in November 2004 to detect and respond to disease outbreaks quickly.
- The project was extended for 2 years in March 2010 i.e. from April 2010 to March 2012, World Bank funds were available for Central Surveillance Unit (CSU) at NCDC & 9 identified states (Uttarakhand, Rajasthan, Punjab, Maharashtra, Gujarat, Tamil Nadu, Karnataka, Andhra Pradesh and West Bengal) and the rest 26 states/UTs were funded from domestic budget.
- The Programme continues during 12th Plan (2012-17) under NHM with outlay of Rs. 64.04 Crore from domestic budget only

Q.67) Answer for this question is (b)

Calcification of ascending aorta

Exp:

Aortitis

- Aortitis cannot usually be recognized at the stage of uniform aortic dilatation, but once ascending aortic wall calcification, the diagnosis is obvious.
- The fine linear calcification of aortitis may be distinguished from the thicker irregular calcification of atheroma, which, however, may occur secondarily following aortitis.
- Atheromatous calcification usually also involves the aortic arch.
- Curvilinear calcification confined to the ascending aorta and sparing the arch is usually due to aortitis.
- Aortitis of the ascending aorta may cause dilatation of the valve ring, leading to aortic regurgitation.

Aortic root aneurysm

- It may be confined by the pericardium or may extend to the arch.
- Aortic root aneurysms may vary from being entirely invisible in the frontal and lateral view, to bulging the superior mediastinum to the right, either forming a shadow continuous with the heart, or separate from it.
- Rarely, they extend to the left where the only radiological abnormality may be a prominent pulmonary conus, displaced to the left by the aneurysm.

Q.68) Answer for this question is (c)

0.45

Exp:

Probability and It's Rules Probability is the extent of belief in a phenomenon or a statement.

Addition rule:

$P(A \text{ or } B) = p(A) + p(B)$ if A and B are mutually exclusive.

Multiplication rule:

$P(A \text{ and } B) = p(A) \times p(B)$ if A and B are independent.

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e.g. Getting Rh +ve & being male both are independent factors so we apply rule of multiplication to get the probability.

Q.69) Answer for this question is (a)

Silicosis

Exp:

The chest radiograph may show profuse miliary infiltration or consolidation and there is a characteristic HRCT pattern known as "crazy paving".

Q.70) Answer for this question is (c)

Malpresentation

Exp:

- In patients with transverse lie/oblique lie with no apparent cause esp. in multiparae, stabilizing induction at 38-40 weeks may be valid option for management.
- ECV should allow the head to be in lower segment.
- ARM done after excluding cord presentation and use of oxytocin to initiate the contraction should stabilize the presentation.

Q.71) Answer for this question is (a)

Easy surgical repair

Exp:

More difficult; faulty healing more common; post operative pain more common; anatomical results occasionally faulty.

Q.72) Answer for this question is (b)

Risk of infection is higher in those who are having recurrent Herpes infection.

Exp:

- The incidence is significantly more in primary infection. Recurrent infection is less dangerous as immune response limits the infection.
- The risk of acquiring infection in infant is similar whether the infant is term or pre term, as the main mode of transmission is maternal genital tract during delivery.
- Acyclovir, although not advocated in pregnancy, may be used in disseminated herpes infection without any fetal effects.

Q.73) Answer for this question is (b)

Amniocentesis.

Exp:

Amniocentesis-Fetal fibroblasts are studied

Chorionic villus sampling- Trophoblastic cells.

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PUBS-Fetal WBCs.

Q.74) Answer for this question is (a)

Warfarin

Exp:

Leads to fetal skeletal and facial anomalies; may also cause optic atrophy, microcephaly and chondrodysplasia punctata-

Q.75) Answer for this question is (b)

Oligodendroglioma

Exp:

- Oligodendrogliomas, which comprise about 15% of gliomas in adults, have a more benign course and are more responsive to cytotoxic treatment than astrocytomas.
- For grade II oligodendrogliomas, the median survival is 7–8 years, and there are a substantial number of patients with prolonged survival (>10 years).
- For grade III or anaplastic oligodendroglioma, median survival is ~5 years. Oligodendrogliomas occur chiefly in supratentorial locations; in adults, ~30% contain areas of calcification.

Q.76) Answer for this question is (d)

IUD

Q.77) Answer for this question is (a)

WHO recommended "PPD-RT-23 with Tween 80" for vaccination.

Exp:

The WHO has recommended the "**Danish 1331**" strain for the production of BCG vaccine. Since January 1967, the BCG Laboratory at Guindy, Chennai has been using the "Danish 1331" strain for the production of BCG vaccine. The WHO advocates a preparation known as 'PPD-RT-23 with Tween 80' for **Mantoux test**.

Other important points.

- BCG vaccine contains 0.1 - 0.4 million live viable bacilli per dose. It is supplied as a lyophilized (freeze dried) preparation in vacuum sealed multi-dose dark coloured ampoules.
- A wheal of 5 mm at the injection site indicates successful intradermal administration.
- Subcutaneous administration of BCG is associated with an increased incidence of BCG adenitis.
- Ipsilateral axillary or cervical lymphadenopathy** may develop a few weeks or months after BCG vaccination, but ATT should not be recommended even if abscess is formed. Surgical removal of the nodes or repeated fine needle aspiration is the treatment of choice.

Q.78) Answer for this question is (b)

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It causes corkscrew-shaped glands in the endometrium

Exp:

Corkscrew-shaped glands develop in the **secretory phase** under the influence of progesterone, and not by oestrogen. All other statements are correct. Oestrogen causes hyperplasia and cancer of the endometrium.

Q.79) Answer for this question is (d)

Allantoin

Exp:

- Purines, on catabolism in primates (apes and human beings), gives rise to uric acid.
- Non primates (lower animals) have a special enzyme called uricase, which splits uric acid to give allantoin.
- Major purine nucleotide:
- AMP
- GMP

Minor purine nucleotide:

IMP (nucleoside of hypoxanthine)

Purine catabolism:

AMP will be acted upon by adenosine deaminase giving IMP. Any GMP formed will be acted upon by Guanase to form XMP. Both IMP and XMP will be acted upon by purine nucleoside phosphorylase removing the ribose phosphate group to form the bases hypoxanthine and xanthine respectively.

Both will be acted upon by Xanthine oxidase to form uric acid. In primates purine catabolism ends with uric acid.

Q.80) Answer for this question is (a)

Evaluation

Exp:

- According to WHO expert committee on National Health planning in Developed countries evaluation " measures the degree to which objectives and targets are fulfilled and the quality of the results obtained.
- The purpose of evaluation is to assess the achievements of the stated objectives.
- Monitoring is confined to day to day activity mostly concerned with the final outcome.
- Network analysis is a graphic plan of all events and activities to be completed in order to reach an end objective.
- Input-output analysis is an economic technique
- Input is resources in terms of manpower, money, material and time and output is like cases treated, lives saved.
- An input-output table shows how much of each input is needed to produce an unit amount of output.

Q.81) Answer for this question is (a)

Second

Exp:

The metacarpo-phalangeal joint of the index finger is affected most commonly. Open reduction is required in most cases.

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Q.82) Answer for this question is (b)

Reduce selection bias in allocation of treatment

Exp:

- Randomization is a statistical procedure by which the participants are allocated into groups. It is an attempt to eliminate 'bias' and allow for comparability.
- Randomization is the "least" of a control trial. It will give the greatest confidence that the groups are comparable so that like can be compared with like.
- It ensures that the investigator has no control over allocation of participants to either study or control group, thus eliminating what is known as selection bias.

Q.83) Answer for this question is (b)

Hypertension

Exp:

$$\text{CO} = \text{SV} \times \text{HR}$$

$$\text{MAP} = \text{CO} \times \text{TPR} = \text{D} + \frac{1}{3} \text{PP}$$

$$\text{PP} = \text{Systolic} - \text{diastolic}$$

- Pulse pressure is proportional to the amount of blood entering the aorta during systole and inversely proportional to aortic compliance. Pulse pressure increases with hypertension because hypertension causes aortic compliance to decrease.
- Whether the hypertension is a result of an increased cardiac output or an increased peripheral resistance, the higher arterial pressure is caused by an increase in arterial blood volume.
- The increased blood volume stretches the arterial wall, making it stiffer and decreasing its compliance.
- Stroke volume is decreased with tachycardia, hemorrhage, and heart failure, reducing pulse pressure in all three cases.
- In aortic stenosis, the ejection of blood from the ventricle is slowed and the increase in arterial blood volume during systole is less than normal.

Q.84) Answer for this question is (b)

Right subhepatic space

Exp:

The complicated arrangement of the peritoneum results in the formation of 4 intraperitoneal and 3 extraperitoneal spaces in which pus may collect. 4 intraperitoneal spaces are - right subphrenic, right subhepatic, left subphrenic and left subhepatic spaces.

3 extraperitoneal spaces are - right and left paracolic and pelvic spaces.

Q.85) Answer for this question is (b)

Increase flow suggests epididymo-orchitis while decreased flow suggests torsion.

Exp:

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- On Doppler ultrasound, increased flow is consistent with epididymo-orchitis while decreased or absent blood flow suggests testicular torsion.
- Clinically, Prehn's sign and associated features of the condition helps.

Q.86) Answer for this question is (c)

Increased potassium permeability

Exp:

- An increase in potassium permeability causes a decrease in the membrane potential of the atrioventricular node.
- Thus, it will be extremely hyperpolarized, making it much more difficult for the membrane potential to reach its threshold level for conduction.
- This results in a decrease in heart rate.
- Increases in sodium and calcium permeability and norepinephrine levels increase the membrane potential, which tends to increase the heart rate.

Q.87) Answer for this question is (b)

Colonic pseudo obstruction

Exp:

Colonic pseudo obstruction (Ogilvie's syndrome) is a functional disorder in which the colon becomes massively dilated in the absence of any mechanical obstruction.

Q.88) Answer for this question is (b)

Iliohypogastric nerve

Exp:

Care should be taken not to mistake small lymph nodes, lymphatics, the genitofemoral nerve or the occasional strip of psoas minor for the lumbar sympathetic chain.

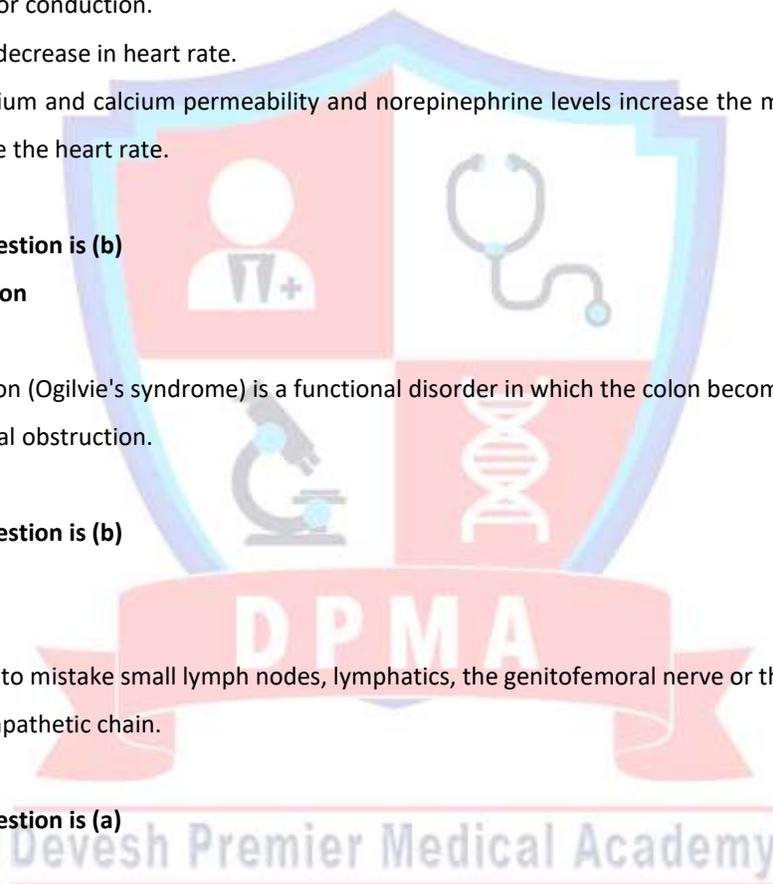
Q.89) Answer for this question is (a)

CA lung

Exp:

- Malignant spinal cord compression (MSCC) is defined as compression of the spinal cord and/or cauda equina by an extradural tumor mass.
- The minimum radiologic evidence for cord compression is indentation of the theca at the level of clinical features.
- Spinal cord compression occurs in 5–10% of patients with cancer. Epidural tumor is the first manifestation of malignancy in about 10% of patients.
- The underlying cancer is usually identified during the initial evaluation; lung cancer is the most common cause of MSCC.

Q.90) Answer for this question is (a)



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A

Exp:

Description: Amount of drug needed to produce a certain response

Q.91) Answer for this question is (d)

Infection is usually self-limiting

Exp:

Toxoplasmosis

- Toxoplasma gondii is a **protozoa** which infects the body via the GI tract, lung or broken skin.
- It's oocysts release **trophozoites** which migrate widely around the body including eye, brain and muscle.
- The usual animal reservoir is the cat, although other animals such as rats carry the disease.

Investigation

- Antibody test
- Sabin-Feldman dye test

Congenital toxoplasmosis is due to transplacental spread from the mother. It causes a variety of effects to the unborn child including microcephaly, hydrocephalus, cerebral calcification and choroidoretinitis. The risk of congenital toxoplasmosis to the child of an affected mother is **15%** in the first trimester, **30%** in the second and **60%** in the third.

Q.92) Answer for this question is (a)

Sarcoidosis

Exp:

Sarcoidosis is a non caseating granulomatous multisystem disease. Commonest organ involved is lungs. It can lead to bilateral hilar lymph adenopathy. In this condition ACE levels and serum calcium levels are raised.

Q.93) Answer for this question is (a)

Acromegaly

Exp:

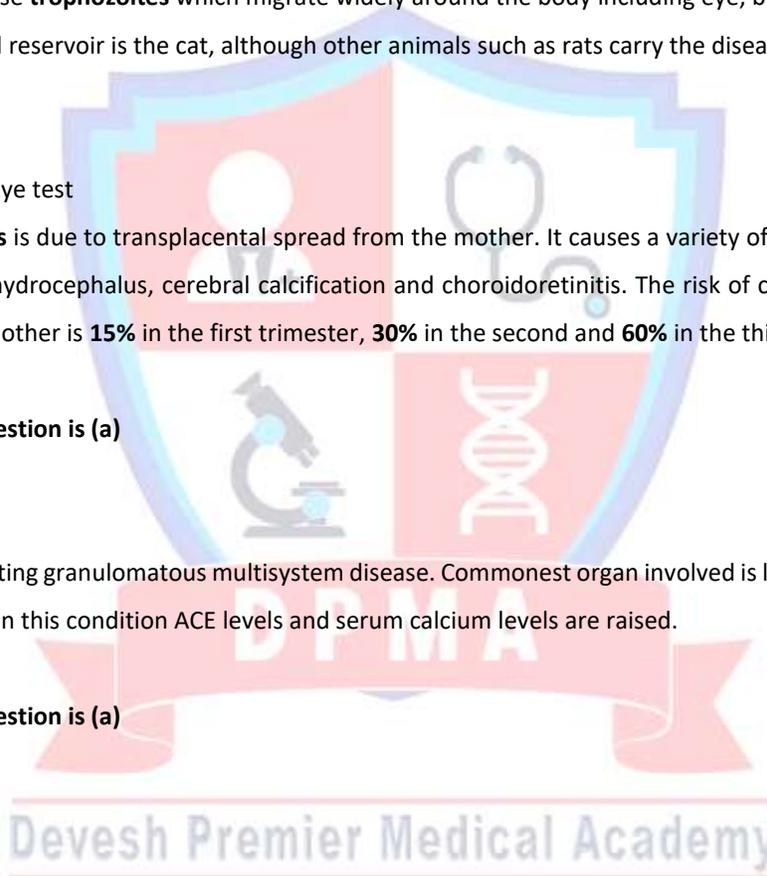
GH Receptor Antagonists

- Pegvisomant antagonizes endogenous GH action by blocking peripheral GH binding to its receptor.
- Consequently, serum IGF-I levels are suppressed, reducing the deleterious effects of excess endogenous GH.
- Pegvisomant is administered by daily subcutaneous injection (10–20 mg), and normalizes IGF-I in >90% of patients.
- GH levels, however, remain elevated as the drug does not have antitumor actions.
- Side effects include reversible liver enzyme elevation, lipodystrophy, and injection site pain. Tumor size should be monitored by MRI.

Q.94) Answer for this question is (c)

Gastric washings

Exp:



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Tuberculosis: diagnosis

In adults induction of sputum or bronchoscopy and lavage may be used in patients who cannot produce sputum. In children who are unable to cough up sputum, the gold standard is gastric washings for M tuberculosis culture.

Q.95) Answer for this question is (c)

Dermal candidiasis

Exp:

1. Pseudo hypoparathyroid is a congenital disorder in which tissues are resistant to the action of PTH. The feature of pseudo hypoparathyroid are:
 - a. Raised PTH
 - b. Low serum calcium.
 - c. Mental retardation
 - d. Short fourth and fifth meta carpal and meta tarsal.
2. Dermal candidiasis is not a feature
3. Dermal candidiasis is a feature of autoimmune variety of hypoparathyroid.

Q.96) Answer for this question is (d)

CCNU

Exp:

CCNU is used in treatment of brain cancer. They cause delayed bone marrow suppression i.e. they cause leukopenia after 4 to 6 weeks of starting treatment.

Q.97) Answer for this question is (d)

Cryptococcus

Exp:

- a. Most common fungal infection of CNS
- b. Headache, fever, malaise, nausea/vomiting,
- c. seizures, focal neurological deficit
- d. CSF: high opening pressure, India ink test positive
- e. CT: meningeal enhancement, cerebral oedema
- f. Meningitis is typical presentation but may
- g. occasionally cause a space occupying lesion.

Q.98) Answer for this question is (c)

Multiple sclerosis

Exp:

Glatiramer acetate is a synthetic, random polypeptide composed of four amino acids (L-glutamic acid, L-lysine, L-alanine, and L-tyrosine). It is used in the prophylaxis of multiple sclerosis.

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Q.99) Answer for this question is (a)

Glucokinase

Exp:

- Glucokinase promotes uptake of large amounts of glucose by the liver.
- At normal glucose levels, the liver produces glucose from glycogen, but as glucose levels rise after feeding, the liver stops converting glycogen and instead takes up glucose.
- Pancreatic B cells produce insulin in response to hyperglycemia.
- Glucose uptake by the cells and phosphorylation by glucokinase stimulates secretion of insulin, which enhances glucose transport into adipose tissues and muscle and thus lowers blood glucose levels.

Q.100) Answer for this question is (d)

Cell-mediated delayed response

Exp:

- Allergic contact dermatitis occurs when contact with a particular substance elicits a delayed (type IV) hypersensitivity reaction.
- Anyone with normal cell-mediated immunity can develop allergic contact dermatitis and the ability to respond to certain antigens is probably genetically determined.
- Commonly identified triggers in this condition include nickel in jewellery (eg earrings) and fragrances.

Q.101) Answer for this question is (a)

Keratin intermediate filaments

- Mallory body or "alcoholic hyaline" is an eosinophilic intracytoplasmic inclusion cells that is characteristic of alcoholic liver disease, although it can be present in other conditions.
- Such inclusions are composed predominantly of keratin intermediate filaments.

Q.102) Answer for this question is (a)

Prelethal changes preceding necrotic cell death

Exp:

- Recently, a new term has been introduced oncosis - to define necrotic cell death.
- These are characterized by cell swelling and can be distinguished from the pre lethal changes in apoptosis; associated largely with cell shrinkage.

Q.103) Answer for this question is (d)

NADPH Oxidase

Exp:

A series of enzymes acts as free radical scavenging systems and break down hydrogen peroxide and superoxide anion. **These are:**

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- Catalase
- Superoxide dismutase
- Glutathione peroxide
- While, NADPH oxidase is used in rapid bursts of superoxide production in activated polymorphonuclear leucocytes.

Q.104) Answer for this question is (d)

Red blood cell abnormalities

Exp:

- The Wiskott - Aldrich syndrome is an inherited disease characterized by eczema, thrombocytopenia and immune deficiency.
- The protein that is mutated in this disease is involved in linking lymphocyte antigen receptors to the cytoskeleton, and defects in the protein interfere with diverse cellular responses.

Q.105) Answer for this question is (d)

Lactic acidosis

Exp:

- In this case patient has metabolic acidosis because his serum bicarbonate is 10 meq/lit. So possibility of choice A is ruled out.
- His blood sugar is 20 mmol/lit i.e. 360 mg% ($20 \times 18 = 360$) so choice C is ruled out.
- Both choice B and D are possible in this case but patient age is 70 years so better ans is D.

Q.106) Answer for this question is (c)

Enkephalins

Exp:

Bradykinin and enkephalins increase the permeability of blood brain barrier by increasing pinocytosis. This approach is being evaluated as a mean to improve penetration of anticancer drugs in the brain during management of brain tumors.

Q.107) Answer for this question is (c)

Serial ultrasound

Exp:

Serial ultrasound is the **best monitor** of the growth of graafian follicle and observes the time of ovulation. Progesterone appears only after ovulation. E2 and LH levels indicate that only imminent ovulation is normal women.

Q.108) Answer for this question is (d)

Vitamin D - resistant rickets.

Exp:

- Vitamin D - resistant rickets is an X – linked dominant disorder.
- Tuberous sclerosis is autosomal dominant disorder.

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- c. Diabetes insipidus and fragile - X syndrome are X - linked recessive disorders.

Q.109) Answer for this question is (b)

Muscle

Exp:

- Calsequestrin is a calcium-binding protein of the sarcoplasmic reticulum.
- The protein helps hold calcium in the cisterna of the sarcoplasmic reticulum after a muscle contraction, even though the concentration of calcium in the sarcoplasmic reticulum is much higher than in the cytosol.
- It also helps sarcoplasmic reticulum store an amazing amount of calcium ions.

Q.110) Answer for this question is (a)

Constrictive pericarditis

Exp:

- The usual physical signs of cardiac disease (murmurs, cardiac enlargement) may be inconspicuous or absent in chronic constrictive pericarditis, hepatic enlargement and dysfunction associated with jaundice and intractable ascites may lead to a mistaken diagnosis of hepatic cirrhosis.
- This error can be avoided if the neck veins are inspected carefully in patients with ascites and hepatomegaly.
- Given a clinical picture resembling hepatic cirrhosis, but with the added feature of distended neck veins, careful search for thickening of the pericardium by CT or MRI should be carried out and may disclose this curable or remediable form of heart disease.

Q.111) Answer for this question is (c)

10%

Exp:

The risk of developing schizophrenia in first-degree relatives of schizophrenic patients is elevated compared to the risk of the general population (**0.9%**). Parents of schizophrenic patients have a lifetime prevalence of **5.9%**, and siblings have a prevalence of **10%**. Children of schizophrenics have a lifetime prevalence of **12.8%**.

Q.112) Answer for this question is (a)

Hypokalemia

Exp:

The features of Gordon syndrome are

- Hyperkalemia
- ii. Metabolic acidosis
- iii. Hypertension
- iv. Low level of serum aldosterone

Q.113) Answer for this question is (a)

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Lysosomes

Exp:

- Excess of vitamin A can lead to **rupture of lysosomal membranes.**
- Clinical manifestations of hypervitaminosis:**
- Headache Vomiting
- Dizziness
- There are signs of raised intra-cranial tension including bulging of anterior fontanelle and / or papilledema-a syndrome known as **pseudotumor cerebri.**
- Chronic toxication with large doses results in anorexia, dry itchy skin, weight loss, painful extremities, sparse hair, hepatosplenomegaly,
- hypoplastic anemia and benign intracranial hypertension.
- Also note:** Carotenoids do not cause toxicity, except a reversible yellow colour of the skin.

Q.114) Answer for this question is (d)

Ref: Textbook of Microbiology by Ananthanarayan and Jayaram Paniker, 9th ed., p. 475.

Epstein–Barr virus enters the pharyngeal epithelial cells through CR 2 or CD 21 receptors, which are the same as for the C3d component of complement.

Q.115) Answer for this question is (a)

Pyoverdin and pyocyanin

Exp:

Pseudomonas produce pigments by the name of pyoverdin and pyocyanin leading to greenish pigmentation in culture plate. Pneumococci produce pneumolysin that break down hemoglobin into a green pigment. This causes pneumococcal colonies to be surrounded by green zone during growth on blood agar plates. The plate in question is not blood agar.

Q.116) Answer for this question is (a)

Liver

Exp:

- Though intra - **Abdominal birth trauma is uncommon; liver is the most commonly injured solid organ** during birth, spleen & Adrenal injured can occur.
- Facial nerve injury is the most common peripheral nerve injury in neonates. clavicle fracture is the most commonly injured bone during delivery.**

Q.117) Answer for this question is (b)

In worm infestation eosinophil is increased. The marked cell "B" has **coarse, deep red staining granules in the cytoplasm** and has usually two nuclear lobes in the form of a spectacle. So this is eosinophil.

Ref: Pathology practical book by Harsh Mohan 2nd ed/p-190

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Feature	Neutrophil	Lymphocytes (small and large)	Monocyte	Eosinophil	Basophil
Morphology					
Cell diameter	12-15 μm	SL: 9-12 μm LL: 12-16 μm	12-20 μm	12-15 μm	12-15 μm
Nucleus	2-5 lobed clumped chromatin	Large nucleus, round to indented, fill the cell, clumped chromatin	Large, lobulated, indented, with fine chromatin	Bilobed, clumped chromatin	Bilobed, clumped chromatin
Cytoplasm	Pink or violet granules	Peripheral rim of basophilic cytoplasm, no granules	Light basophilic, may contain fine granules or vacuoles	Coarse crimson red granules	Large coarse purplish granules obscuring the nucleus
Normal %	40-75	20-40	2-10	1-6	0-1
Absolute count	2,000-7,500	1,500-4,000	200-800	40-400	10-100

Q.118) Answer for this question is (d)

Amitriptyline

Exp:

Urinary retention, blurred vision, constipation, and dry mouth are common **anticholinergic side effects** associated with **tricyclic antidepressants**. Among these medications, amitriptyline has **the most powerful atropinic properties**. Venlafaxine, bupropion, trazodone, and nefazodone do not have significant anticholinergic effects.

Q.119) Answer for this question is (a)

He introduced PTCA

Exp:

The introduction of percutaneous transluminal coronary angioplasty (PTCA) by Andreas Gruntzig in 1977 established this form of catheter-based therapy as an alternative to bypass surgery for providing coronary revascularization in selected patients.

Q.120) Answer for this question is (d)

Skin

Exp:

- In human, there is a hierarchy of vulnerability of different tissue to radiation - induced cancers.
- Most frequent are the leukemias, except for chronic lymphocytic leukemia cancer of the thyroid follows closely.
- In the intermediate category are cancers of the breast, lung and salivary glands.
- In contrast, skin, bone and the gastrointestinal tract are relatively resistant to radiation induced neoplasia.

Q.121) Answer for this question is (a)

Filariasis

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Exp:

Meyers-Kouvenaar bodies are epithelioid granulomas formed in lung around dead micro filariae.

Q.122) Answer for this question is (d)

Mix metabolic alkalosis & respiratory alkalosis

Exp:

Basic fundamental

A. Acidosis occur by two mechanism

- a. Gain of acid
- b. Loss of alkali

B. Alkalosis occur by two mechanism

- a. Loss of acid
- b. Gain of alkali

Note:

- a. CO₂ is an acid, being controlled by lungs. HCO₃ is an alkali, being controlled by kidneys.
- b. Any disturbance of CO₂ leads to respiratory acidosis / alkalosis
- c. Any disturbance of HCO₃ leads to metabolic acidosis/ alkalosis

Disturbance	Primary alteration
Metabolic acidosis	↓ plasma HCO ₃
Metabolic alkalosis	↑ plasma HCO ₃
Respiratory acidosis	↑ pCO ₂
Respiratory alkalosis	↓ pCO ₂

Q.123) Answer for this question is (d)

Postmenopausal hormone replacement therapy protects women against MI.

Exp:

- a. Recent epidemiologic evidence suggests that postmenopausal hormone replacement therapy does not protect women against MI.
- b. A fixed obstructive lesion of 75% or greater causes symptomatic ischemia induced by exercise while 90% stenosis can lead to inadequate blood flow even at rest. C-reactive protein has been suggested as potential marker of coronary heart disease.
- c. Adrenergic stimulation associated with awakening and rising induces a pronounced circadian productivity for the time of onset of acute MI, with a peak incidence between 6 am to 12 noon.

Q.124) Answer for this question is (c)

PNH affects red blood cells only.

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Exp:

Decay accelerating factor, or CD55; membrane inhibitor of reactive lysis, or CD59; and a C8 binding protein are deficient in PNH. PNH patients are at increased risk for developing acute myelogenous leukemia.

Q.125) Answer for this question is (a)

Blymphocytes

Exp:

CD79a is a marker for pre-B cell and mature B cells.

Q.126) Answer for this question is (d)

Vibrio cholera

Exp:

Negative staining by Indian ink preparation is particularly useful in demonstration of bacterial capsule, very slender organisms like spirochetes and capsulated fungi (*Cryptococcus*). It is not useful for vibrio cholera.

Q.127) Answer for this question is (b)

Malachite green

Exp:

Malachite green has no activity against tubercle bacilli but inhibits gram positive and negative organisms. Hence, it is used as a selective agent in Löwenstein -Jensen medium.

Q.128) Answer for this question is (a)

It contains nutrient agar

Exp:

Stuart's medium - a non - nutrient soft agar gel containing a reducing agent to prevent oxidation and charcoal to neutralize certain, bacterial inhibitors - is a transport medium for gonococci.

Q.129) Answer for this question is (b)

Mural vascular involvement

Exp:

The triad of mononuclear bronchiolitis; interstitial infiltrates of lymphocytes and plasma cells; and single, nonnecrotizing, and randomly scattered parenchymal granulomas without mural vascular involvement is consistent with but not specific for HP.

Q.130) Answer for this question is (c)

Catalase

Exp:

- a. Peroxisomes are so named because they usually contain one or more enzymes that use molecular oxygen to remove hydrogen atoms from specific organic substrates in an oxidative reaction that produces hydrogen peroxide (H_2O_2).

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- b. Catalase enzyme in peroxisomes utilizes H_2O_2 generated by other enzymes in the organelle to oxidize a variety of other
- c. substrates –including phenols, formic acid, formaldehyde, and alcohol by the “peroxidative ” reaction $H_2O_2 + RH_2R + 2H_2O$.
- d. This type of oxidative reaction is particularly important in liver and kidney cells, where the peroxisomes detoxify various toxic molecules that enter the bloodstream.

Q.131) Answer for this question is (c)

Pericardial friction rub

Exp:

- a. **Pericarditis** in renal failure (acute or chronic) is an indication to initiate hemodialysis, because untreated uremic pericarditis may progress to pericardial tamponade.
- b. Other indications include encephalopathy, volume overload, and intractable hyperkalemia.
- c. There is no absolute number for BUN to initiate dialysis. No degree of oliguria is a specific indication for dialysis, although this situation must be closely watched for volume overload.
- d. Bone marrow depression, mainly due to reduced erythropoietin combined with mildly reduced red cell half-life, causes hematocrit to fall almost universally in renal failure (acute and chronic). This does not determine need for dialysis.

Q.132) Answer for this question is (d)

Gonorrhoea

Exp:

Note purulent urethral discharge caused by Neisseria gonorrhoea.

Q.133) Answer for this question is (c)

Colonoscopy

Exp:

- a. The patient has a **microcytic anemia**. A low serum iron, low ferritin, and high iron-binding capacity all suggest iron-deficiency anemia.
- b. **Most iron-deficiency anemia** is explained by blood loss. The patient’s symptoms of constipation point to blood loss from the lower GI tract.
- c. Colonoscopy would be **the highest-yield procedure**. Barium enema misses 50% of polyps and a significant minority of colon cancers.
- d. Even patients without a history of GI symptoms who have no obvious explanation for their iron deficiency (such as menstrual blood loss or multiple prior pregnancies in women) should be studied for GI blood loss.
- e. Lead poisoning can cause a microcytic hypochromic anemia, but this would not be associated with the abnormal iron studies and low ferritin seen in this patient.

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- f. Basophilic stippling or target cells seen on the peripheral blood smear would be important clues to the presence of lead poisoning.
- g. Folate deficiency presents as a megaloblastic anemia with macrocytosis (large, oval-shaped red cells) and hypersegmentation of the polymorphonuclear leukocytes.

Q.134) Answer for this question is (d)

Gonadotropin-releasing hormone (GnRH) analogue

Exp:

- a. Patients with metastatic prostatic carcinoma are treated with endocrine therapy to shrink primary and secondary lesions by depriving prostatic tissue of circulating androgens.
- b. Estrogens are no longer recommended because of the high incidence of cardiovascular events.
- c. **Most** patients now receive a GnRH analogue or surgical castration; whether an antiandrogen (such as **flutamide**) provides **additional** benefit is currently a matter of debate.
- d. **Radiotherapy** is used for localized disease, but is less effective than hormonal therapy. No effective chemotherapy is currently available.

Q.135) Answer for this question is (b)

Fluorosis

Exp:

- a. Excessive fluoride can cause white spots and, in severe cases, brown stains, pitting, or mottling of the enamel.
- b. Teeth are generally composed of hydroxyapatite and carbonated hydroxyapatite; as the intake of fluoride increases, so does the teeth's composition of fluorapatite.
- c. A tooth is no longer at risk of fluorosis after eruption into the oral cavity. At this point, fluorapatite is beneficial because it is more resistant to dissolution by acids (demineralization). Although fluorosis usually affects permanent teeth, occasionally the primary teeth may be involved.
- d. The last choice means large teeth.

Q.136) Answer for this question is (d)

Obtain full- thickness excisional biopsy

Exp:

- a. The lesion has characteristics of **melanoma** (pigmentation, asymmetry irregular, border), and a full-thickness excisional biopsy is required.
- b. Shave biopsy of a suspected melanoma is always **contraindicated**. **Diagnosis** is urgent; the lesion cannot be observed over time.
- c. Once the diagnosis of melanoma is made, the tumor must then be staged to determine prognosis and treatment.

Q.137) Answer for this question is (a)

Reduces body fat

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Exp:

- Leptin (from the Greek leptos, meaning thin) is a protein hormone with important effects in regulating body weight, metabolism and reproductive function. Leptin is expressed predominantly by adipocytes, which fits with the idea that body weight is sensed as the total mass of fat in the body.
- Leptin's effects on body weight are mediated through effects on hypothalamic centres that control feeding behaviour and hunger, body temperature and energy expenditure.
- Decreased hunger and food consumption is mediated at least in part by inhibition of neuropeptide Y synthesis. Neuropeptide Y is a very potent stimulator of feeding behaviour.
- The second main effect of leptin is increased energy expenditure, measured as increased oxygen consumption, higher body temperature and loss of adipose tissue mass.
- Daily injections of recombinant mouse or human leptin into ob/ob mice (ie obese mutants unable to synthesise leptin) led to a dramatic reduction in food intake within a few days, and to roughly a 50% reduction in body weight within a month.

Q.138) Answer for this question is (c)

Synovial

Exp:

- Ear ossicles have multiaxial **synovial** joints between them.
- Maleus & incus form saddle variety of synovial joint, whereas, Incudo-stapedial joint is ball & socket.
- All the three ossicles develop in cartilage and are cartilaginous bones.
- Malleus & incus develop in the cartilage of 1st pharyngeal arch, whereas, Stapes develops in second arch with the styloid process & upper hyoid.
- Since the joints are between cartilaginous bones, the articular cartilage will be of hyaline variety.
- Note: Synovial joints formed by the Membranous bones are atypical and are lined by fibro-cartilage (as articular cartilage).
E.g., Temporomandibular joint (condylar synovial) & sternoclavicular joint (saddle synovial), their articular cartilage is not hyaline but fibro-cartilage.
- Fibrous** joints are present in the skull as sutures & gomphosis.
- Syndesmosis is also a fibrous joint as observed between radius & ulna and the posterior part of sacro-iliac joint.
- Secondary cartilaginous** joints (symphysis) are usually in the midline, e.g., Manubrio-sternal & xiphisternal joints along with the pubis symphysis.
- Primary cartilaginous** joints (synchondrosis) is seen between the sphenoid & occipital bone (at clivus) and also in the growing bone (Epiphysio-diaphyseal joint).
- First rib has got 2 anterior synchondrosis as compared to the other true ribs (They have got only one)

Q.139) Answer for this question is (c)

Cobalt

Exp:

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- Aluminum and titanium dioxide, have been rarely associated with a sarcoid-like reaction in lung tissue.
- Exposure to dust containing tungsten carbide, also known as "hard metal," may produce giant cell interstitial pneumonitis.
- Cobalt is a constituent of tungsten carbide and is the likely etiologic agent of both the interstitial pneumonitis.

Q.140) Answer for this question is (a)

Kidney

Exp:

- Fever with pus cells in urine suggests the diagnosis of UTI. Absence of dysuria and frequency is against the diagnosis of cystitis and urethritis.
- Furthermore bacteria coated with specific antibodies are present in the urine only when the kidneys are infected.
- Antibody coated bacteria are detected by immunofluorescence using fluorescent tagged antihuman globulin or by staphylococcal coagglutination.

Q.141) Answer for this question is (c)

Serratia

Exp:

Serratia may grow in sputum after collection and may suggest hemoptysis because of the pigment formed ('Pseudohemoptysis').

Q.142) Answer for this question is (d)

Rickettsia akari

Exp:

Vector for Rickettsia akari is gamasid mite.

Q.143) Answer for this question is (a)

A

Exp:

Group A of human adenoviruses have high tumourogenicity in vivo.

Q.144) Answer for this question is (b)

Interferons are synthesized only by virus infected cells.

Exp:

- Interferons (IFNs) are host-coded proteins that are members of the large cytokine family and which inhibit viral replication.
- They are produced very quickly (within hours) in response to viral infection or other inducers and are one of the body's first responders in the defense against viral infection. Interferon was the first cytokine to be recognized.
- Interferons are produced by all vertebrate species, Normal cells do not generally synthesize interferon until they**

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are induced to do so.

- d. Infection with viruses is a potent insult leading to induction; RNA viruses are stronger inducers of interferon than DNA viruses.
- e. Interferons also can be induced by double-stranded RNA, bacterial endotoxin, and small molecules such as tilorone.

Q.145) Answer for this question is (b)

600

Ref: Pathology practical book by Harsh Mohan 2nd ed/p-180

Count the number of cells in the respective squares

- For WBC count – 4 corner square cells counted and added

-For RBC count – among the centre 25 small squares, upper right, upper left, lower right, lower left and center squares are counted and added

- Area of one large corner square = $1 \times 1 \text{ mm} = 1 \text{ sq. mm}$ Depth (when coverslip is in position) = $1/10 \text{ mm}$ Therefore, Volume of one large corner square = Area x depth = $1 \times 1/10 = 1/10 \text{ cmm}$
- **Volume** of four large corner squares = $4 \times 1/10 = 4/10 \text{ cmm}$
- Dilution of blood is 1:20
- So if X is total number of cells counted in 4 large corner squares then,

$$\text{Total count / cmm of blood} = \frac{\text{X x dilution factor}}{\text{Volume}}$$

$$\text{i.e. } \frac{\text{X x } 20 \times 10}{4} = \text{X x } 50 / \text{cmm of blood.}$$

Crux: Remember:

If dilution factor is 20, the multiplication factor would be

- **For WBC count – multiply by 50**
- **For RBC count – multiply by 10000**

Here in this question, total numbers of WBCs are 120. **So the answer is $120 \times 50 = 6000$**

Q.146) Answer for this question is (c)

Sporothrix schenckii

Exp:

- a. The conidia or hyphal fragments of *S. schenckii* are introduced into the skin by trauma.
- b. Patients frequently recall a history of trauma associated with outdoor activities and plants.
- c. The initial lesion is usually located on the extremities but can be found anywhere (children often present with facial lesions).
- d. About 75% of cases are lympho-cutaneous; ie, the initial lesion develops as a granulomatous nodule that may progress to form a necrotic or ulcerative lesion.

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- e. Meanwhile, the draining lymphatics become thickened and cord-like.
- f. Multiple subcutaneous nodules and abscesses occur along the lymphatics.

Q.147) Answer for this question is (d)

Insulin

Exp:

Insulin is a high molecular weight protein which is inactive orally and is unable to cross intact cell membrane. It is transferred into the CNS by the process of pinocytosis.

Q.148) Answer for this question is (c)

10 L

Exp:

- a. Volume of distribution = LV. dose / Plasma concentration at steady state.
- b. Dose given is 20 mg LV., concentration after 2 hours 2 mg/ml or 2 mg/L
- c. Therefore volume of distribution = $20/2 = 10$ L

Q.149) Answer for this question is (b)

Mitochondria

Exp:

- a. Regarding glucose metabolism, glycolysis, the pathway which converts glucose to two molecules of pyruvate alone takes place in cytoplasm.
- b. Once pyruvate is formed, it will be taken up by the mitochondria where the final pathway of complete oxidation of it to CO₂ and water occurs in two steps:
- c. Pyruvate dehydrogenase converts pyruvate to acetyl CoA
- d. Acetyl CoA will then enter into TCA cycle giving rise to CO₂ and water.
- e. Thus, for the above question, the answer is mitochondria.

Q.150) Answer for this question is (a)

Troponin

Exp:

- a. Smooth muscle is the least specialized type of muscle and contains **no troponin**. The contractile process is similar to the actin-myosin interactions that occur in motility of nonmusical cells.
- b. In the smooth-muscle cell, actin and myosin are attached to intermediate filaments at dense bodies in the sarcolemma and cytoplasm.
- c. Dense bodies contain u-actinin and, therefore, resemble the Z lines of skeletal muscle. Contraction causes cell shortening and a change in shape from elongate to globular.
- d. Contraction occurs by a sliding filament action analogous to the mechanism used by thick and thin filaments in striated muscle.

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- e. The connections to the plasma membrane allow all the smooth-muscle cells in the same region to act as a functional unit.
- f. Sarcoplasmic reticulum is not as well developed as that in the striated muscles.
- g. There are no T tubules present; however, endocytic vesicles called caveolae are believed to function in a fashion similar to the T tubule system of skeletal muscle.
- h. Smooth-muscle cells (e.g., vascular smooth-muscle cells) also differ from skeletal muscle cells in that they are capable of collagen, elastin, and proteoglycan synthesis, which is usually associated with fibroblasts.

Q.151) Answer for this question is (b)

Integrins

Exp:

- a. The **integrins are** transmembrane heterodimers (Membrane proteins) that act as membrane receptors for extracellular matrix components.
- b. The **best examples** are the fibronectin receptor and the laminin receptor.
- c. The receptor structure includes an intra cytosolic portion that binds to the actin cytoskeleton.
- d. The cadherins function as transmembrane glycoproteins involved in the formation of parts of the intercellular junctional complexes.
- e. Cadherins are components of the desmosome and zonula adherens. Inter mediate filaments and microtubules are found intracellularly and constitute the cytoskeleton.

Q.152) Answer for this question is (a)

Duodenal or esophageal atresia

Exp:

- a. Duodenal and/or esophageal atresia result in an inability of the fetus to swallow amniotic fluid.
- b. The result is that normal recirculation amniotic fluid through the embryo is greatly reduced or eliminated causing an excess of amniotic fluid.
- c. Excess is defined as greater than 2000 mL in the third trimester. Low volumes of amniotic fluid (oligohydramnios) are caused by rupture of the fetal membranes, bilateral agenesis of the kidneys, or obstructive uropathy (blockage of the calyces or ureters), which prevents urine from being added to the amniotic fluid.
- d. Hypoplasia of the lungs and compression of the umbilical cord are associate with oligohydramnios but do not cause it.

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- e. The presence of adequate fluid in the uninflamed lungs is essential for lung maturation, and growth factors in the amniotic fluid may also be important. The formula for understanding the relationship between urine and amniotic fluid is:

Less urine output = less fluid;

Less swallowing = more fluid.

Q.153) Answer for this question is (b)

Son's children 0%; daughter's children 100%

Exp:

At fertilization all mitochondria in the zygote come from the oocyte and so both mtDNA and most mtDNA related diseases are maternally inherited.

Q.154) Answer for this question is (a)

Vit A

Exp:

- Protection against damage by free radicals is achieved in a no of ways in the lens
- The super oxide anion undergoes dismutation by super oxide dismutase or interaction with ascorbate which results in formation of H₂O₂. This is detoxified by glutathione peroxidase and catalase
- Ascorbic acid appears to play a major role in the antioxidant system in the lens.
- A low level of a-tocopherol and b carotene are also present in aqueous humor.

Q.155) Answer for this question is (d)

Hepatoma

Exp:

Bruit is heard in Grave disease but it is a autoimmune disorder and not a malignancy!!!

Q.156) Answer for this question is (d)

Direct thrombin inhibitor (DTI)

Exp:

It is a new anti clotting drug. Other DTI are bivalirudin, and lepirudin.

Q.157) Answer for this question is (a)

Renal cell carcinoma

Exp:

RCC; may have activity in melanoma when combined with chemotherapy

Its mechanism of action is that it targets VEGFR pathways in RCC.

Q.158) Answer for this question is (b)

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Sickle cell anemia

Exp:

Clinical Features of Sickle Hemoglobinopathies

Condition	Clinical Abnormalities
Sickle cell anemia	Vaso-occlusive crises with infarction of spleen, brain, marrow, kidney, lung; aseptic necrosis of bone; gallstones; priapism; ankle ulcers

Q.159) Answer for this question is (b)

Mg 2+

Exp:

- Divalent cations like Mg²⁺ or Mn²⁺ are used for PCR mediated mutagenesis.
- Polymerase chain reaction. The polymerase chain reaction (PCR) generates multiple copies of a DNA segment.
- After denaturing the double-stranded (ds) DNA, complementary synthetic oligonucleotide primers of about 20 bp are annealed on each side of the fragment of interest.
- A heat-stable polymerase then extends the oligonucleotides and synthesizes the complementary strand. This cycle is repeated 25 to 30 times. The number of DNA-amplified DNA segments is thus doubled after every PCR cycle.

Q.160) Answer for this question is (d)

Explanation:

- Topiramate:** Urolithiasis has also been reported. However, the discontinuation rate is apparently only about 15%. The drug is teratogenic in animal models, and hypospadias has been reported in male infants exposed in utero to topiramate.
- Triamterene is only slightly soluble and may precipitate in the urine, causing kidney stones.

Q.161) Answer for this question is (a)

Erythromycin

Exp:

- Most of the drugs cause CYP enzyme inhibition by competitive inhibition wherein two drugs compete with each other for the same active site on the enzyme.
- A second type of enzyme inhibition is mechanism based or suicide inactivation in which the effector compound is metabolized by the enzyme to a reactive form which irreversibly binds to the enzyme and prevents any further metabolism of the drug.
- The drug which cause such suicide inhibition are erythromycin, ticlopidine and disulfiram.

Q.162) Answer for this question is (a)

Tamsulosin

Exp:

- Alfa adrenoceptors are broadly classified as α_1 postsynaptic and α_2 presynaptic.
- At least three subtypes of both α_1 and α_2 receptors have been identified Viz. α_1 A, B, & D and α_2 A, B & C.

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- c. Tamsulosin exhibits some selectivity for α_1A receptors which are rich in the prostate, while α_1B receptors are plentiful in vascular smooth muscle.
- d. Tamsulosin is used as an agent of choice in the treatment of Benign prostatic hypertrophy.
- e. Phentolamine is a reversible nonselective α_1 & α_2 receptor blocking agent, yohimbine is relatively more selective for presynaptic α_2 adrenoceptors and doxazosin for postsynaptic α_1 adrenoceptors.

Q.163) Answer for this question is (a)

Hydralazine

Exp:

- a. The vasodilatation produced by hydralazine depend in part on the presence of an intact blood vessel endothelium, implying that it causes the release of nitric oxide which acts on the vascular smooth muscle to cause relaxation.
- b. In addition, it may produce vasodilatation by activating K^+ channels.
- c. Diazoxide and minoxidil cause relaxation of vascular smooth muscle by opening of potassium channels, while sodium nitroprusside acts by releasing nitric oxide.

Q.164) Answer for this question is (a)

Required for carboxylase reaction

Exp:

1. Oxygenases are of 2 types
 - a. Dioxygenase-incorporates two oxygen atoms into substrate
 - b. Mono oxygenases-incorporates one oxygen atom into substrate
2. Eg. homogentisate dioxygenase
 - a. 3-hydroxyanthranilate dioxygenase
 - b. L-tryptophan dioxygenase
3. Cytochrome P450 is important for:
 - a. Detoxification of drugs
 - b. Hydroxylation of steroids
4. Oxygenases are not required for carboxylation reaction.
5. Carboxylase reactions are carried out with the help of cofactor Biotin.

Q.165) Answer for this question is (a)

Spironolactone

Exp:

Epithelial cells in the LDT and CD contain cytosolic mineralocorticoid receptors (MR) that have high affinity for aldosterone. Aldosterone enters the epithelial cell from the basolateral membrane and binds to MRs the MR aldosterone complex is translocated to the nucleus where it regulates the expression of aldosterone induced proteins (ATP) which exert following effects:

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- Activation of "silent" Na⁺ channels and Na⁺ pumps that pre-exist in the cell membrane
- Cycling of Na⁺ channels and Na⁺ pumps between the cytosol and cell membrane such that more channels and pumps are located in the membrane.
- Increased expression of Na⁺ channels and Na⁺ pumps and
- Increased activity of enzymes in the mitochondria that are involved in ATP production.

This results in enhanced trans epithelial NaCl transport and increased excretion of K⁺ and H⁺. Spironolactone and eplerenone competitively inhibit the binding of aldosterone to the MRs, blocking the biological effects of aldosterone. MRs antagonists are the only diuretics that do not require access to the tubular lumen to induce diuresis.

Triamterine is a basic drug that is transferred by the organic base secreting mechanism in the proximal tubule, while thiazides and furosemide are acidic drugs that gain access to the tubular lumen by organic acid secretory mechanisms in the proximal tubule.

Q.166) Answer for this question is (c)

Oxytocin

Exp:

- The secretion of chemical messengers (neurohormones) from neurons into the blood is referred to as neuroendocrine secretion.
- Thus, in contrast to the local actions of neurotransmitters at nerve endings, neurohormones circulate in the blood before producing biological effects at target tissues.
- Oxytocin is synthesized from magnocellular neurons whose cell bodies are located in the paraventricular and supraoptic nuclei and whose nerve terminals terminate in the posterior pituitary gland.
- Target tissues for circulating oxytocin are the breast and uterus, where the hormone plays a role in lactation and parturition, respectively.

Q.167) Answer for this question is (a)

K⁺

Exp:

- The resting potential of any cell is dependent on the concentration gradients of the permeant ions and their relative permeabilities (Goldman equation).
- In the myelinated nerve fiber, as in most cells, the membrane is predominantly permeable to K⁺ at rest the highly negative V_m observed in cells such as nerve cells is primarily due to the greater than 10-fold higher concentration of K⁺ in the cytosol compared with the extracellular fluid.

Q.168) Answer for this question is (c)

Myosin, but no actin

Exp:

- The H zone is the region in the centre of the sarcomere composed of the lighter bands on either side of and including the M line.

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- b. In this region, the myosin filaments are centered on the M line, and there are no overlapping actin filaments.
- c. Therefore, a cross section through this region would reveal only myosin.

Q.169) Answer for this question is (a)

Hyperplasia of cutaneous sebaceous gland

Exp:

Rhinophyma/Potato tumour

- a. Slow growing benign tumor
- b. Hypertrophy of sebaceous gland
- c. Occurs in longstanding acne rosacea
- d. MC site - tip of nose
- e. Pink, lobulated mass over nose with superficial vascular dilation.
- f. Men, Middle age
- g. Treatment: pairing down the bulk of tumor with sharp knife or CO2 laser and allow area to re epithelize.

Q.170) Answer for this question is (d)

Smoking

Ref:Harrison 19th/p- 2414,Tripathi KD. Essentials of Medical Pharmacology, 7th ed/p-270,

- Smoking does not increase lactic acidosis in patient on metformin

BIGUANIDES (PHENFORMIN AND METFORMIN):

Q.171) Answer for this question is (d)

Blood eosinophilia

Exp:

- a. The most direct assessment of the impact of airflow obstruction on ventilation is measurement of arterial blood gases.
- b. Hypoxaemia severe enough to present with clinical cyanosis indicates severe asthma and status asthmaticus.
- c. Far more important is the arterial PCO₂ Respiratory drive is almost invariably increased in acute asthma, resulting in hyperventilation and a correspondingly decreased PCO₂.
- d. Thus, an elevated or even normal PCO₂ indicates that airway narrowing is so severe that the ventilatory demands of the respiratory centre cannot be met.
- e. Respiratory failure can then develop rapidly with any further bronchoconstriction or respiratory muscle fatigue.
- f. A peak flow below 120 l/minute or an FEV₁ below 1.0 litre indicates severe obstruction in all but unusually small adults.
- g. Tachycardia > 120 bpm and pulsus paradoxicus > 15 mmHg are important indices of severe asthma.
- h. The presence of blood eosinophilia in an asthmatic patient is highly suggestive of atopy as an underlying cause of the asthma. It is not a marker of severe disease.

Q.172) Answer for this question is (c)

Thickening of granular layer

Exp:

- a. Psoriasis is a non-infectious, chronic inflammatory disease characterized by well defined erythematous plaques with silvery scales.
- b. Male: Female is equal, common age affected is 5 to 15 years.

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- c. Time for keratinocytes in basal layer to leave the epidermis is reduced from 28 days to only **4-5 days**.
- d. Increased mitosis in psoriatic plaques.
- e. Horny layer is immature and parakeratotic with nuclear fragment still present in horn cells.
- f. **Woronoff ring** is whitish halo around the lesion.
- g. **Auspitz sign** (pinpoint bleeding on removing of scales).
- h. **Munro's microabscess** present in stratum corneum and is characteristic of psoriasis.
- i. "**Oil drop**" phenomenon is seen in psoriasis of nails.
- j. Parakeratosis is responsible for silvery scales.

Q.173) Answer for this question is (a)

Decreasing cAMP

Exp:

- a. In adipose tissue, where glucose provides acetyl CoA for lipogenesis, the enzyme is activated in response to insulin.
- b. Glucagon is active in heart muscle but not in skeletal muscle.
- c. Cyclic AMP (cAMP) is formed from ATP by **adenylyl cyclase** at the inner surface of cell membranes and acts as an intracellular **second messenger** in response to hormones such as **epinephrine, norepinephrine, and glucagon**.
- d. cAMP is hydrolyzed by **phosphodiesterase**, so terminating hormone action. In liver, insulin increases the activity of phosphodiesterase.
- e. Insulin also promotes glycogenesis in muscle at the same time as inhibiting glycogenolysis by raising glucose 6-phosphate concentrations, which stimulates the dephosphorylation and activation of glycogen synthase.
- f. Cyclic AMP integrates the regulation of glycogenolysis and glycogenesis by promoting the simultaneous activation of phosphorylase and inhibition of glycogen synthase. Insulin acts reciprocally by inhibiting glycogenolysis and stimulating glycogenesis.

Q.174) Answer for this question is (b)

Dermatitis herpetiformis

Exp:

- a. Coeliac disease is associated with a number of skin disorders, of which dermatitis herpetiformis is the most common.
- b. Dermatitis herpetiformis is characterised by an itchy papular vesicular eruption, usually located symmetrically on the elbows, knees, buttocks, sacrum, face, neck, trunk and occasionally within the mouth.
- c. The predominant symptoms are itching and burning that are rapidly relieved by rupture of the blisters.

Q.175) Answer for this question is (a)

Hyperkalemia

Exp:

Hyperkalemia is a life-threatening emergency that can be recognized by the **peaked T waves** observed on an electrocardiogram. The peaked I waves are produced by an accelerated repolarization of ventricular muscle. Potentially fatal

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hyperkalemia is treated by administering **insulin (along with glucose)**, which helps K^+ transport into cells and therefore lowers extracellular K^+ .

Q.176) Answer for this question is (b)

Stimulating the nerve during the relative refractory period

Exp:

- An action potential is normally an **all-or-none response**; that is, its magnitude is **independent of the stimulus strength**.
- The magnitude of the action potential is reduced during the relative refractory period or when the membrane is depolarized by an abnormally high extracellular potassium concentration.
- The upstroke of the action potential is caused by an inward flow of sodium ions, and therefore its magnitude depends on the extracellular sodium concentration.

Q.177) Answer for this question is (d)

Decreasing the interval between contractions

Exp:

- When the interval between skeletal muscle contractions is small, the force produced by the two successive contractions will **summate**.
- The shorter the interval between the contractions, the greater the summation will be.
- Maximum summation is called **tetanus**. Decreasing extracellular Ca^{2+} will increase the **excitability** of skeletal muscle fibers but does not have a direct effect on contractile force.
- Increasing the Mg^{2+} concentration will decrease skeletal muscle excitability.
- Increasing the preload beyond 2.2 mm decreases the overlap between thick and thin filaments and therefore decreases the force of contraction.
- Increasing the activity of acetylcholine esterase enhances the **hydrolysis of ACh** and therefore decreases the likelihood that muscle contraction will be initiated.

Q.178) Answer for this question is (b)

Hysterectomy

Exp:

An emphasis on making emergency obstetric and newborn care available to all women who develop complications is central to UNFPA's efforts to reduce maternal mortality.

This is because all five of the major causes of maternal mortality—haemorrhage, sepsis, unsafe abortion, hypertensive disorders and obstructed labour - can be treated at a well-staffed, well-equipped health facility.

Setting standards for emergency obstetric and newborn care

Basic emergency obstetric and newborn care, provided in health centres, large or small, includes the capabilities for:

Administration of antibiotics, oxytocics, and anticonvulsants

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Manual removal of the placenta

Removal of retained products following miscarriage or abortion Assisted vaginal delivery, preferably with vacuum extractor

Newborn care

Comprehensive emergency obstetric and newborn care, typically delivered in district hospitals, includes all basic functions above, plus

Caesarean section, safe blood transfusion and care to sick and low birth weight newborns, including resuscitation. Guidelines jointly issued in 1997 by WHO, UNICEF, and UNFPA, recommended that for every 500,000 people there should be four facilities offering basic and one facility offering comprehensive essential obstetric care. These guidelines are being revised in 2007 to allow flexibility in the implementation and to add new features.

To manage obstetric complications-the life saving component of maternity care-a facility must have at least two skilled attendants covering 24 hours a day and seven days a week, assisted by trained support staff. To manage complications requiring surgery, the facilities must have a functional operating theatre, more support staff and must be able to administer blood transfusions and anaesthesia.

Q.179) Answer for this question is (a)

Ca nasopharynx

Exp:

- Ca nasopharynx is most commonly seen in fossa of Rosenmüller.
- This fossa is just behind the eustachian tube and hence a Ca of this fossa often blocks the tube leading to Glue ear.
- A patient of glue will present with dull TM, deafness and tinnitus, type B curve impedance. The most common presentation of Ca nasopharynx is neck mass. Therefore this is a patient of Ca nasopharynx with glue ear.

WHO classification based on histopathology

Present WHO terminology Former terminology

Type I (25%) Squamous cell carcinoma Squamous cell carcinoma

- Transitional cell carcinoma
- Intermediate cell carcinoma
- Lymphoepithelial carcinoma
- (Regaud)

Type II (12%) Non-keratinizing carcinoma

- Without lymphoid stroma
- With lymphoid stroma

Type III (63%) Undifferentiated carcinoma Anaplastic carcinoma

- Without lymphoid stroma Clear cell carcinoma
- With lymphoid stroma Lymphoepithelial carcinoma
- (Schmincke)

NEET - PG MOCK TEST 1 (EXPLANATIONS)

- d. Spindle cell carcinoma.

Q.180) Answer for this question is (d)

Lung

Exp:

Mitral valve: Endocarditis with large vegetation on the atrial aspect of the valve. The underlying chordae are relatively unremarkable.

Q.181) Answer for this question is (a)

Humerus and forearm bones

Exp:

Side - Swipe fracture is an elbow injury sustained when one's elbow projecting out of a car, is 'side-swept' by another vehicle. It has a combination of the humerus with fractures of proximal end of radius and/or ulna. It is also called baby-car fracture.

Q.182) Answer for this question is (b)

Pulmonary function test

Exp:

This is case of fat embolism syndrome. Its features are:

- Occlusion of small vessels by fat globules
- More common with fractures of long bones and multiple fractures
- Cerebral type - patient is drowsy, restless and disoriented and gradually goes into a state of coma.
- Pulmonary type - Tachypnoea and tachycardia.
- Sputum and urine fat globules seen.
- Striate hemorrhages and exudates in retina
- Snow - storm appearance in chest X- ray.
- Treatment - respiratory support, heparinization intravenous low - molecular weight dextran and corticosteroids.

Q.183) Answer for this question is (b)

Distal pole of scaphoid

Exp:

Proximal pole of scaphoid (not distal pole) has high probability to undergo avascular necrosis after fracture through the waist of the scaphoid.

Q.184) Answer for this question is (a)

Radial nerve

Exp:

The radial nerve is the most frequently damaged nerve in musculo - skeletal injuries.

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Q.185) Answer for this question is (a)

Unstable fractures

Exp:

Most frequent indication for internal fixation is, when a fracture is so unstable that it is difficult to maintain it in an acceptable position by conservation means:

Q.186) Answer for this question is (a)

Ulnar nerve palsy

Exp:

Splint Name	Use
a. Cock - up splint	Radial nerve palsy
b. Knuckle - bender splint	Ulnar nerve palsy
c. Aero plane splint	Brachial plexus injury
d. Toe – raising splint	For foot drop

Q.187) Answer for this question is (c)

Type IV

Exp:

Injury to lateral condyle of humerus is type IV injury. Open reduction and internal fixation is its treatment of choice. Growth disturbance is common even after open reduction.

Q.188) Answer for this question is (c)

Downwards & medially

Exp:

Fracture of the clavicle:

- Common fracture at all age groups
- Common site is junction of middle & outer third
- Outer fragment displaces medially and downwards because of the gravity and pull by the pectoralis major muscle attached to it
- Figure - of - 8 bandage is applied for treatment - Shoulder stiffness is a common complication

Q.189) Answer for this question is (b)

5–7 years

Exp:

- The term microtia indicates a small, abnormally shaped or absent external ear. It can be unilateral or bilateral. The unilateral form is much more common, occurring in approximately 90% of the patients.
- The term aural atresia refers to the absence of the ear canal. Patients who have microtia usually, but not always, also have aural atresia.

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- c. Patients who have aural atresia have no hearing on that side but usually have completely normal hearing in the normal ear. Obviously, patients who have atresia in both ears will be sufficiently hard of hearing to require a hearing aid.
- d. Patients who lack the ear canal also have structural abnormalities of the middle ear with the absence of the eardrum and incomplete formation of the small middle ear bones, which allow conduction of hearing through the middle ear. Microtia and aural atresia tend to occur together because the outer ear and the middle ear evolve from a common embryologic origin.
- e. "If elected, surgery can be performed as early as 6–7 years of age.
- f. By this time, accurate audiometric tests have been obtained, pneumatization of the temporal bone is well advanced and most
- g. children are able to cooperate with postoperative care. This timing also permits microtia repair to be well underway."

Q.190) Answer for this question is (c)

1 for 1000 children

Exp:

Anganwadi worker

- a. Anganwadi worker is for population of 1000 & not 1 for 1000 children
- b. ICDS worker, Training for 4 months, honorarium of Rs. 200-250/mth
- c. There are about 100 such workers in each ICDS project.
- d. Services rendered by worker are Health check-up, Immunization, Supplementary nutrition, Health education, Non-formal pre school education & referral services.

Q.191) Answer for this question is (c)

PIH

Exp:

More precisely the "severe proteinuric oligoprotinemic" Patil

Contra indication of ECV are

- a. Fetal causes-congenital malformations, dead fetus, IUGR, hyperextension of the head
- b. Antepartum hemorrhage
- c. Ruptured membranes
- d. Multiple pregnancy
- e. Contracted pelvis
- f. Previous caesarean section
- g. Obstetrics complications severe pre eclampsia, obesity, elderly primigravida, bad obstetrics history
- h. Rh incompatibility
- i. Known congenital malformation of uterus
- j. ECV is done to bring the favorable cephalic pole in the lower pole of uterus. It is done ideally at 35-37 weeks.

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Successful version is likely in the following cases:

- Complete breech
- Non engaged breech
- Sacroanterior position
- Adequate liquor
- Non obese patient

Q.192) Answer for this question is (b)

Down's syndrome

Exp:

- Increased fetal nuchal thickness is a strong marker for chromosomal anomalies in the first trimester.
- Increased fetal nuchal translucency i.e. > 3 mm on transvaginal ultrasound is suggestive of
 - Trisomy 21- Down's syndrome
 - Trisomy 18 - Edward syndrome
 - Trisomy 13 - Patau syndrome
 - Turner's syndrome
- Most common chromosomal anomaly is Down's syndrome and hence the answer.

Q.193) Answer for this question is (b)

Water seal

Exp:

Water seal:

- The most important part** in a sanitary latrine is the water seal.
- The water seal is the distance between the level of water in the trap & the lowest point in the concave.
- It has two important functions
- It prevents access by flies
- It prevents escapes of odors & foul gases
- The depth of water seal in the RCA latrine is 2 cm

Q.194) Answer for this question is (c)

Vector borne disease

Exp:

- Outbreak of **gastroenteritis, which is the most commonly** reported disease in the post-disaster period; is closely related to overcrowding, poor sanitation, disruption and the contamination of water supply, damage to sewage system.
- Increase incidence of acute respiratory infections is also common in displaced population.
- Vector borne disease will not appear immediately** but may take several weeks to reach epidemic levels.

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Q.195) Answer for this question is (a)

The first census was conducted in 1881

Exp:

1. In India, the first census was conducted in 1872 and the next on 1881.
2. Since then it is being done every ten years and the last one was conducted in March 2001.
 - a. First Indian Census - 1872
 - b. First regular Indian Census - 1881
3. Other important points:
 - a. Census is an important source of health information.
 - b. It contains demographic, social and economic characteristic of people, the condition under which they live, how they work, their income and other basic information.

Q.196) Answer for this question is (b)

Losartan

Exp:

Recent reports have identified that losartan fenofibrate and amlodipine have some mild uricosuric effects. Frusemide and low dose aspirin both retain uric acid.

Q.197) Answer for this question is (c)

More than 185%

Ref: Parsons Disease of Eye, 21st edition, p-112; Khurana Ophthalmology, 5th edition, p-521

Normal value of light peak to dark trough ratio in EOG is more than 185%.

Electrooculogram and Electroretinogram

Electrooculogram (EOG):

- Measures changes in the resting potential of eye induced by changes in illumination, when the eyes are moved from side to side.
- It indicates activity of pigmentary epithelium and outer segment of rods and cones.
- **Therefore, any lesion proximal to the photoreceptor (rods and cons) will have a normal EOG.**

Arden index: Ratio of light peak over the dark trough in an EOG

- o > 185 : Normal curve
- o 150-185: Borderline
- o <150: Abnormal

Uses

- Since the EOG reflects the presynaptic function of the retina, any disease that interferes with the functional interplay between the retinal pigment epithelium (RPE) and the photoreceptors will produce an abnormal or absent light rise in the EOG.
- Thus, EOG is affected in diseases such as **retinitis pigmentosa, vitamin A deficiency, retinal detachment and toxic retinopathies.**
- Hence, EOG serves as a test that is supplementary and complementary to ERG and in certain states is more sensitive than the ERG. e.g. in diagnosis of **Best disease.**

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Electroretinogram (ERG)

The changes induced by the stimulation of light in the resting potential of the eye are measured by electroretinography. It is extinguished or absent in complete failure of function of rods and cones, e.g. pigmentary retinal dystrophy, complete occlusion of retinal artery, complete retinal detachment, advanced siderosis etc.

i. **Negative 'a' wave represent the activity in rods and cones.**

ii. Positive 'b' wave arises in inner retinal layers.

iii. Positive 'c' wave is associated with the pigmentary epithelium.

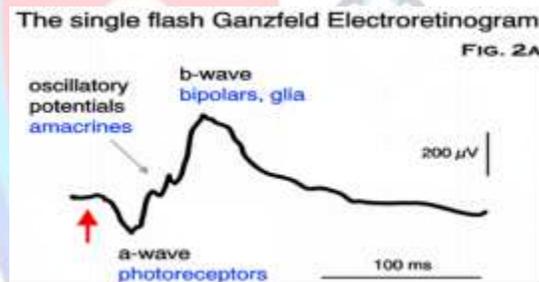
'a wave' – Initial Negative Deflection. Arises from photoreceptors.

'b wave' – Second Positive Deflection, represent processes occurring in Bipolar cell region.

'c wave' – Lower amplitude, more prolonged +ve response. Originates from RPE.

Uses

1. Diagnosis and prognosis of retinal disorders such as **retinitis pigmentosa, Leber's congenital amaurosis, retinal ischaemia and other chorioretinal degenerations.**
2. To assess retinal function when fundus examination is not possible, e.g., in the presence of dense cataract and corneal opacity.
3. To assess the retinal function of the babies where possibilities of impaired vision is considered.



Q.198) Answer for this question is (d)

Measles

Exp:

Shake test - can be use of to determine if vaccine has been frozen at any time. Procedure – Shake the vial so that the sediments, if any, are completely mixed; wait for 15 minutes; if the vaccine is not uniformly mixed or the sediments / flocculations are still found settled at the bottom, the vaccine is likely to have been frozen at some time. Such vials should be discarded. It is useful for DPT / DT / TT / Typhoid (T-series vaccine) and HB vaccines which should never be frozen.

Q.199) Answer for this question is (a)

Myringotomy and aspiration of the fluid

Exp:

The treatment of the established case is myringotomy and aspiration of the fluid. Performed under general anesthesia and with the help of the operating microscope.

Treatment of Glue Ear

- a. If the condition persists despite treatment of any underlying sinusitis or if no cause can be found, the patient should undergo an examination of the postnasal space with biopsies of any suspicious areas. Myringotomies should be carried out.
- b. If there is thick or serous fluid present. Grommets should be inserted even if there is a postnasal tumour present.

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Where the drum is collapsed or atrophic grommets may be inserted anteriorly, but if the atelectasis is longstanding they are unlikely to be beneficial, and the patient would be better served by having a hearing aid.

- c. If the condition persists after the grommets have come out. long-term ventilation tubes such as a T-tube or titanium should be used.

Q.200) Answer for this question is (d)

S.O fibrosis

Exp:

It is a congenital ocular motility defect due to fibrous tightening of SO tendon limitation of elevation of eye in adduction.

Straight in primary position

Forced Duction Test is positive

Q.201) Answer for this question is (a)

Are decreased

Exp:

Disseminated intravascular' coagulation.

- Coagulation is usually confined to a localized area by the combination of blood flow and circulating inhibitors of coagulation, especially antithrombin III. If the stimulus to coagulation is too great, these control mechanisms can be overwhelmed, leading to the syndrome of disseminated intravascular coagulation (DIC).

Diagnosis:

- a. Antithrombin III levels may be low in DIC due to the combination of increased consumption and decreased synthesis.
- b. Hypofibrinogenemia, thrombocytopenia, fibrin degradation products, and prolonged prothrombin time.

Q.202) Answer for this question is (c)

Decrease the effect of angiotensin II on efferent arteriolar tone

Exp:

- a. Angiotensin-converting enzyme (ACE) inhibitors block the conversion of angiotensin I into angiotensin II.
- b. Angiotensin II is a powerful vasoconstrictor that preferentially affects the vascular tone of the efferent arterioles.
- c. Removal of the tonic vasoconstrictor effect of angiotensin II on the efferent arterioles lowers the glomerular intercapillary pressure, while preserving renal plasma flow.
- d. Glomerular efferent arteriolar tone is increased in diabetes.
- e. Hyaline arteriosclerosis, the small vessel disease of diabetes mellitus, is commonly present in both the afferent and efferent arterioles.
- f. Increased efferent arteriolar tone results in increased transcapillary hydrostatic pressure, which interferes with the functional integrity of the glomerular capillary wall.
- g. In addition, nonenzymatic glycosylation contributes to the permanent damage in the glomerular capillary walls.

Q.203) Answer for this question is (c)

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Pseudoexfoliation glaucoma

Ref: Khurana Ophthalmology, 5th edition, p-250

All are secondary **angle closure** glaucoma (SACG) except pseudo exfoliative which is secondary **open angle** glaucoma (SOAG).

Argon Laser Trabeculoplasty

Indications:

- Primary open angle glaucoma.
- **Pseudoexfoliation and Pigmentary glaucoma.**

Argon Laser applied (through Goldmann 3 mirror lens) at the junction of Ant. Non pigmented and post pigmented trabecular meshwork in angle. This causes heat contracture and hence pulling up of TM – opening up its channels.

Q.204) Answer for this question is (b)

Acute cholecystitis.

Exp:

Let us see the characteristics of pain associated with each of the above-mentioned conditions:

1. Renal calculus (pelviureteral junction):
Pain typically begins in the flank. It is gradual in onset and increases in next 20-60 minutes. Pain may radiate downward and anteriorly towards the ipsilateral loin or vulva.
2. Acute cholecystitis:
Pain begins in right upper quadrant and may radiate to interscapular area, right scapula or shoulder. A triad of right upper quadrant tenderness, fever and leukocytosis is highly suggestive of the condition.
3. Acute pancreatitis:
Pain is located in epigastrium and periumbilical region. It often radiates to back as well as to the chest, flank and lower abdomen. Pain is more severe in supine position.
4. Acute diverticulitis:
It is more common in males and commonly involves left colon. It causes fever, left lower quadrant abdominal pain and signs of peritoneal irritation like muscle spasm, guarding and rebound tenderness.

Thus option 2 is the correct answer.

Q.205) Answer for this question is (b)

Muromonab CD3

Exp:

Muromonab CD3 is a murine monoclonal antibody against CD3 glycoprotein on helper T cells initial dose of this drug can produce cytokine release syndrome with flu like symptoms. This drug is used in induction therapy for organ transplantation.

Q.206) Answer for this question is (d)

Safe when injected intravenously

Exp:

Cilomilast is a new drug found effective in the treatment of allergic conditions. It is an orally used preparation hence can be

NEET - PG MOCK TEST 1 (EXPLANATIONS)

given only in mild symptoms or for prevention.

Q.207) Answer for this question is (b)

Two

Exp:

Following are the categories in DOTS to decide the anti tubercular regimen:

- Cat.1 new smear + new smear -with extensive involvement; new severe extrapulmonary disease.
- Cat.2 smear+ relapse treatment failure; treatment after interruption
- Cat.3 new smear- other than category 1 new less severe extra pulmonary disease.
- Cat.4 not used these days.

Q.208) Answer for this question is (b)

+85 mv

Ref: Dhingra PL. Diseases of Ear, Nose and Throat, 6th ed.p-15.

Ganong's Review of medical physiology 25th ed.p- 204

Endocochlear potential-

- It is a direct current (DC) potential **recorded from scala media.**
- It is **+80 mV** and is generated from the **stria vascularis** by **Na⁺/K⁺-ATPase pump** and provides source of energy for **cochlear transduction**

ELECTRICAL POTENTIALS OF COCHLEA AND CN VIII

Four types of potentials have been recorded; first three from the cochlea and last one i.e Compound action potential is from CN VIII fibres.

Endocochlear potential	Cochlear microphonic (CM).	Summating potential (SP)	Compound action potential
<ul style="list-style-type: none"> •Direct current (DC) potential recorded from scala media. •It is +80 mV and is generated from the stria vascularis by Na⁺/K⁺-ATPase pump •Provides source of energy for cochlear transduction •Present at rest and does not require sound stimulus •Provides a sort of "battery" to drive the current through hair cells when they move in response to a sound stimulus. 	<ul style="list-style-type: none"> •Is an alternating current (AC) potential. •When basilar membrane moves in response to sound stimulus, electrical resistance at the tips of hair cells changes allowing flow of K⁺ through hair cells and produces voltage fluctuations 	<ul style="list-style-type: none"> •It is a DC potential •Follows "envelope" of stimulating sound •Produced by hair cells •It may be negative or positive •It is superimposed on VIII nerve action potential •SP has been used in diagnosis of Meniere's disease 	<ul style="list-style-type: none"> •It is an all or none response of auditory nerve fibres.

Q.209) Answer for this question is (d)

Tympano-mastoid exploration

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Exp:

The diagnosis in this case is Unsafe CSOM as there is foul smelling discharge with the findings in Pars Flaccida. So to treat such a case, the mastoid exploration is the ideal approach.

The Safe CSOM perforations lie in Pars tensa and discharge is usually not foul smelling.

Q.210) Answer for this question is (c)

Morbidity

Exp:

Demography

1. Demography is the scientific study of human population.
2. It focuses its attention on three readily observable human phenomena :
 - a. Changes in population size (growth or decline)
 - b. Composition of the population
 - c. Distribution of population in space.
3. It deals with five "demographic processes", namely fertility, mortality, marriage, migration and social mobility.

Q.211) Answer for this question is (d)

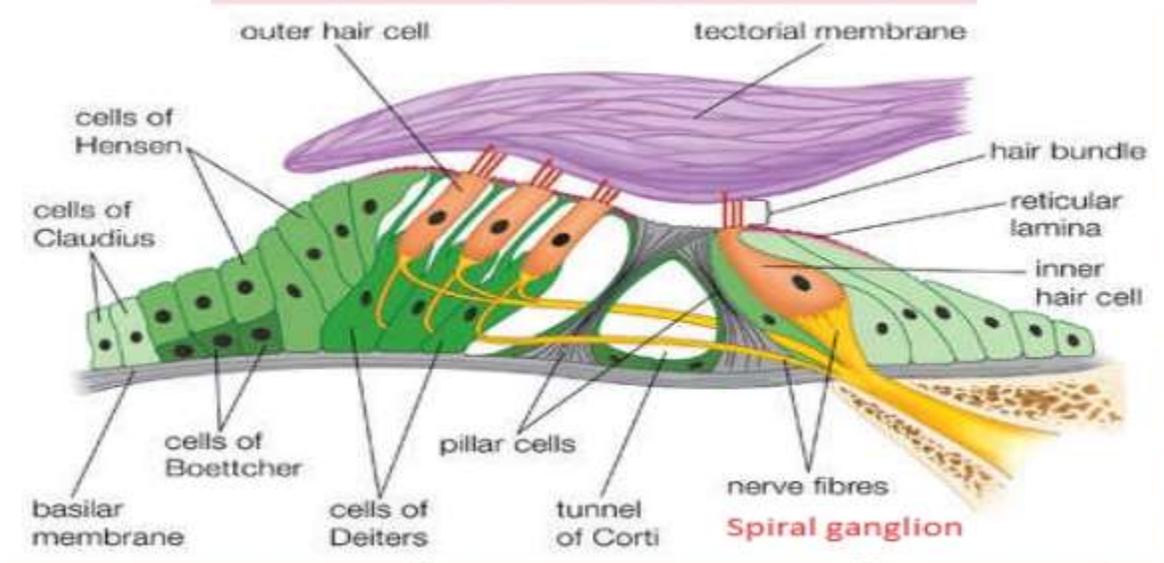
Ref: Dhingra PL. Diseases of Ear, Nose and Throat, 6th ed.p-14-15.Ganong's Review of medical physiology 25th ed.Page no. 201

In the image-

A-Outer hair cell,B-Deiter cell,C-Pillar cell,D-Dieter cell

Spiral ganglion:

- contains cell bodies of the auditory nerve whose pe-ripheral axons innervate hair cells on the organ of Corti
- 90% to 95% of these sensory neurons innervate **the inner hair cells**
- only 5–10% innervate the more numerous **outer hair cells**



NEET - PG MOCK TEST 1 (EXPLANATIONS)

- **Cochlea is a coiled** tube making two a three quarter turns around a **central modiolus**.
- Basal coils of it responds to higher frequencies while apex respond to lower frequencies of sound.
- Cavity of cochlea is divided as **scala vestibule and scala tympani (filled with perilymph) and scala media (filled with endolymph)**.
- Scala vestibule is closed by foot plate of **stapes at the oval window**, while scala tympani is closed by the secondary tympanic membrane at **the round window**.
- **Scala Tympani is connected to the subarachnoid space through the cochlear aqueduct**: In sensorineural deafness following meningitis and meningitis following purulent labyrinthitis this is the route of spread.
- **Membranous Labyrinths**: It consists of **scala media (membranous cochlea)/utricle and saccule/semicircular ducts/endolymphatic duct and sac**. **Scala media contains organ of corti**, which is the sensory receptor of hearing. Organ of corti rests on the basilar membrane **Utricle and saccule** contain crystals of **calcium carbonate (otoconia)** inside a gelatinous matrix. Hence, they are also known as **otolith organs**.
- **Organ of Corti**
Is end organ of hearing located in the cochlear duct
Contains endolymph, **hair cells**, supporting cells of **Hensen's, Dieter's cells and Claudius cells**^Q
Endolymph is rich in K^+
- **Outer hair cells** produce otoacoustic emissions (**efferent**), acts as modulator & more **sensitive to ototoxic drugs and noise**
 - Inner hair cells are meant mainly for hearing (**afferent**), less in numbers

Extra Kick:

- **Inner ear fluid**

ENDOLYMPH	PERILYMPH
<ul style="list-style-type: none"> • Secreted by the stria Vascularis.^Q • Is Potassium rich^Q • It reabsorbed by endolymphatic Sac. <p>(Remember as VP of Endo) i.e Endolymph is Secreted by Stria Vascularis & Potassium rich</p>	<ul style="list-style-type: none"> • Is sodium rich.^Q • It formed directly from CSF and partially as an ultrafiltrate of blood. • It reabsorbed through aqueduct of cochlea to the subarachnoid space

Q.212) Answer for this question is (a)

Iliac crest

Exp:

- a. Bone grafting is an operation whereby pieces of bone (bone grafts) taken from some part of a patient's body are placed at another site.

NEET - PG MOCK TEST 1 (EXPLANATIONS)

- b. There are three types of bone grafts – autograft (from the same person), allograft (from another person of the same species), and xenograft (from a different species). Autografts are used most commonly.
- c. Autogenous grafting: This is the 'gold standard' bone grafting technique.
- d. Iliac crests are the commonest site for taking bone grafts.
- e. When the graft is required for osteogenic purpose (as in non-union), cancellous bone grafts are preferred.
- f. It is available in plenty from iliac crests and upper end of the tibia.
- g. When the graft is used for providing stability (as for filling bone gaps), cortical graft is used. Fibulae are the common source of cortical bone grafts.

Q.213) Answer for this question is (d)

Panel discussion

Exp:

Socratic method of teaching is

Two-way communications

Q.214) Answer for this question is (c)

Human behaviour is influenced

Exp:

- a. Knowledge is imposed.
- b. Learning is authoritative.
- c. Little audience participation.
- d. No feedback.
- e. Does not influence human behaviour.

Q.215) Answer for this question is (b)

When it spreads in more than 5 cities

Ref: <http://www.mohfw-h1n1.nic.in/documents/pdf/1.Guidelines>

Objective Criteria to Determine Community Spread of Pandemic Influenza A H1N1:

“If there is 25 or more epidemiologically linked suspect cases of Pandemic Influenza A H1N1 of which at least one or more are laboratory confirmed for Pandemic Influenza A H1N1, in two or more cities, over a period of two weeks, then the State would be considered to be having community spread.”

CRUX: Pandemic: 25 or more epidemiologically linked suspect cases, at least 1 or more are laboratory confirmed case. In 2 or more cities, over a period of 2 weeks.

Q.216) Answer for this question is (b)

Lamivudine is drug of choice

Ref: Park, 22nd edition, p-225

Dengue is a arboviral disease which is spread by aedes aegypti. Lamivudine is not used as a drug for dengue.

Some Arboviruses known to be prevalent in India:

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Group A (Alphaviruses)	Group B (Flaviviruses)
<ul style="list-style-type: none"> • Chikungunya • Sindbis 	<ul style="list-style-type: none"> • Dengue^Q • KFD • JE • West Nile

Dengue: At a Glance:

Agent:

- Four serotypes of the virus – DEN 1 – 4

Vector: Aedes aegypti

Clinical Types:

- **Classical dengue fever:** Also referred to as 'break bone fever' due to the pain associated with it.
 - Usually be infection by single strain e.g. DEN 1 or DEN 2
 - Incubation period is 3-10 days
 - Onset sudden – Fever with chills and rigors þ retro orbital pain with photophobia (reasonably specific symptom)
 - Treatment is symptomatic
- **Dengue hemorrhagic fever:** Severe form of dengue fever usually resulting from double or multiple infections.
 - Children < 15 years are commonly affected.
 - Plasma leakage is a distinguishing feature with abnormal hemostasis – positive tourniquet test.

Grading of DHF

- Grade I – non specific constitutional symptoms + touniquet test.
- Grade II – spontaneous bleeding.
- Grade III – circulating failure narrowing pulse pressure < 20 mm Hg and hypotension.
- Grade IV – profound shock.

Lab

- Thrombocytopenia < 100,000/mL.
- Hemoconcentration – haematocrit by 20%.

Dengue Shock Syndrome

- Narrowing of pulse pressure (20 m kg or less) or hypotension.

TREATMENT

Volume Replacement:

High risk patients:

The following host factors contribute to more severe disease and its complications:

1. Infants and elderly;
2. Obesity;
3. Pregnancy;
4. Peptic ulcer disease;
5. Women who are in menstruation or have abnormal bleeding;
6. Haemolytic disease such as G-6PD, thalassemia and other haemoglobinopathies;
7. Congenital heart disease;
8. Chronic diseases such as diabetes mellitus, hypertension, asthma, ischaemic heart disease, chronic renal failure, liver cirrhosis; and
9. Patients on steroid or NSAID treatment.

- **Malnutrition is protective for dengue (Ref: JIACM 2004;5(3):247-58)**

Q.217) Answer for this question is (b)

Suitable for study of rare disease

Exp:

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Cohort Study

Cohort study is another type of analytical (observational) study which is usually undertaken to obtain additional evidence to refuse or support the existence of an association between suspected cause and disease.

Advantages

- Incidence can be calculated
- Several possible outcomes related to exposure can be studied simultaneously.
- Cohort studies provide a direct estimate of relative risk.
- Since comparison groups are formed before disease develops, certain forms of bias can be minimized like misclassification of individuals into exposed and unexposed groups.
- Dose-response ratios can also be calculated.

Disadvantages

Cohort studies also present a number of problems:

- They are generally unsuitable for investigating **uncommon** diseases or diseases with low incidence in the population.
- It takes a **long time** to complete the study.
- Certain administrative problems such as loss of experienced staff, loss of funding and extensive record keeping are inevitable.
- It is not unusual to lose a substantial proportion of the original cohort - they may migrate; lose interest in the study or simply refuse to provide any required information.
- Selection of comparison groups which are representative of the exposed and unexposed segments of the population is a limiting factor.
- There may be changes in the standard methods or diagnostic criteria of the disease over prolonged follow-up.
- Cohort studies are expensive.
- The study itself may alter people's behaviour.
- Finally, in a cohort study, practical considerations dictate that we must concentrate on a limited number of factors possibly related to disease outcome.

Q.218) Answer for this question is (a)

Phytanic acid oxidase

Exp:

Refsum Disease

- This is an autosomal recessive hypertrophic neuropathy caused by defective oxidation of phytanic acid, a branched-chain fatty acid found in dairy products, beef, lamb, and fish.
- The onset is in late childhood or adolescence, with a slowly progressive course of a sensorimotor demyelinating neuropathy with sensorineural deafness, cerebellar ataxia, and anosmia.
- Retinitis pigmentosa presenting as night blindness often precedes the onset of neuropathy.
- Thickened skin (ichthyosis), syndactyly and shortening of the fourth toe, cardiomyopathy, and cataracts are other features.

NEET - PG MOCK TEST 1 (EXPLANATIONS)

- e. CSF protein is typically elevated. Abnormally high plasma and urinary levels of phytanic acid are diagnostic.
- f. Although a diet low in phytanic acid may prevent the onset of some of the complications, compliance with this diet is usually poor.
- g. Plasma exchange and dialysis may be helpful for episodes of worsening.

Q.219) Answer for this question is (c)

Hyperkalemia

Exp:

In hyperkalemia earliest finding in ECG is tall T wave, followed by prolonged PR interval, disappearance of P wave (Atrial arrest) and finally wide QRS complex (Sine wave).

Q.220) Answer for this question is (d)

If azotemia is advanced and dialysis is not an option

Exp:

- a. Years before dialysis was routinely available, it was well established that protein restriction (prescribed or self-imposed) could alleviate some of the symptoms of uremia; unfortunately, prolonged protein restriction led to the development of malnutrition and its associated complications.
- b. In the setting of chronic renal failure, a number of clinical studies have suggested that modest protein restriction may slow the rate of progression of renal failure, particularly in patients with glomerular disease and daily protein excretion rates > 1 g/d.
- c. There are insufficient data in the setting of acute renal failure to adequately assess the importance of protein intake.
- d. However, in view of the hypercatabolism that accompanies many cases of acute renal failure, most practitioners provide adequate protein to patients (e.g., 1.0 to 1.2 g protein per kg per day) and provide dialysis if uremia ensues.
- e. There are no set laboratory "cutoffs" (BUN > 100) that indicate the need for dialysis.

Q.221) Answer for this question is (a)

Simple Hysterectomy

Exp:

1. Please note the incidence of endometrial cancer in the following conditions
 - a. Simple Endometrial Hyperplasia 1% risk of Ca without atypical cells Endometrium
 - b. Complex Endometrial Hyperplasia 3% without atypical cells
 - c. Simple Endometrial Hyperplasia with 8% atypical cells
 - d. Complex Endometrial Hyperplasia with 29% atypical cells
2. Since simple Hyperplasia with atypia can lead eventually to cancer, it's prudent to treat it with hysterectomy even if the woman is post menopausal

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Q.222) Answer for this question is (a)

Liver disease

Exp:

Hemolytic anemia with bizarre shaped RBC occurs in about 5% of patients with severe hepatocellular damage. These are called spur cells and are found in liver disease.

Q.223) Answer for this question is (b)

Polyarteritis nodosa

Exp:

1. Primary Cutaneous Disorders
2. Nonpalpable
 - a. Trauma
 - b. Solar purpura
 - c. Steroid purpura
 - d. Capillaritis
 - e. Livedoid vasculitis



NEET - PG MOCK TEST 1 (EXPLANATIONS)

3. Systemic Diseases
4. Nonpalpable
5. Clotting Disturbances thrombocytopenia abnormal platelet function clotting factor defect
6. Vascular Fragility
7. Amyloidosis
8. Scurvy
9. Ehler danlos syndrome

Q.224) Answer for this question is (d)

Rectum

Exp:

- a. The rectum is the least common site for diverticula because it is surrounded by muscle and has no areas of weakness in the bowel wall.
- b. Diverticula are subdivided into true diverticula and false (pulsion) diverticula. True diverticula have all layers present, including the mucosa, submucosa, and muscle wall. False diverticula are created by a weakness in the underlying muscle wall, such that only the mucosa and submucosa are present in the diverticulum.
- c. In the esophagus, diverticula are three times more common in men than women. A Zenker's diverticulum is the most common type. It is a false diverticulum located in the upper esophagus. A traction diverticulum is a true diverticulum that is located in midesophagus at the level of the tracheal bifurcation. It is due to retraction of the esophagus by scar tissue in the hilar nodes secondary to tuberculosis (mnemonic traction, true, TB = 3Ts).
- d. A Meckel's diverticulum is a true diverticulum located on the antimesenteric border of the ileum 2 feet from the ileocecal valve. It represents the persistence of the omphalomesenteric duct. Peptic ulceration due to gastric mucosa (40% to 50%) with bleeding is the most common complication and leads to iron deficiency. It is one of the most common causes of gastrointestinal bleeding in the newborn (other than swallowed maternal blood during delivery) and in children. A good mnemonic is the rule of twos: 2 inches long, 2% incidence, and 2 feet from the cecum. Other small-bowel diverticula are false diverticula. They are frequently the site of bacterial overgrowth, which, in turn, may predispose to bile salt deficiency (malabsorption) and B12 deficiency (megaloblastic anemia).
- e. Diverticula involving the colon are false diverticula. They occur as a double row of diverticula near the taenia coli, where the vessels penetrate the bowel wall. They are most commonly located in the sigmoid colon, which is the most common site for diverticula in the entire gastrointestinal tract. Diets that are low in fiber and high in fats have been implicated because intraluminal pressures increase when stool transit time is slow and constipation is present. The sacs often become filled with stool, which hardens to form fecaliths, which predispose patients to mucosal ischemia, damage, and inflammation (similar to appendicitis). Wide mouthed diverticula are a characteristic feature of progressive systemic sclerosis.

Q.225) Answer for this question is (a)

Hereditary persistence of fetal hemoglobin

Exp:

Persistence of 95% of Hb in the fetal form in an adult who is asymptomatic and requires and requires no blood transfusion suggests a diagnosis of hereditary persistence of fetal hemoglobin. Combination of 95% HbF and 1.5% HbA₂ may also be seen in thalassemia intermedia. Although it does not require transfusion, it is not asymptomatic.

Hereditary Persistence Fetal Hemoglobin

Characteristics

- a. Continued synthesis of high level of HbF in adult life.
- b. A mutation lead to decreased synthesis of b and d globins
- c. Hemoglobin electrophoresis reveals only Hbf Clinically pt is asymptomatic
- d. Mild anemia and slight microcytosis may be preserved.

Q.226) Answer for this question is (d)

Alopecia areata

Exp:

I. Nonscarring alopecia

NEET - PG MOCK TEST 1 (EXPLANATIONS)

- A. Primary cutaneous disorders
1. Telogen effluvium
 1. Androgenetic alopecia
 2. Alopecia areata
 2. Tinea capitis
 3. Traumatic alopecia

II. Scarring alopecia

- A. Primary cutaneous disorders
1. Cutaneous lupus
 1. Lichen planus
 2. Folliculitis decalvans
 3. Linear scleroderma (morphea)
 4. Traumatic alopecia"
- B. Systemic diseases
1. Lupus erythematosus
 2. Sarcoidosis
 3. Cutaneous metastases

Q.227) Answer for this question is (d)

Benzhexol

Exp:

Currently accepted practice in the management of patients is to delay treatment until the onset of disabling symptoms and then to introduce a dopamine receptor agonist. If patient is elderly, levodopa is sometimes used as an initial treatment

Dopamine receptor agonists: Bromocriptine, apomorphine

Newer Agents:

- a. Ropinirole, cabergoline, pergolide

Levodopa

- a. Usually combined with a decarboxylase inhibitor (e.g. carbidopa or benserazide) to prevent peripheral metabolism of levodopa to dopamine
- b. reduced effectiveness with time (usually by 2 years)
- c. unwanted effects: dyskinesia, 'on-off effect' - no use in neuroleptic induced parkinsonism

Selegiline : - MAO-B inhibitor

- a. - Reduces dopamine metabolism

Antimuscarinics

- a. useful for tremor
- b. reduces inhibition of excitatory cholinergic neurons
- c. e.g. procyclidine, bntropine, benzhexol

Amantadine

- a. Prevents reuptake of dopamine

Q.228) Answer for this question is (a)

Hypermetropia

Exp:

Choroidal Neovascularization

- a. As the outer layers of the retina receive nourishment from choriocapillaris, degeneration of choroid is often associated with atrophy of retina.
- b. Secondary degenerations occur following inflammatory lesions, trauma, myopia, or in late stages of glaucoma.
- c. Angioid streaks are most commonly seen in Pseudoxanthoma elasticum. They can also be seen in Paget's disease, Ehlers Danlos syndrome, sickle cell disease, and rarely in acromegaly, hypercalcemia, and lead poisoning.
- d. Angioid streak may cause visual impairment due to involvement of fovea, choroidal neovascularization or choroidal rupture.

Q.229) Answer for this question is (a)

Acute mesenteric lymphadenitis

Exp:

NEET - PG MOCK TEST 1 (EXPLANATIONS)

- All of the listed conditions occur in children, but acute mesenteric lymphadenitis is the disease entity with symptoms and signs **most similar** to those of acute appendicitis.
- Mesenteric lymphadenitis almost invariably follows an upper respiratory infection. Pain is usually less and tenderness is **not as sharply localized as in appendicitis**.

Q.230) Answer for this question is (a)

NST

Q.231) Answer for this question is (d)

Severe epistaxis

Exp:

Bruising behind the ear (**Battle's sign**) suggests a fracture involving the middle fossa. Otorrhea is an associated finding, but deafness from eighth nerve injury is unusual. Seventh nerve involvement is more common, but it is usually self-limited. Severe epistaxis is associated with nasopharyngeal injuries, whereas **blood-tinged rhinorrhea** is characteristic of a basal skull fracture.

Q.232) Answer for this question is (b)

NSAID

Exp:

Neuroprotective Therapy

- Slowing the progression of PD through neuroprotective or restorative therapy is a major focus of research.
- Epidemiologic studies suggest that the chronic use of nonsteroidal anti-inflammatory agents or the use of estrogen replacement in postmenopausal women may delay or prevent the onset of PD through yet-unclear mechanisms.
- Similarly, in large populations, the long-term use of nicotine and caffeine has been associated with a lower risk of PD.

Q.233) Answer for this question is (d)

Suppresses combustion

Exp:

Both agents are noninflammable and rapidly absorbed. Nitrous oxide is physiologically inert and provides some analgesia, making local anesthesia feasible for some laparoscopic procedures. However, carbon dioxide suppresses combustion facilitating laparoscopic electrosurgery.

Q.234) Answer for this question is (b)

Modified Wegener's Classification.

Exp:

Modified Wagner's Classification is used for classification of wounds in diabetic. According to this system, the wounds are graded as

- 0 (No lesion),
- 1 (Superficial Lesion),
- 2 (Deep ulcer to tendon /joint capsule),
- 3 (Deep ulcer with osteomyelitis/joint sepsis),
- 4 (Localised gangrene of forefoot or heel) and
- 5 (Gangrene of entire foot).

Each grading is subdivided into A (Ischemic) and B (Infected).

Robson's classification is used for staging of renal Cell Carcinoma. **Mulliken and Glowacki's classification** is for classification of Hemangiomas while **Columbia's classification** (rarely used these days) is for staging of Ca Breast.

Q.235) Answer for this question is (c)

Isolated Cleft Palate.

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Exp:

- Pierre Robin syndrome is the **most common** syndrome associated with the Cleft lip/palate deformity.
- However it is to be noted that isolated cleft palate is more commonly associated with the syndrome than cleft lip/palate or cleft lip alone.
- Pierre Robin syndrome comprises of isolated cleft palate, retrognathia, and a posteriorly displaced tongue (glossitis) and is associated with early respiratory and feeding difficulties.

Q.236) Answer for this question is (b)

Upper GI bleed

Exp:

- Rockall risk scoring system attempts to identify patients at risk of adverse outcome following acute upper gastrointestinal bleeding.
- Rockall et al. identified independent risk factors which were later shown to predict mortality accurately.
- The scoring system uses clinical criteria (increasing age, co-morbidity, shock) as well as endoscopic finding (diagnosis, stigmata of acute bleeding).
- It is named for Professor Tim Rockall, who was the main investigator and first author of the studies that led to its formulation.

Variable	Score 0	Score 1	Score 2	Score 3
Age	<60	60- 79	>80	
<u>Shock</u>	No shock	Pulse >100	<u>SBP</u> <100	
Comorbidity	Nil major		<u>CCF</u> , <u>IHD</u> , major morbidity	Renal failure, liver failure, metastatic cancer
Diagnosis	<u>Mallory-Weiss</u>	All other diagnoses	GI malignancy	
Evidence of bleeding	None		Blood, adherent clot, spurting vessel	

Interpretation

Total score is calculated by simple addition. A score less than 3 carries good prognosis but total score more than 8 carries high risk of mortality

Q.237) Answer for this question is (c)

Depositions of IgA

Exp:

Diag – Henoch Schnlein Purpura (abd pain followed by rash over Lower limb with kidney involvement IgA deposit

In Henoch-Schonlein purpura which usually occurs in children but occasionally in adults the hypersensitivity produces not only palpable purpura but also abdominal pain, arthralgia and hematuria and proteinuria manifestations of glomerulopathy.

Q.238) Answer for this question is (b)

Morning glory syndrome

Exp:

The morning glory syndrome- is a mesodermal defect.

The malformation is associated with a peripapillary scleral defect, absence of the lamina cribrosa and a mass formed by an axial displacement by the optic nerve. There is an associated secondary exudative retinal detachment with retinal atrophy and gliosis the retinal pigment epithelium shows peripapillary proliferation.

Q.239) Answer for this question is (b)

4.5 mm

Exp:

For children 1 year to 6 year the tube size is calculated by formula:

For children > 6 years

So size required for 3 years old child will be = + 3.5 = 4.5

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Q.240) Answer for this question is (d)

In a patient with a large tumor in the oral cavity

Exp:

The indications for laryngeal mask airway are:

- Difficult intubation.
- Emergency airway management especially during difficult or failed intubation like in CPR. As elective procedure. where anaesthetist wants to avoid intubation (like for minor cases) As a conduit for endotracheal tubes, bronchoscope etc.
- Contraindications are:
- Full stomach patient or patients who are at high risk of aspiration.
- Patients vulnerable for laryngospasm and broncho-spasm.
- Mass and abscess in oral cavity, so large tumour in oral cavity is contraindication.

Q.241) Answer for this question is (a)

Atypical pseudochoolinesterase

Exp:

- Atypical pseudochoolinesterase is a genetic disease in which the patient's pseudochoolinesterase can not metabolize succinylcholine and there can be very prolonged block.
- Dibucaine a local anaesthetic that can inhibit 80% of normal enzyme and 20% of abnormal enzyme.
- So normal dibucaine number is 80.

Q.242) Answer for this question is (a)

Laryngeal muscles

Exp:

- First muscles to be blocked by muscle relaxants (both depolarizing and non depolarizing) are central muscles i.e., muscles of head and neck (face, jaw, pharynx, larynx), respiratory, abdominal muscles and muscles of trunk.
- After the central muscles, muscles of limbs (peripheral muscles) are blocked.
- The sequence of recovery is in the same way as it goes i.e., first to recover are central muscles like larynx and diaphragm and then limb muscles.

Q.243) Answer for this question is (c)

Pectoralis major

Exp:

Erb-Duchenne palsy

- It results from injury to upper trunk of brachial plexus (C5, 6).
- Muscles paralyzed: Mainly Biceps, Deltoid, Brachialis & Brachioradialis; Partly Supraspinatus, Infraspinatus & Supinator.
- The pectoralis major is not paralyzed because it is supplied both by the lateral and medial pectoral nerves and not merely by branches from the upper trunk of the lateral cord.

Q.244) Answer for this question is (c)

Extensor carpi radialis longus and brevis along with extensor carpi ulnaris.

Exp:

The carpal extensors not only stabilize the wrist in the extended position but also provide adequate stretch

to hand flexors for their efficient contraction in making a fist.

Q.245) Answer for this question is (d)

The anterior border of the epiploic foramen

Exp:

- The anterior border of the epiploic foramen is formed by the free edge of the lesser omentum.
- The lesser omentum is derived from the ventral mesentery.
- The parietal peritoneum to the right of the descending colon is derived from the dorsal mesentery of this part of the hindgut, but fuses to the posterior wall of the peritoneal cavity during the process of retro peritonealization of the descending colon.

NEET - PG MOCK TEST 1 (EXPLANATIONS)

- d. The greater omentum is the expanded portion of the dorsal mesogastrium.
- e. After the spleen develops in the dorsal mesentery, the portion of the mesentery covering the spleen becomes the visceral peritoneum of the spleen; the portion of the mesentery dorsal to the spleen becomes the splenorenal ligament.

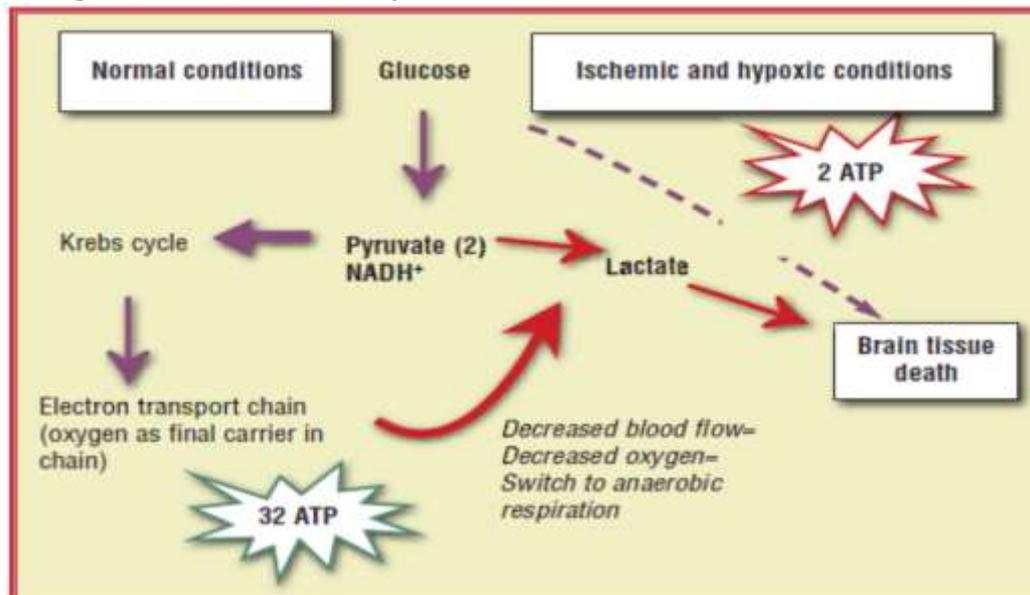
Q.246) Answer for this question is (a)

Increased csf lactate is associated with favourable prognosis

Ref: Advances in Diencephalon Research and Application: 2013 edition: Scholarly Brief, p-49

According to new study cerebral pyruvate depletion and lactic acidosis are common metabolic characteristics of patients with traumatic brain injury (TBI) and are associated with poor prognosis. Pyruvate dehydrogenase (PDH) is the rate-limiting enzyme coupling glycolysis to mitochondrial tricarboxylic acid (TCA) cycle.

www.aacn.org/WD/CETests/Media/C112.pdf



Flow chart of cellular metabolism. Under normal conditions, glucose is turned to pyruvate and nicotinamide adenine dinucleotide hydrogen (NADH⁺) in aerobic glycolysis. These products are used in the Krebs cycle and electron transport chain to generate 32 molecules of ATP (left side). In ischemia and hypoxia, glucose and oxygen levels are reduced. Lack of oxygen disables the electron transport chain, causing cells to begin anaerobic respiration (right side), in which pyruvate is converted to lactate. Only 2 molecules of ATP are produced, resulting in brain tissue death and the release of glycerol.

<http://www.ncbi.nlm.nih.gov/pubmed/19561963>

Lower PDH enzyme levels in blood are related to the global oxidative stress, increased gliosis in brain, and severity of brain injury following TBI. These effects can be prevented by pyruvate through the protection of PDH enzyme and its subunit E-1.

<http://www.ncbi.nlm.nih.gov/pubmed/3772448>

Patients showing favorable outcome had a significant decrease in ventricular CSF lactate levels 48 hours after injury

So in nutshell, Pyruvate dehydrogenase activity decreases and lactic acidosis in brain occurs. Lactate is actively secreted into CSF from the circulation also. Increase csf lactate leads to bad prognosis.

Q.247) Answer for this question is (d)

Oblique popliteal ligament

Exp:

- a. The oblique popliteal ligament, being a fibrous expansion of the tendon of semimembranosus muscle, is extracapsular.
- b. The ligament passes obliquely upwards and laterally to strengthen the capsule of the knee joint from the posterior aspect.
- c. All the other three structures are intra-articular, the tendon of popliteus being partly so.

Q.248) Answer for this question is (a)

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Tolosa-Hunt syndrome

Exp:

In Tolosa-Hunt syndrome, It is chronic **granulomatous** inflammation of the cavernous sinus (behind the eyes) causes severe eye pain and irritation or damage of the nerves of the face. Males and females are affected equally by Tolosa-Hunt syndrome, which usually affects people more than 20 years old.

Symptoms

- Tolosa-Hunt syndrome begins with severe pain behind or around one eye that comes on suddenly.
- The pain can be constant and intense. As the sinus inflammation increases and spreads, nerves in the face can be affected, producing symptoms such as drooping eyelid (ptosis) of the affected eye or numbness and tingling in the forehead.
- Difficulty controlling eye movements (ophthalmoplegia) and the pupil may cause sensitivity to light and double or blurred vision. If left untreated, vision loss is possible.

Diagnosis

The International Headache Society criteria for Tolosa-Hunt syndrome are:

- One-sided eye pain for an average of 8 weeks if left untreated Associated irritation or damage to the third, fourth, or sixth cranial nerves. The pain is relieved within 48 hours of starting to take steroid medication Other conditions have been ruled out by testing.
- Often, the last condition is the most important, since many conditions can causes symptoms similar to Tolosa-Hunt syndrome.
- MRI, angiography, or CT can help determine if something else, such as a tumor, is causing the eye pain.
- If Tolosa-Hunt syndrome is present, the sinus inflammation can generally be seen during these tests as well.

Treatment

It is treated with **steroid**.^Q

Q.249) Answer for this question is (b)

Somatostatin

Exp:

- Somatostatin, located within the **SS** cells of the gastric antral mucosa, is the principal paracrine secretion involved in the inhibitory feedback of gastric acid secretion.
- Somatostatin is released in response to an increase in hydrogen ions. In humans, gastric acid secretion by the **parietal cell** occurs in response to excitatory neural (acetylcholine), hormonal (gastrin), and paracrine (histamine) stimuli.
- Inhibitory feedback regulation of acid also involves neural (enterogastric reflex), hormonal (enterogastrone), and paracrine (somatostatin) influences.

Q.250) Answer for this question is (b)

Motilin

Exp:

Motilin is released during the **interdigestive period** and is believed to be involved in the initiation of the migrating motor complex. The factors responsible for release are unknown. **All other gastrointestinal hormones** are released during the digestive period and coordinate motor and secretory activities.

Q.251) Answer for this question is (a)

Chancroid

Exp:

- Haemophilus ducreyi is the etiological agent of chancroid a sexually transmitted disease characterized by genital ulceration and inguinal adenitis.
- Incubation period of 4–7 days.
- The initial lesion is a papule which evolves into a pustule, which spontaneously ruptures and forms a sharply circumscribed ulcer that is generally not indurated.
- The ulcers are painful and bleed easily; little or no inflammation of the surrounding skin is evident.
- Approximately half of the patients develop enlarged, tender, inguinal lymph node, which frequently become fluctuant and spontaneously rupture. Patients usually seek medical care after 1–3 weeks of painful symptoms.

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- f. DOC are ceftriaxone, ciprofloxacin, erythromycin

Q.252) Answer for this question is (c)

Fat

- Clear liquids** allow ultrasound to pass directly through without much alteration, so that echoes that come from tissue behind liquid are usually enhanced (**brighter**). This is known as "**acoustic enhancement**".
- Dense materials** such as bones or calculi cast shadows on the structures behind them, as the ultrasound waves do not go through them. This is known as "**acoustic shadowing**".
- Gas** can present a variety of sonographic patterns, beams can be scattered, reflected, refracted & absorbed & may hence also produce acoustic shadowing.
- Fat do not produce acoustic shadows.

Q.253) Answer for this question is (a)

Pulmonary embolism

Exp:

Chest x-ray: The xray is focusing on Hampton's hump. A normal or near-normal chest x-ray in a dyspneic patient suggests PE. Well-established abnormalities include focal oligemia (Westermark's sign), a peripheral wedged – shaped density above the diaphragm (Hampton's hump), or an enlarged right descending pulmonary artery (Palla's sign)

Q.254) Answer for this question is (b)

0.5 rem

Exp:

Maximum permissible doses

Subject exposed	Dose
1. Occupationally exposed persons a. Whole body b. Prospective annual limit	5 rem/year
2. Long term accumulation to age n years	(n-18) x 5 rem
3. Pregnant woman (with respect to fetus)	0.5 rem in gestation period
4. General population a. Occasional exposed person b. Students c. Population dose limit	0.5 rem/year 0.1 rem/year 0.17 rem/year

Q.255) Answer for this question is (d)

Gas in the biliary tree with or without gallstone in small intestine

Exp:

- Gall stone ileus is a **mechanical intestinal obstruction** caused by impaction of one or more gallstones in the intestine, usually in the terminal ileum, but rarely in the duodenum or colon.
- Patient **most commonly** is middle age or elderly female, often have had **recurrent right hypochondriac pain** & now the attack is severe & associated with more prolonged vomiting.
- It accounts for about 2% of patients presenting with small bowel obstruction.
- Gas in biliary tree can be recognized by its **branching pattern** with gas being more prominent centrally.

Signs of gallstone ileus are

- Incomplete or complete small bowel obstruction
- Gas within the GB &/or bile ducts - Known as **Rigler's Triad**.
- Abnormal location of a gall stone (ectopic gall stone)
- Change in position of a gall stone
- Relatively large fluid: gas ratio in distended loops

Causes of gas in tree are: (Pneumobilia)

- Gall stone fistula

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- Following biliary surgery or endoscopic sphincterotomy
- Following percutaneous & endoscopic cholangiography
- Malignant fistula
- Perforated peptic ulcer (into bile ducts)
- Emphysematous cholangitis
- Physiological, due to lax sphincter

Q.256) Answer for this question is (b)

Linezolid

Exp:

Second line drugs	Newer drugs –
Thiacetazone	· Rifabutin
Capreomycin	· Rifapentene
PAS	· Linezolid
Ethionamide	· Amox/ clav combination
Kanamycin	· Ofloxacin
Ciprofloxacin	· Clarithromycin
Cycloserine	· Azithromycin
Amikacin	· Clofazimine

Q.257) Answer for this question is (c)

Artificial radioactive source

Exp:

- Cobalt-60 is artificial radioactive cobalt having a half-life of 5.3 years, used as a **teletherapy** source and in forms of tubes & needles for **interstitial & intracavitary therapy**.
- It decays, emits **beta and gamma rays & has** to be replaced at regular intervals of about 4–5 years.
- It is produced from cobalt-59, which is a natural nonradioactive substance.
- It decays to produce **nickel**, which is not radioactive substance

Q.258) Answer for this question is (b)

Constrictive pericarditis

Exp:

- The pulse pressure is normal or reduced. In about one-third of the cases, a paradoxical pulse (see "Paradoxical Pulse") can be detected.
- Congestive hepatomegaly is pronounced and may impair hepatic function and cause jaundice; ascites is common and is usually more prominent than dependent edema.
- The apical pulse is reduced and may retract in systole (Broadbent's sign).

Q.259) Answer for this question is (a)

Type A

Exp:

In type A hepatitis once the patient is fully cured he may again develop symptoms of fever, malaise anorexia and vomiting but without jaundice. The LFT is normal. This is known as clinical relapse, can occur in type A hepatitis.

Q.260) Answer for this question is (c)

Arterial CO₂

Ref: Harrison 19th/p- 1724. Ahuja N. A Short Textbook of Psychiatry, 7th ed, p- _135

Arterial CO₂ level is not seen in polysomnography

Methods of Sleep Study:

To study sleep and its associated phenomena, the following techniques can be used.

NEET - PG MOCK TEST 1 (EXPLANATIONS)

1. Observation of a sleeping person for externally visible changes.
2. **EEG.**
3. **Polysomnography** (This is usually the preferred method in the sleep research centers). It consists of:
 - **Continuous EEG^Q** recording, particularly from occipital and parietal leads.
 - **EOG (electro-oculography) z^Q** to record the eye movements.
 - **EMG (electromyography)** for muscle potential and activities.
 - ECG for changes in cardiac status.
 - In certain cases, respiratory tracings of various kinds are used, such as **oxymetry^Q, expired CO₂, SpO₂ saturation.**
 - **MSLT (Multiple sleep latency test):** It involves repeated measures of the sleep latency (i.e. time to onset of sleep).
 - Penile tumescence, body temperature, GSR (galvanic skin response), and body movements are also sometimes studied.

Q.261) Answer for this question is (a)

Blood pressure & Cardio vascular risk

Exp:

Despite theoretical concerns about decreasing cerebral, coronary, and renal blood flow by overly aggressive antihypertensive therapy, clinical trials have found no evidence for a "J-curve" phenomenon, i.e., at blood pressure reductions achieved in clinical practice, there does not appear to be a lower threshold for increasing cardiovascular risk.

Q.262) Answer for this question is (b)

Autosomal dominant

Exp:

Channelopathy of Sodium, calcium and potassium are autosomal dominant.

Q.263) Answer for this question is (b)

4 Times

Ref: Bailey and Love's Short Practice of Surgery, 26th ed-965

Jenkins' rule:-

- The incidence of **incisional hernia may be reduced by** improving the patients's general condition preoperatively where possible – e.g. weight loss for obesity, or improving nutritional state for malnutrition.
- Closing the fascial layers with non-absorbable, or very slowly absorbable, sutures of adequate gauge is important.
- Traditional teaching was that sutures should be 1 cm deep and 1 cm apart.
- Recent work has shown that lower incisional hernia rates and reduced infection rates are gained when smaller and closer bites are **used with a 2/0 suture rather than traditional heavier** materials.
- There is no evidence that interrupted sutures are better or worse than continuous. However, if continuous suturing is used, the tissue bites must not be too near the fascial edge nor pulled too tight or they may cut out.
- It has also been confirmed that **the optimal ratio of suture length to wound length is 4:1 (Jenkins' rule).**
- If less length than this is used, the **suture bites are too far apart or too tight** and the converse applies if more length than this is used.

Q.264) Answer for this question is (c)

Catatonic schizophrenia

Exp:

Among various subtypes of schizophrenia catatonic schizophrenia responds best to electroconvulsive therapy. With E.C.T. Pt. shows improvement even before drugs show their effect.

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Q.265) Answer for this question is (b)

Sjögren syndrome

Exp:

- Anti-alpha-fodrin antibody was detected in patients with SS and in those with SLE, it seemed to be more valuable for the diagnosis of Sjögren Syndrome than was anti-SS-A (Ro) because anti-alpha-fodrin was much less prevalent in patients with SLE alone.
- It may be possible to consider this novel autoantibody as pathophysiologically associated with some extraglandular manifestations characteristically seen in patients with Sjögren Syndrome.

Q.266) Answer for this question is (b)

PNH

Exp:

- A major advance in the management of PNH has been the development of a humanized monoclonal antibody, eculizumab, directed against the complement protein C5.
- By blocking the complement cascade downstream of C5, this antibody provides a medical intervention capable of controlling complement-dependent hemolysis in PNH.
- In an international multicenter placebo-controlled randomized trial on 87 patients who had been selected on grounds of having severe transfusion-dependent hemolysis, eculizumab completely abolished the need for blood transfusion in about one-half of the patients.
- Eculizumab administered intravenously at 2wk intervals also ameliorated the anemia in most patients and dramatically improved their quality of life.

Q.267) Answer for this question is (c)

Acute cholecystitis

Ref: Schwartz's Surgery, 10th ed/p-1321

Non visualization of gallbladder in hepatic scintigraphy is seen in- Acute cholecystitis

Radiological finding in acute cholecystitis:

- Acute cholecystitis is **acute inflammation** of gall bladder wall.
- Most of the cases are due to gall stone.**

USG (Investigation of choice)	Biliary radionuclide scanning (HIDA scan) - Most accurate (best) test
<ul style="list-style-type: none"> • Transabdominal USG is the investigation of choice^Q for Acute cholecystitis • Sonographic murphy's sign^Q (Tenderness on pressing the transducer onto the gallbladder). • Gallbladder wall thickening^Q • Pericholecyst fluid producing circumferential halo of low echogenicity around gall bladder • Hepatization of bile: Echogenic bile sludge may completely fill the gall bladder lumen and gives appearance of adjacent liver . • Gall stone: - May be impacted in the neck or cystic duct 	<ul style="list-style-type: none"> • Biliary radionuclide scanning (HIDA scan) may be of help in the atypical case. (restricted to those individuals who are clinically suspected of having acute cholecystitis but who have inconclusive or normal USG scan) • Lack of filling of the gallbladder after 4 hours indicates an obstructed cystic duct and, in the clinical setting of acute cholecystitis, is highly sensitive and specific for acute cholecystitis. • A normal HIDA scan excludes acute cholecystitis

Q.268) Answer for this question is (d)

Velpeau bandage and sling and swathe splint are used in Acromioclavicular dislocation

Q.269) Answer for this question is (c)

Interictal EEG is normal.

Exp:

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- Cyanotic spells are more common than pallid spells.
- Oral atropine can be tried in pallid spells which increases the heart rate by anti vagal action.
- Results of interictal EEG are normal in both cyanotic and pallid spells and is used to differentiate with true seizures.
- The cry stops in full expiration followed by apnoea.

Q.270) Answer for this question is (d)

Weight in grams divided by length in cms cube multiplied by 100

Ref: 1. AIIMS- NICU protocols 2014.www.newbornwhocc.org

2. Ghai 8th p-155-157.

PI = Ponderal index = (Wt in Gram/Ht³ in cm) × 100.

Intrauterine growth retardation (IUGR):

Asymmetrical/malnourished (IUGR):	Symmetrical/hypoplastic (IUGR):
<ul style="list-style-type: none"> • Commonest variety of (IUGR): • Growth arrest occurs in later part of pregnancy • Head circumference (HC) and brain weight are unaffected • Difference in HC & CC is > 3 cm • Prognosis for subsequent physical growth is relatively better. • Growth retardation is due to reduction in cell size but not in cell number • Ponderal index <2. [PI = Weight in grams/(length in cm)³ X 100] 	<ul style="list-style-type: none"> • Growth arrest occur in early part of pregnancy • Baby is proportionately small including head size • There is reduction in the number of cells • Cause can be intra-uterine infection, genetic defects of chromosomal aberrations • Prognosis for subsequent physical growth and mental development is poor • PI > 2

Note:Brain, heart & lungs are least affected by intrauterine malnutrition^Q

- **Remember - A comes before S so in Asymmetrical IUGR (PI is < 2). Symmetrical/hypoplastic PI > 2**

Q.271) Answer for this question is (a)

Marfan syndrome

Exp:

Disorders resulting from mutations affecting collagen synthesis' include Ehlers-Danlos syndrome, osteogenesis imperfecta', epidermolysis bullosa.

Q.272) Answer for this question is (c)

Lichen scrofulosorum

Ref: 1. Illustrated Synopsis of Dermatology and STD by Neena Khanna, 4th edition, p-57.

2. Roxburg Deramatology, 10th edition, p-145

Lichen scrofulosorum is not a variant of Lichen Planus. It is a type of tuberculides.

Variant of Lichen Planus:

Hypertrophic lichen planus	<ul style="list-style-type: none"> • The most common variant. • Thickened, papules or nodules of irregular shape with a warty or scaling surface develop. • Solitary hypertrophic lesions may appear in the course of ordinary lichen planus or develop as solitary lesions.
Annular lichen planus	<ul style="list-style-type: none"> • Lichen planus lesions have fused to give a ring-type configuration. • This odd variant sometimes occurs on the male genitalia and lower abdomen, but rarely elsewhere.

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Lichen nitidus (AIIMS-May 2014)	<ul style="list-style-type: none"> Lichen nitidus is a rare variant. Lesions and etiology are similar to lichen planus (LP), but size is smaller 1.2 mm (Pinhead size). Occurs as grouped lesions over elbows, abdomen, penis, dorsum of hands.^Q Mucosal or nail changes are rare. Eruption is chronic but asymptomatic, self limiting, resolving spontaneously over months or years. Histopathology: - Ball in clutch appearance.^Q
Bullous lichen planus	<ul style="list-style-type: none"> Very rare variant in which blistering occurs on some lesions.
Lichen plano-pilaris	<ul style="list-style-type: none"> Predominantly involves the hair follicles. Affected sites lose their terminal hair and develop horny spines, which project from the affected hair follicles.

Q.273) Answer for this question is (a)

Synaptic transmission

Exp:

- A neurexin (NRXN) is a molecule that helps to glue together neurons (nerve cells) at a synapse (a junction between nerve cells).
- Neurexins are type I membrane proteins that can be classified into two types, α -NRXNs and β -NRXNs. The α -NRXNs are larger and have different amino-terminal extracellular sequences.
- Neurexins mediate signaling across the synapse, and affect the properties of neural networks by specifying synaptic functions.

In humans, alterations in genes encoding neurexins are implicated in autism and other cognitive diseases.

Q.274) Answer for this question is (a)

Apprehension sign

Exp:

- Classically**, a patient with recurrent anterior instability or subluxation exhibits marked apprehension when the relaxed shoulder is stressed in abduction and external rotation.
- The impingement sign and the drop arm sign indicate disease of the rotator cuff.
- A positive resisted straight arm raising test (**Speed's test**) and a positive resisted forearm supination test (**Yergason's sign**) suggest pathology in the biceps tendon.

Q.275) Answer for this question is (a)

Lawn culture

Exp:

Lawn culture is employed when a large amount of growth is required on solid media as, for instance, in the preparation of bacterial antigens and vaccines.

Q.276) Answer for this question is (a)

Degenerative disk disease

Exp:

- Cervical instability, defined as AP subluxation of more than 3.5 mm or sagittal angulation greater than 20° on flexion-extension radiographs, **most commonly** results from disk degeneration, with its attendant changes in the facet joints and loss of ligamentous support.
- In the cervical spine, it may occur at a single level but often involves multiple levels.
- Increased ligamentous laxity is **the most common cause** of cervical instability in children.

Q.278) Answer for this question is (d)

Southampton grading

Ref: Bailey and Love's Short Practice of Surgery, 26th/p. 54

- There are scoring systems for the severity of wound infection, which are particularly useful in surveillance and research. Examples are the **Southampton and ASEPSIS systems**

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IMPORTANT CRITERIA, SCORING & STAGING SYSTEM

CRITERIA ,SCORING & STAGING SYSTEM	CONDITION
<ul style="list-style-type: none"> • Southampton and ASEPSIS systems 	<ul style="list-style-type: none"> • Severity of wound infection
<ul style="list-style-type: none"> • APGAR score 	<ul style="list-style-type: none"> • Practical method of systematically assessing newborn infants immediately after birth
<ul style="list-style-type: none"> • Glasgow Coma Scale (GCS)– Eye Opening, Verbal Output, Motor Response (Best) (Remember as EVM) 	<ul style="list-style-type: none"> • Coma Scores in adult and children
<ul style="list-style-type: none"> • The Full Outline of Unresponsiveness (FOUR) score (modification of the GCS, which eliminates the verbal response but adds two assessments: (a) Brainstem Reflexes (pupil, corneal, cough reflexes) and (b) respiratory patterns 	<ul style="list-style-type: none"> • Coma Scores in children

Q.279) Answer for this question is (a)

Struvite stones (Magnesium Ammonium Phosphate) occur only in association with urinary infection by urea splitting bacteria. *Proteus mirabilis* the most common organism associated with infection.

Q.280) Answer for this question is (b)

Angle between SMA and Aorta is 38 degree to 65 degree

Ref. Surgery Sixer 3rd Edition Page 375

The normal AO (Aorto mesenteric) angle is between 4.5° and 60° ; the AO angle in this patient will be less than 20 degree.

The normal AO distance is between 10 mm and 20 mm; the AO distance in these patient will be less than 5 mm to 6 mm

Superior Mesenteric Artery Syndrome (WILKIE'S DISEASE)

- Duodenum compressed between vertebral column and superior mesenteric artery (3rd part of duodenum).
- Common in tall, thin individuals
- Common in young females
- Precipitated by sudden loss of weight
- May occur due to body cast application
- Treatment is conservative management: If not cured go for duodeno jejunostomy.

Q.281) Answer for this question is (c)

Mercury poisoning

Exp:

Mercury poisoning has 2 stages of signs and symptoms.

- The first phase is acute and lasts upto about a day.
- The second phase is more protracted and starts from one to three days after many days of a patient suffering from Hg poisoning; membranous colitis develops and produces dysentery, ulceration of the colonic mucosa and hemorrhage.
- On post-mortem examination, a very characteristic appearance seen in the small intestine is the fissuring of the swollen mucous membrane. These fissures run in all directions, and break up the continuity of the surface, forming numerous small islands. Such features are characteristic of Hg poisoning and are not observed in Phenol, Arsenic or Lead poisoning.

Q.282) Answer for this question is (a)

Seven years

Exp:

- A witness who willfully or with some motive tells lie, suppresses facts partly or fully in a court as a witness, may be declared a hostile witness.
- If a person under oath gives false evidence in a court of law, then he may be punished with imprisonment

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upto 7 years.

- c. In other case for giving false evidence (other than under oath inside a court) a person may be punished with imprisonment which may extend upto 3 years (per jury)

Q.283) Answer for this question is (b)

MCMA

Q.284) Answer for this question is (c)

Finger print taken on soap

Exp:

Plastic fingerprints are finger tip impressions left on soft materials like dust, soap or wax. Iodine vapour is used to visualize the latent finger prints.

Q.285) Answer for this question is (a)

Chronic arsenic poisoning

Exp:

- These images are suggestive of Hyperkeratosis and Transverse lines.
- Through the water supply in W. Bengal the arsenic comes into the system causing – rain drop pigmentation on the back, Mees lines, Nail Leukonychia, and palmoplantar hyperkeratosis.
- Chronic arsenic poisoning causes some skin signs and symptoms such as- Hyperkeratosis (mostly at distal parts), Desquamation (of palms and soles), Raindrop pigmentation, Mees' lines (transverse white striae of the fingernails technically called as striate leukonychia).
- Chronic Arsenic poisoning also causes-
- GIT symptoms—loss of weight, malaise, loss of appetite, salivation, colicky pain abdomen, constipation.
- Hematological symptoms—anemia-normocytic, normochromic and leucopenia, thrombocytopenia.
- Peripheral neuropathy— sensory and motor polyneuritis (sensory symptoms predominate), numbness and tingling.
- Arsenic exposure can increase the risk of internal malignancy such as lung, bladder, kidney and prostate.
- Signs of previous arsenic exposure include hyperkeratotic lesions in palms and soles, diffuse truncal hyperpigmentation and multiple squamous cell carcinomas.

Q.286) Answer for this question is (b)

Pain in thumb, index finger, middle finger and lateral half of ring finger

Exp:

- Peripheral neuropathy is a clinical term that generally refers to nontraumatic diseases of the peripheral nerves.
- Peripheral neuropathies may either be focal or diffuse. Focal peripheral neuropathies may involve **one nerve (mononeuropathy) or multiple nerves (multiple mononeuropathy or mono radiculopathy)**.
- An example of a mononeuropathy is compression of the **median nerve**, which produces carpal tunnel syndrome.
- The median nerve provides sensory information from the palmar surface of the **lateral three and one-half digits and the lateral portion of the palm**.
- Also innervated by the median nerve are the major pronators (pronator teres and pronator quadratus), the thumb flexors (flexor pollicis longus and flexor pollicis brevis), and the opponens pollicis.
- The median nerve does not innervate any muscles in the forearm.
- Damage to the median nerve at the wrist as it lies deep to the **flexor retinaculum** results in burning sensations in the thumb, index and middle fingers, and lateral half of the ring finger (carpal tunnel syndrome).
- This syndrome is found in people who use their hands a lot, such as jack hammer operators, typists, and tailors.
- Treatment may involve cutting the **transverse carpal ligament** to decompress the nerve.

Q.287) Answer for this question is (a)

Protein coat

Q.288) Answer for this question is (c)

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Two

Exp:

- ATP is required for the **esterification of amino acids** to their corresponding tRNAs. This reaction is catalyzed by the class of enzyme known as **aminoacyl-tRNA synthetase**.
- Each one of these enzymes is specific for one tRNA and its corresponding amino acid.
- Amino acid + tRNA + ATP → aminoacyl-tRNA + AMP + P_{pi}**. As with most ATP hydrolysis reactions that release pyrophosphate, pyrophosphatase quickly hydrolyzes the product to Pi, which makes the reaction essentially irreversible. Since ATP is hydrolyzed to AMP and P_{pi} during the reaction, by convention the equivalent of **two high-energy phosphate bonds is utilized**.

Q.289) Answer for this question is (d)

Translocation across the endoplasmic reticulum

Exp:

- By using recombinant DNA techniques, mRNAs can be produced that yield **chimeric proteins**.
- By forming mRNAs that produce otherwise cytosolic proteins, as when α-globin is engineered with a cleavable amino terminal signal sequence, this otherwise cytosolic protein becomes a secretory protein and is translocated into the lumen of endoplasmic reticulum.
- The signal sequence thus contains all the information needed to direct the translocation of protein across endoplasmic reticulum.
- These experiments were performed by adding chimeric mRNA to an **in vitro system** of protein synthesis composed of endoplasmic reticulum vesicles, ribosomes, tRNAs, and other factors required for protein synthesis.
- Without the modified amino terminal signal sequence, the α-globin is released into the experimental solution, and with the signal sequence.
- It is synthesized into the lumen of the endoplasmic reticulum vesicles.

Q.290) Answer for this question is (b)

DWMRI

Exp:

- Diffusion MR (DWMRI)**, a sequence that detects reduction of microscopic motion of water, is the most sensitive technique for detecting acute ischemic stroke and is also useful in the detection of encephalitis, abscesses, and prion diseases.
- CT, however, can be quickly obtained and is widely available, making it a pragmatic choice for the initial evaluation of patients with acute changes in mental status, suspected acute stroke, hemorrhage, and intracranial or spinal trauma.
- CT is more sensitive than MRI for visualizing acute bleed, calcific lesions, and fine osseous detail.**

Q.291) Answer for this question is (c)

Moderate fat, high protein, low carbohydrate

Exp:

The diet in chronic pancreatitis patient should be moderate in fat (30%), high in protein (24%) and low in carbohydrate (40%).

Q.292) Answer for this question is (c)

Reticulonodular shadow

Exp:

Chest radiograph shows characteristic reticular granularity of the parenchyma the laboratory findings are characterized initially by progressive hypoxemia, hypercarbia and variable metabolic acidosis.

Q.293) Answer for this question is (d)

Protein estimation

Exp:

- Joint fluid should be examined grossly by Gram stain.
- It should be cultured aerobically as well as anaerobically.

NEET - PG MOCK TEST 1 (EXPLANATIONS)

Joint fluid should also be sent for antinuclear antibody studies. Joint fluid is usually antibody studies. Joint fluid is usually purulent, WBCs are markedly elevated, more than 5000 cells/cu mm. Lactic acid concentration within the joint fluid is

Q.294) Answer for this question is (c)
liver abscess

Exp:

The organism of the Streptococcus milleri group are commensals, commonly isolated from the mouth, oropharynx, gastrointestinal tract and vagina, and responsible for a variety of human and animal infections. S. milleri is regularly found with anaerobes in abscesses in the brain, liver, lung and gut.

Q.295) Answer for this question is (c)
Aspirin

Exp:

Hemodialysis in overdose

Drugs that can be cleared with:

1. Hemodialysis

- a. BarbiturateBLAST
- b. Lithium
- c. Alcohol (inc methanol, ethylene glycol)
- d. Salicylates
- e. Theophylline's (charcoal hemoperfusion is preferable)

2. Acid diuresis

- a. Quinidine
- b. Quinine
- c. Chloroquine
- d. PCP
- e. Amphetamine 3 Queens PACT
- f. Cocaine
- g. TCA, Tocainide

3. Saline diureses

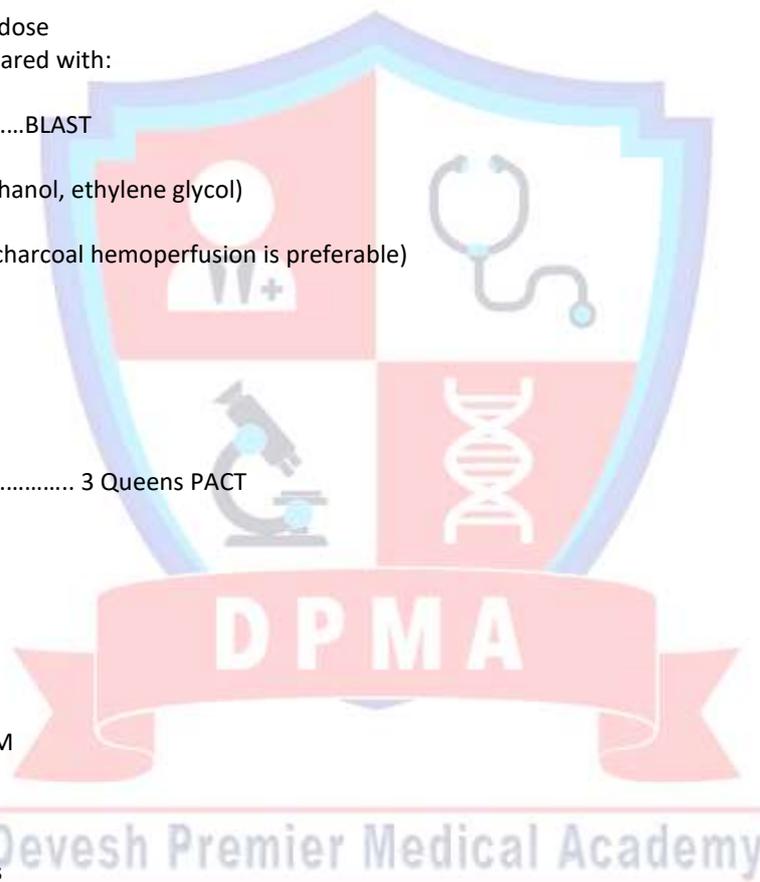
- a. Alcohol
- b. Br
- c. Ca
- d. F-
- e. INH ABC FILM
- f. Li
- g. Meprobamate

4. Alkaline diuresis

- a. Mtx
- b. Salicylate, Sulfonamide
- c. Chlorpropamide
- d. Phenobarbitone MSC PDF
- e. Diflunisal
- f. F-

5. Hemoperfusion

- a. Chloramphenicol
- b. Phenytoin / Procainamide
- c. Meprobamate, Methaqualone
- d. Theophylline
- e. Barbiturates
- f. Ethchlorvynol CPMT BEG
- g. Glutethimid



NEET - PG MOCK TEST 1 (EXPLANATIONS)

6. Drugs which cannot be cleared with hemodialysis include

- Anti cholinergic (TCA & Organophosphates)
- Benzodiazepines, Beta-blockers
- Compound like kerosine oil
- Dextropropoxyphene (Co-proxamol)
- Digoxin ABCD

Q.296) Answer for this question is (d)

Lymphocyte

Exp:

- Sjögren's syndrome is characterized by dryness of the mouth (xerostomia) and eyes (keratoconjunctivitis sicca).
- Secondary Sjögren's syndrome is associated with rheumatoid arthritis (RA), SLE, or systemic sclerosis.
- The primary form shows increased frequency of HLA-DR3, while association with RA shows a positive correlation with **HLA-DR4**.
- Anti-SSB** antibodies are fairly specific, anti-SSA less so, and both may occur in SLE; rheumatoid factor is often present.
- Glomerular lesions are very rare, but a mild tubulointerstitial nephritis is quite common and may result in renal tubular acidosis.
- In addition to the usual dense, lymphoplasmacytic infiltrate of salivary glands, the lymph nodes may show a "**pseudolymphomatous**" appearance.
- True B cell lymphomas have developed with increased frequency in Sjögren's syndrome.
- Sjögren's = Patient is like : Jag Raha Hoon (Dry mouth & Eye + RA)**

Q.297) Answer for this question is (d)

Four double bonds

Exp:

Unsaturated fatty acids:

- Monoenoic acids (one double bond):
- Palmitoleic acid, Oleic acid, Elaidic acid
- Dienoic acids (two double bonds): linoleic acid
- Trienoic acids (three double bonds): g-Linolenic acid, a-Linolenic acid
- Tetraenoic acids (Four double bonds): Arachidonic acid
- Pentanoic acids (Five double bonds): Timnodonic acid
- Hexanoic acids (Six double bonds): Cervonic acids

Q.298) Answer for this question is (a)

Clinical picture is due to Abestosis

Q.299) Answer for this question is (b)

5%

Exp:

To achieve the goals of health for all, W.H.O. has set the target of at least 5 percent expenditure of each country's GNP on health care.

Q.300) Answer for this question is (a)

Ovary

Exp:

The main source of production of relaxin is the corpus luteum of the ovary but part of it may also be produced by the placenta and decidua.