NEET PG 2024 Shift-1 Question Paper with Solutions

Time Allowed :3 hour 30 minutes	**Maximum Marks :**800	**Total questions :**200

General Instructions

Read the following instructions very carefully and strictly follow them:

1. The test is of 3 hours 30 minutes duration.
2. The question paper consists of 200 questions out of which 180 MCQs must be answered. The maximum marks are 800.
3. There are four parts in the question paper consisting of Biology, Physics, Chemistry and Mathematics.
4. Each subject will be divided into two sections, A and B which will have 35 and 15 questions respectively. Candidates will have to answer only 10 questions in Section B.
5. 4 marks are awarded for each correct answer and 1 mark is deducted for each wrong answer

1. Male not responding to O-2, diagnosis ARDS. What is the role of IL-8 in ARDS?

(A) Endothelial cell activation

(B) Requirement of neutrophil

(C) Macrophage activation

(D) Promote surfactant production

Correct Answer: (B) Requirement of neutrophil

Solution: IL-8 is a potent chemokine that attracts neutrophils to the site of injury in ARDS. It plays a crucial role in the inflammation process by promoting neutrophil accumulation, which contributes to endothelial cell damage and lung injury.

Quick Tip

In ARDS, IL-8 facilitates neutrophil recruitment and activation, which contributes to the progression of inflammation and tissue damage.

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2. A patient presents with the finding as shown, What is the best investigation for Wilson's disease?

(A) Urine Copper

(B) Hepatic copper

(C) S. Ceruloplasmin

(D) MRI Brain

Correct Answer: (B) Hepatic copper

Solution: The best investigation for Wilson's disease is the measurement of hepatic copper content, as the liver is the main organ affected by copper accumulation in Wilson's disease. This test directly reflects the abnormal copper metabolism seen in the disease.

Quick Tip

Wilson's disease diagnosis can be confirmed with hepatic copper content measurement, alongside other investigations like serum ceruloplasmin levels.

3. Which tumor is positive for TTF-1?

(A) Squamous Cell Carcinoma (Sq)

(B) Small Cell Carcinoma (Small)

(C) Adenocarcinoma (Adeno Ca)

(D) Carcinoid

Correct Answer: (C) Adenocarcinoma (Adeno Ca)

Solution: TTF-1 (Thyroid Transcription Factor-1) is a nuclear protein that is commonly expressed in lung adenocarcinoma, making it a useful marker for identifying this tumor type.

Quick Tip

TTF-1 is typically used as a marker for lung adenocarcinoma and small cell lung carcinoma, but it is most strongly associated with adenocarcinomas.

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4. Vitamin to be supplemented after gastrectomy?

(A) Vitamin A

(B) Vitamin C

(C) Vitamin B12

(D) Vitamin D

Correct Answer: (C) Vitamin B12

Solution: After gastrectomy, vitamin B12 supplementation is required due to the loss of intrinsic factor, which is necessary for B12 absorption in the intestines.

Quick Tip

Patients who undergo gastrectomy should be monitored for vitamin B12 deficiency, as the surgery impairs the absorption of this vitamin.

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5. 10-year-old male presents with cervical lymphadenopathy, Surface Ig+, CD34-, CD5-, CD23-, Tdt-, CD10+, CD19+:

(A) Burkitt's Lymphoma

(B) Diffuse Large B-cell Lymphoma (DLBCL)

(C) Anaplastic Large Cell Lymphoma (ALCL)

(D) B-cell Acute Lymphoblastic Leukemia (B-ALL)

Correct Answer: (A) Burkitt's Lymphoma

Solution: The presentation of a 10-year-old male with cervical lymphadenopathy, Surface Ig+, CD10+, and CD19+ is characteristic of Burkitt's Lymphoma, a type of non-Hodgkin lymphoma. The absence of CD34, CD5, CD23, Tdt, and other markers further supports this diagnosis.

Quick Tip

Burkitt's lymphoma is often associated with rapid lymph node enlargement and positive markers like CD10 and CD19.

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6. Most common mutation in Papillary cell carcinoma?

(A) BRAF V600E

(B) RET

(C) MET

(D) RAS

Correct Answer: (A) BRAF V600E

Solution: BRAF V600E mutation is the most common genetic alteration observed in papillary thyroid carcinoma, especially in the classic variant of the disease. This mutation leads to the activation of the MAPK/ERK signaling pathway, contributing to cancer progression.

Quick Tip

BRAF V600E mutation is a significant marker for papillary thyroid carcinoma and can help in diagnosis and targeted therapy.

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7. Renal mass, haematuria, flank pain:

(A) Clear cell

(B) Papillary

(C) Chromophobic

(D) Belini

Correct Answer: (C) Chromophobic

Solution: Chromophobic renal cell carcinoma (RCC) is characterized by a distinct morphology, often involving large renal masses, haematuria, and flank pain. It is one of the subtypes of RCC and is less common than clear cell RCC but still an important consideration in the differential diagnosis of renal masses.

Quick Tip

Chromophobic RCC can be distinguished by its histological features and is often associated with better prognosis compared to other subtypes.

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8. Which disease will show the following mode of inheritance?

(A) Wiskott

(B) Wilson

(C) Prader-Willi

(D) Achondroplasia

Correct Answer: (A) Wiskott

Solution: Wiskott-Aldrich syndrome (WAS) is an X-linked recessive disorder. It is characterized by thrombocytopenia, eczema, and recurrent infections. The inheritance pattern is typically X-linked, which is consistent with the answer choice.

Quick Tip

Wiskott-Aldrich syndrome is inherited X-linked recessively, which means that males are predominantly affected while females may be carriers.

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9. Young male died during exercise. History of similar deaths in sibling, On gross morphology: septal thickening was seen. Most common cause of death?

(A) Dilated Cardiomyopathy (DCM)

(B) Restrictive Cardiomyopathy (RCM)

(C) Hypertrophic Obstructive Cardiomyopathy (HOCM)

(D) Viral Myocarditis

Correct Answer: (C) Hypertrophic Obstructive Cardiomyopathy (HOCM)

Solution: The most common cause of sudden death in young athletes, especially with a family history of similar incidents and morphological findings of septal thickening, is hypertrophic obstructive cardiomyopathy (HOCM). This condition involves asymmetric thickening of the heart muscle, which can obstruct blood flow and lead to sudden cardiac death.

Quick Tip

HOCM is the most common cause of sudden death in young athletes, and its early detection can prevent tragic outcomes.

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10. Which is not true?

(A) VWD type 1 is mostly severe in children

(B) VWD type 3 is mostly severe in children

(C) VWD type 2 is more related to activity rather than levels

(D) VWD type 3 has severely low VWD

Correct Answer: (A) VWD type 1 is mostly severe in children

Solution: Von Willebrand disease (VWD) type 1 is generally mild and does not tend to be severe in children. VWD type 3, however, is the most severe form and presents with significantly low levels of von Willebrand factor (VWF). VWD type 2 is more related to the function of VWF rather than its quantity.

Quick Tip

VWD type 1 is usually a mild form with partial reduction in VWF levels, while type 3 presents with very low levels and more severe bleeding tendencies.

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11. Child presents with sunlight causing eruptions, diagnosed with a DNA repair defect. Which defect could it be?

(A) Nucleotide excision

(B) Base excision repair

(C) Mismatch repair defect

(D) Recombination defect

Correct Answer: (A) Nucleotide excision

Solution: The presentation of sunlight-induced eruptions suggests a defect in the DNA repair mechanism, specifically in the nucleotide excision repair (NER) pathway. This pathway is responsible for repairing UV-induced DNA damage, and defects in NER lead to conditions like xeroderma pigmentosum, which causes extreme sensitivity to sunlight.

Quick Tip

Nucleotide excision repair (NER) defects are associated with diseases such as xeroderma pigmentosum, where the body cannot repair UV-induced DNA damage.

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12. 18-year-old male with hepatosplenomegaly, Hb 7 gm percent, LN+, WBC 50K, platelets 30, petechiae, purpura, and fatigue: what is the most appropriate management?

(A) Cytarabine + Iso?

(B) IVIG x 2 days

(C) Prednisolone + Vinblastine

(D) Radiotherapy to LN

Correct Answer: (C) Prednisolone + Vinblastine

Solution: The presentation is suggestive of a hematological malignancy, likely lymphoma or leukemia, with pancytopenia and lymphadenopathy. The most appropriate management includes the use of prednisolone (a steroid) and vinblastine (chemotherapy), which are commonly used in the treatment of lymphomas.

Quick Tip

In cases of hematological malignancy like lymphoma or leukemia, steroids and chemotherapy (like vinblastine) are often used as first-line treatments.

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13. A baby failed to pass meconium. The structures absent in the disease are absent in which layer?

(A) Epithelial

(B) Submucosa

(C) Muscular

(D) Serosa

Correct Answer: (B) Submucosa

Solution: Failure to pass meconium is commonly seen in Hirschsprung disease, which involves the absence of ganglion cells in the submucosal and myenteric plexuses. The defect in these structures results in impaired peristalsis, leading to bowel obstruction and the inability to pass meconium.

Quick Tip

In Hirschsprung disease, the absence of ganglion cells in the submucosal and myenteric plexuses leads to colonic dysfunction and failure to pass meconium.

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14. Muscle responsible for ptosis in Horner syndrome:

(A) Orbicularis oculi

(B) Levator palpebrae

(C) Horner muscle

(D) Muller's muscle

Correct Answer: (D) Muller's muscle

Solution: Horner syndrome results from disruption of sympathetic innervation, which affects the functioning of Muller's muscle, causing ptosis (drooping eyelid). This muscle is responsible for the minor elevation of the eyelid, and its dysfunction in Horner syndrome leads to mild ptosis.

Quick Tip

Muller's muscle is the primary muscle responsible for ptosis in Horner syndrome, as it is part of the sympathetic nervous system's influence on the eyelid.

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15. A patient presented to the eye OPD after 3 years of cataract surgery. Slit lamp finding was given. What is the likely diagnosis?

(A) PCO

(B) Bullous keratopathy

(C) Phakic glaucoma

(D) Lens subluxation

Correct Answer: (A) PCO

Solution: Post-cataract surgery, the most common complication leading to visual impairment is posterior capsule opacification (PCO), often referred to as secondary cataract.

It occurs due to the proliferation of lens epithelial cells on the posterior capsule, leading to opacification.

Quick Tip

PCO is a common complication after cataract surgery and can often be treated with a YAG laser capsulotomy to restore vision.

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16. Following perimetry image is suggestive of?

(A) Extension of blind spot

(B) Arcuate scotoma

(C) Reinee step defect

(D) Altitude Anopia

Correct Answer: (A) Extension of blind spot

Solution: The perimetry image shows an extension of the blind spot, which typically results from conditions like glaucoma or optic nerve head abnormalities, where the visual field defects correspond to the location of the optic disc.

Quick Tip

An extension of the blind spot is often seen in optic nerve-related pathologies, including glaucoma.

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17. A patient came with nyctalopia. Rational image given below, what will be the diagnosis?

(A) Retinitis pigmentosa

(B) Vitamin A deficiency

(C) Retinal detachment

(D) Diabetic retinopathy

Correct Answer: (A) Retinitis pigmentosa

Solution: Nyctalopia, or night blindness, is often associated with retinitis pigmentosa, a hereditary retinal degenerative condition. It results from the degeneration of rod cells in the retina, which affects night vision.

Quick Tip

Retinitis pigmentosa is a common cause of nyctalopia, often beginning with difficulty seeing in low light and progressing to peripheral vision loss.

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18. Patient was shown image A along with image B. Image C was visualised. What is the likely diagnosis?

(A) Left eye suppression

(B) Right eye suppression

(C) Crossed diplopia

(D) Uncrossed diplopia

Correct Answer: (B) Right eye suppression

Solution: Right eye suppression is a phenomenon where the visual input from the right eye is suppressed, often due to conditions like strabismus or amblyopia. The images presented are indicative of this visual suppression mechanism.

Quick Tip

Suppression of one eye's input is often seen in conditions like strabismus, where the brain ignores input from one eye to prevent double vision.

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19. A patient presents in the eye OPD with this finding. What is the diagnosis?

(A) Dermoid

(B) Lipodermoid

(C) Pterygium

(D) Papilloma

Correct Answer: (A) Dermoid

Solution: The finding described suggests a dermoid, which is a benign tumor composed of ectodermal elements, often found in the cornea or conjunctiva. It is usually congenital and presents as a yellowish, cystic mass.

Quick Tip

Dermoids are congenital growths that can appear in various locations, including the eye, and are often characterized by a cystic mass with skin appendages.

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20. In Wilson's disease, the best choice of investigation is?

(A) Serum copper

(B) Ceruloplasmin

(C) Hepatic copper estimation

(D) Urine copper

Correct Answer: (B) Ceruloplasmin

Solution: In Wilson's disease, the best choice of investigation is serum ceruloplasmin, which is usually decreased in this condition. Ceruloplasmin is a copper-binding protein, and low levels indicate impaired copper metabolism.

Quick Tip

Serum ceruloplasmin is a key diagnostic marker for Wilson's disease, and its levels are often low due to copper accumulation.

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21. Clinical scenario about homocystinuria, which vitamin to be supplemented?

(A) Thiamine

(B) Vitamin B6

(C) Biotin

(D) Pyruvate

Correct Answer: (B) Vitamin B6

Solution: In homocystinuria, vitamin B6 (pyridoxine) supplementation is commonly used as it acts as a cofactor for cystathionine beta-synthase, an enzyme involved in the metabolism of homocysteine. This helps reduce homocysteine levels.

Quick Tip

Vitamin B6 is crucial in managing homocystinuria, as it supports enzyme activity that helps convert homocysteine to cysteine.

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22. A 2-week-old baby presented with vomiting, acidosis, early cataract. Which of the following enzyme is defective?

(A) Galactose-1-phosphate uridyl transferase

(B) Galactokinase

(C) Hexokinase

(D) Aldol reductase

Correct Answer: (A) Galactose-1-phosphate uridyl transferase

Solution: The symptoms of vomiting, acidosis, and early cataract in a 2-week-old baby are suggestive of galactosemia. The enzyme defect in galactosemia is typically due to a deficiency in galactose-1-phosphate uridyl transferase, which is responsible for metabolizing galactose.

Quick Tip

In galactosemia, the defect in galactose-1-phosphate uridyl transferase leads to the accumulation of galactose and its metabolites, which cause cataracts, liver damage, and other systemic symptoms.

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23. Diagnosis of MRI image:

(A) Arnold-Chiari malformation

(B) Corpus callosal agenesis

(C) Vein of Galen malformation

(D) Dandy-Walker malformation

Correct Answer: (A) Arnold-Chiari malformation

Solution: Arnold-Chiari malformation is characterized by the herniation of the cerebellar tonsils into the spinal canal, which can be visualized on MRI. The diagnosis is based on the characteristic appearance seen in imaging studies.

Quick Tip

Arnold-Chiari malformation is associated with hydrocephalus and syringomyelia and is diagnosed through MRI imaging.

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24. A 76-year-old elderly patient presents in a confused state. He is on antihypertensive medication and on aspirin due to a previous heart attack. There is a minor trauma due to fall from a chair 3 weeks back. NCCT is done and shows the following. Diagnosis?

(A) SAH (Subarachnoid Hemorrhage)

(B) EDH (Epidural Hematoma)

(C) Normal Study

(D) Chronic SDH (Subdural Hematoma)

Correct Answer: (D) Chronic SDH

Solution: The presence of confusion in an elderly patient with a history of minor trauma and chronic symptoms is most consistent with chronic subdural hematoma (SDH). The imaging typically shows a crescent-shaped, hypodense area, which evolves over time, indicating a chronic bleed.

Quick Tip

Chronic SDH often presents with subtle symptoms such as confusion and is typically seen in elderly patients after minor head trauma.

25. Diagnosis of MRCP image:

(A) GB Stone (Gallbladder Stone)

(B) Cholangiocarcinoma

(C) Choledochal Cyst

(D) Gall and Blood Cancer

Correct Answer: (B) Cholangiocarcinoma

Solution: Cholangiocarcinoma is a malignancy of the bile ducts, which can be visualized on MRCP (Magnetic Resonance Cholangiopancreatography) as a mass or stricture in the bile duct. This diagnosis is supported by the imaging findings.

Quick Tip

Cholangiocarcinoma is diagnosed by imaging modalities such as MRCP, which helps visualize bile duct masses or strictures.

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26. A 35-year-old nullipara female presented with dull aching pain with exacerbation during the menstrual cycle. USG reveals a heterogeneous mass in the right adnexa. MRI reveals a 4 x 5 cm T1 hyperintense mass with no suppression on fat-saturated images. T2-weighted images show low signal with dark shading. Diagnosis?

(A) Dermoid cyst

(B) Endometrioma

(C) Ovarian cancer

(D) Para-Ovarian Cyst

Correct Answer: (B) Endometrioma

Solution: The clinical presentation and MRI findings, including T1 hyperintensity and T2 hypointensity with dark shading, are characteristic of an endometrioma, also known as a ”chocolate cyst.” This condition is caused by the presence of endometrial tissue in the ovaries, often associated with dysmenorrhea and infertility.

Quick Tip

Endometriomas are typically seen as T1 hyperintense and T2 hypointense masses on MRI, often with a history of menstrual pain and infertility.

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27. Diagnosis of following Plain X-ray of abdomen:

(A) Enterolith in jejunum

(B) Calcific mediastinal lymph nodes

(C) Horse shoe kidney with calculi

(D) Chronic calcific pancreatitis

Correct Answer: (D) Chronic calcific pancreatitis

Solution: Chronic calcific pancreatitis presents with calcifications in the pancreas, which can be seen on a plain X-ray. The calcifications are typically scattered within the pancreas, often seen in the tail or head of the pancreas.

Quick Tip

Chronic pancreatitis is often diagnosed by the presence of calcifications on imaging, which help differentiate it from other abdominal conditions.

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28. A patient has Proteus infection and now plain X-ray of abdomen was done and a large stone was shown in the urinary bladder. The stone is made up of:

(A) Calcium Phosphate

(B) Cysteine

(C) Calcium Oxalate

(D) Xanthine

Correct Answer: (A) Calcium Phosphate

Solution: Proteus infection is often associated with the formation of struvite stones, which are composed of magnesium ammonium phosphate. However, in this case, calcium

phosphate stones are a possibility, particularly when urinary tract infections lead to altered urine pH, promoting the formation of these stones.

Quick Tip

Calcium phosphate stones are commonly associated with urinary tract infections, particularly those caused by Proteus species, which increase the pH of the urine.

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29. Correct statement regarding esophageal foreign body (FB):

(A) Right main bronchus is one of the sites of constriction

(B) Most common site of impaction is cricopharyngeus

(C) Commonly seen in adults

(D) Can't cause mediastinitis

Correct Answer: (B) Most common site of impaction is cricopharyngeus

Solution: The most common site for impaction of an esophageal foreign body is the cricopharyngeus, as it is a physiological constriction point at the junction of the pharynx and esophagus. This area can also be a site of food bolus impaction.

Quick Tip

The cricopharyngeus muscle is a common site for esophageal foreign body impaction, especially in children.

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30. Gastrectomy patient needs supplemental: (PART A)

(A) Vitamin C

(B) Vitamin D

(C) Vitamin B12

(D) Vitamin A

Correct Answer: (C) Vitamin B12

Solution: After gastrectomy, the patient loses the intrinsic factor necessary for vitamin B12 absorption in the small intestine, necessitating lifelong supplementation of vitamin B12 to prevent deficiency.

Quick Tip

Vitamin B12 supplementation is essential after gastrectomy, as the intrinsic factor, required for absorption, is lost with the removal of the stomach.

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31. After a right limb amputation, the patient is experiencing severe phantom limb pain. What is the mechanism behind this?

(A) Projection of adjacent fibers to overlap to right sensory cortex

(B) Projection of adjacent fibers to overlap to left sensory cortex

(C) Expansion of right sensory cortex

(D) Expansion of left sensory cortex

Correct Answer: (B) Projection of adjacent fibers to overlap to left sensory cortex

Solution: Phantom limb pain occurs due to the reorganization of the sensory cortex after limb amputation. The adjacent areas of the sensory cortex can begin to project onto the area of the cortex that previously received sensory input from the amputated limb, leading to sensations of pain in the ”missing” limb.

Quick Tip

Phantom limb pain is often a result of cortical reorganization, where sensory input from nearby areas overlaps with the region of the brain corresponding to the missing limb.

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32. Patient had sunburn and now takes a bath with 40-degree water and feels pain.

(A) Thermal receptor: hyperalgesia

(B) Innocuous thermal receptor: allodynia

(C) Thermal receptor: allodynia

(D) Innocuous thermal receptor: hyperalgesia

Correct Answer: (B) Innocuous thermal receptor: allodynia

Solution: The patient is experiencing pain due to a previously non-painful stimulus (the 40-degree water) after sunburn. This is known as allodynia, where innocuous stimuli are perceived as painful due to sensitization of the nociceptors after sunburn.

Quick Tip

Allodynia occurs when typically harmless stimuli, such as warm water after a sunburn, trigger pain due to sensitized thermal receptors.

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33. A 50-year-old female presented with dyspnea and chest pain. Which of the following proves that she has aortic stenosis rather than aortic regurgitation?

(A) Increase in myocardial oxygen consumption is seen with increased pressure work than volume

(B) Aortic stenosis causes reduced pressure at aortic valve

(C) Workload has nothing to do with myocardial oxygen consumption

(D) Increase in preload more than afterload than afterload

Correct Answer: (A) Increase in myocardial oxygen consumption is seen with increased pressure work than volume

Solution: In aortic stenosis, there is an increase in pressure work because the left ventricle has to generate higher pressures to overcome the narrowed aortic valve. This results in increased myocardial oxygen consumption. In contrast, aortic regurgitation leads to volume work and less pressure load on the myocardium.

Quick Tip

Aortic stenosis is characterized by increased pressure work, leading to increased myocardial oxygen consumption, while aortic regurgitation involves volume work, which does not cause as much oxygen demand.

34. Taste absent in which tastebud?

(A) Filliform

(B) Foliate

(C) Fungiform Papilla

(D) Circumvallate

Correct Answer: (A) Filliform

Solution: Filliform papillae do not contain taste buds and thus do not contribute to the sensation of taste. They are primarily responsible for the tactile sensation and help in the manipulation of food in the mouth.

Quick Tip

Filliform papillae are the most numerous on the tongue but do not contain taste receptors, unlike other papillae like fungiform, foliate, and circumvallate.

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35. Which receptor helps in the improvement of insulin resistance in DM2 with regular exercise and physical activity?

(A) GLUT1

(B) GLUT4

(C) GLUT2

(D) GLUT3

Correct Answer: (B) GLUT4

Solution: GLUT4 is the insulin-sensitive glucose transporter that plays a key role in improving insulin resistance. Regular exercise and physical activity increase the expression and activity of GLUT4, enhancing glucose uptake into cells, especially muscle cells.

Quick Tip

Exercise improves insulin sensitivity by increasing the number of GLUT4 transporters on muscle cell membranes, facilitating glucose uptake.

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36. A man is having difficulty sleeping during the night. He has the habit of drinking coffee before bedtime. What is the role of caffeine in wakefulness?

(A) Blocks adenosine action and causes wakefulness

(B) Activates locus coeruleus and causes wakefulness

(C) No role in maintaining wakefulness if taken 1hr before sleep

(D) Activates histamine release and prevents sleep

Correct Answer: (A) Blocks adenosine action and causes wakefulness

Solution: Caffeine works as a stimulant by blocking adenosine receptors in the brain. Adenosine is a neurotransmitter that promotes sleep, and by blocking its action, caffeine helps to promote wakefulness and reduce the sensation of fatigue.

Quick Tip

Caffeine blocks adenosine receptors, preventing the sleep-promoting effects of adenosine and thereby promoting wakefulness.

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37. RMP predominantly affected by which ion?

(A) K+

(B) Ca

(C) Na

(D) Cl

Correct Answer: (A) K+

Solution: The resting membrane potential (RMP) is primarily influenced by the concentration gradient of potassium ions (K+). Potassium ions are more concentrated inside

the cell, and their movement out of the cell through potassium channels creates a negative charge inside, setting the RMP.

Quick Tip

Potassium ions (K+) are crucial in establishing the resting membrane potential because their movement across the membrane contributes to the negative charge inside the cell.

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38. Alcoholic gait, nystagmus after RTA, which lobe of cerebellum is affected?

(A) Flocculonodular

(B) Dentate

(C) Anterior lobe

(D) Vermis

Correct Answer: (A) Flocculonodular

Solution: The flocculonodular lobe of the cerebellum is responsible for balance and eye movements. Damage to this area, such as after alcohol consumption or a traumatic event like a road traffic accident (RTA), can result in gait disturbance and nystagmus.

Quick Tip

The flocculonodular lobe plays a critical role in maintaining balance and coordinating eye movements, and its dysfunction can lead to symptoms like nystagmus and ataxia.

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39. A 14-year-old boy presented with nasal mass and recurrent episodes of bleeding from the mass. Investigation of choice?

(A) Plain CT

(B) CT with contrast

(C) X-ray Caldwell view

(D) X-ray with Pierre view

Correct Answer: (B) CT with contrast

Solution: A CT with contrast is the best investigation for evaluating a nasal mass with recurrent bleeding. This helps to assess the extent of the lesion, its relationship with surrounding structures, and whether there is any vascular involvement.

Quick Tip

For evaluating nasal masses with bleeding, CT with contrast provides detailed imaging and helps in planning surgical or therapeutic interventions.

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40. Cochlear implant given below, identify the marked structure:

(A) Internal magnet

(B) Electrode

(C) Receiver

(D) Antenna

Correct Answer: (B) Electrode

Solution: The electrode is the part of the cochlear implant that is inserted into the cochlea to stimulate the auditory nerve fibers. The other parts of the cochlear implant system (internal magnet, receiver, antenna) work in conjunction with the electrode to transmit sound signals.

Quick Tip

The electrode in a cochlear implant is the critical component that directly stimulates the auditory nerve, enabling sound perception.

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41. Which nerve supplies the external ear?

(A) ATN, greater auricular, 7 and 10

(B) Greater auricular, 7 and 10, ATN

(C) 7 and 10, ATN, greater auricular nerve

(D) ATN, 7 and 10, GAN

Correct Answer: (D) ATN, 7 and 10, GAN

Solution: The external ear is innervated by the auriculotemporal nerve (ATN), the greater auricular nerve (GAN), and the auricular branches of cranial nerves 7 (facial) and 10 (vagus). These nerves provide sensory innervation to the ear.

Quick Tip

The external ear receives sensory innervation from multiple sources, including branches of the facial and vagus nerves, as well as the auriculotemporal nerve.

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42. In head impulse test, the following finding is seen in right vestibular neuritis:

(A) On rotating head to right, left saccade

(B) On rotating head to left, right saccade

(C) On rotating head toward right, right saccade

(D) On rotating to the left, left saccade

Correct Answer: (A) On rotating head to right, left saccade

Solution: In vestibular neuritis, there is a loss of function in one side of the vestibular system. When the head is rotated to the right, the left side compensates for the loss of input, resulting in a leftward saccadic movement (a corrective eye movement) to re-establish gaze.

Quick Tip

In vestibular neuritis, a head impulse test will show compensatory saccades in the opposite direction of the impaired side.

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43. Which of the following instrument insertions will be difficult:

(A) Nasogastric Tube

(B) LMA

(C) Tracheostomy

(D) Indirect Laryngoscopy

Correct Answer: (C) Tracheostomy

Solution: A tracheostomy insertion involves creating a surgical opening in the trachea, which can be more technically difficult compared to other procedures like nasogastric tube insertion or LMA placement. It requires precise surgical skills and anatomical knowledge.

Quick Tip

Tracheostomy is a more complex procedure compared to other airway interventions and requires careful consideration of anatomy and surgical technique.

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44. A singer presents with problems in high pitch. On examination, bowing of one side vocal cord is seen. Which of the following muscles is affected?

(A) Posterior cricoarytenoid

(B) Lateral cricoarytenoid

(C) Cricothyroid

(D) Thyroarytenoid

Correct Answer: (C) Cricothyroid

Solution: The cricothyroid muscle is responsible for tensioning the vocal cords, and dysfunction or weakness of this muscle can lead to difficulty producing high-pitched sounds. Bowing of the vocal cords often results from weakness of the cricothyroid muscle.

Quick Tip

The cricothyroid muscle controls the tension of the vocal cords and is crucial for pitch regulation. Weakness of this muscle can lead to difficulties in high-pitched voice production.

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45. A 45-year-old male presents with breathlessness and undergoes a CT scan of the paranasal sinuses (PNS). Which sinus is obstructed?

(A) Maxillary

(B) Frontal

(C) Sphenoid

(D) Ethmoid

Correct Answer: (A) Maxillary

Solution: The maxillary sinuses are the most common sinuses to become obstructed in cases of sinusitis. This often leads to facial pain, pressure, and breathlessness due to the buildup of mucus and inflammation in the sinus cavities.

Quick Tip

Maxillary sinus obstruction is commonly associated with sinusitis and can cause symptoms like facial pain, nasal congestion, and difficulty breathing.

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46. Intraoperatively, which stain is used to view the following lesion:

(A) AgNO3

(B) Toluidine Blue

(C) Congo red

(D) Methylene blue

Correct Answer: (B) Toluidine Blue

Solution: Toluidine blue is a metachromatic dye that is commonly used intraoperatively for highlighting mucosal lesions, particularly for identifying tumors and other abnormal tissue, especially in procedures like gynecological or urological surgery.

Quick Tip

Toluidine blue is widely used for identifying epithelial lesions during surgeries, especially in procedures involving the oral cavity or urogenital tract.

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47. Gag reflex will be absent in which nerve injury?

(A) 5 and 10

(B) 9 and 10

(C) 10 and 12

(D) 7 and 9

Correct Answer: (B) 9 and 10

Solution: The gag reflex is mediated by cranial nerves 9 (glossopharyngeal) and 10 (vagus). Injury to these nerves will result in the absence of the gag reflex. The glossopharyngeal nerve carries sensory information, while the vagus nerve controls the motor response.

Quick Tip

The gag reflex is absent in injuries involving the glossopharyngeal (IX) and vagus (X) nerves, as both are integral to the sensation and motor function of the reflex.

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48. In the given X-ray, which of the following signs is seen:

1. Double ring sign
2. String sign
3. Steeple sign
4. Thumb sign

Correct Answer: 1. Double ring sign

Solution: The double ring sign is characteristic of a condition such as intussusception, where one segment of the bowel telescopes into another. This sign is visible on X-ray as a concentric ring of soft tissue with a central radiolucent area.

Quick Tip

The double ring sign is a classic X-ray finding in intussusception, indicating the telescoping of bowel segments.

---

49. Taste absent in which taste bud?

(A) Filliform

(B) Foliate

(C) Papilla

(D) Circumvallate

Correct Answer: (A) Filliform

Solution: The filliform papillae do not contain taste buds and are responsible for the tactile sensation of the tongue. Unlike other papillae, such as the fungiform, circumvallate, and foliate papillae, which contain taste buds, filliform papillae do not contribute to taste perception.

Quick Tip

Filliform papillae are the most numerous on the tongue but do not contain taste receptors, unlike other types like fungiform and circumvallate.

---

50. Which of the following may be true in this patient?

(A) Oesophagus is the correct site

(B) Most commonly in adults

(C) Mostly above cricoid

(D) Mediastinal infection not present

Correct Answer: (A) Oesophagus is the correct site

Solution: The question implies a condition affecting the esophagus. Conditions such as esophageal foreign bodies or cancer most commonly affect the esophagus. The esophagus is the correct site when considering conditions like achalasia, cancer, or foreign body impaction.

Quick Tip

Esophageal conditions like foreign bodies and tumors typically affect the esophagus, especially in adults, with common sites of involvement being near the cricoid.

---

51. A patient presented with complaints of hearing loss, and the otoscopy finding shown. What will be the Rinne test finding?

(A) True positive

(B) True negative

(C) False positive

(D) False negative

Correct Answer: (B) True negative

Solution: A true negative Rinne test indicates that the air conduction is better than bone conduction, which is the normal finding in healthy individuals. In patients with conductive hearing loss, bone conduction would be better than air conduction.

Quick Tip

The Rinne test is used to differentiate between conductive and sensorineural hearing loss. A true negative result is seen in individuals with normal hearing.

---

52. A female with mild CHL and tinnitus. The PTA is shown. What is the interpretation?

(A) Otosclerosis

(B) Meniere's disease

(C) NIHL (Noise-Induced Hearing Loss)

(D) None

Correct Answer: (A) Otosclerosis

Solution: Otosclerosis is a common cause of conductive hearing loss (CHL) and is often associated with tinnitus. It involves abnormal bone growth in the middle ear, particularly affecting the stapes, which impedes sound transmission. The pure-tone audiogram (PTA) findings typically show a conductive hearing loss pattern.

Quick Tip

Otosclerosis typically presents with conductive hearing loss and tinnitus, often showing a characteristic audiogram pattern. It is treated with surgery or hearing aids.

---

53. A nasal surgery was done in this patient, and the incision mark is shown. Which of these is probably done?

(A) Septoplasty

(B) Rhinoplasty

(C) FESS

(D) Young's surgery

Correct Answer: (B) Rhinoplasty

Solution: Rhinoplasty is a surgical procedure performed to reshape the nose for either cosmetic or functional reasons. The incision marks typically reflect the approach used in rhinoplasty, often through the columella (the tissue between the nostrils).

Quick Tip

Rhinoplasty involves reshaping the nose and can be done for both cosmetic and functional purposes, with characteristic incisions on the columella.

---

54. A man meets with an RTA and comes to the emergency department with complaints of back pain. No neurological deficit. X-ray spine done. What will be the diagnosis?

(A) Fracture of spinous process

(B) Compressed fracture

(C) Fracture of base of vertebrae

(D) Chance fracture

Correct Answer: (D) Chance fracture

Solution: A Chance fracture is a type of fracture involving the vertebral body, typically

caused by flexion and distraction forces, such as those seen in a road traffic accident (RTA). It involves a horizontal fracture through the vertebral body, pedicles, and posterior elements.

Quick Tip

Chance fractures are associated with high-energy trauma and are often seen in RTAs. They can be diagnosed with lateral X-rays of the spine showing horizontal fractures.

---

55. What is the type of classification used for this fracture and its type?

(A) Gartland type 3

(B) Salter Harris type 3

(C) Gartland type 4

(D) Salter Harris type 4

Correct Answer: (A) Gartland type 3

Solution: The Gartland classification is used to describe supracondylar fractures of the humerus in children. Type 3 fractures are completely displaced fractures, often requiring surgical intervention. The classification helps guide treatment and predict complications.

Quick Tip

The Gartland classification is specifically used for pediatric supracondylar fractures of the humerus, with type 3 fractures being completely displaced and requiring reduction and fixation.

---

56. A child with this deformity. He has recurrent tooth abscesses. Calcium normal, Phosphorus low, PTH normal, ALP high. Diagnosis is?

(A) Nutritional rickets

(B) VDDR1 (Vitamin D Dependent Rickets Type 1)

(C) VDDR2 (Vitamin D Dependent Rickets Type 2)

(D) Hypophosphatemic rickets

Correct Answer: (A) Nutritional rickets

Solution: The child's symptoms, with recurrent tooth abscesses, normal calcium, low phosphorus, normal PTH, and high ALP, are suggestive of nutritional rickets. This condition arises from vitamin D deficiency or inadequate calcium intake, which leads to defective mineralization of bone.

Quick Tip

Nutritional rickets presents with normal calcium levels, low phosphorus, and elevated alkaline phosphatase, often due to vitamin D deficiency.

---

57. A 16-year-old boy claiming to be 18 years old. Which 2 joints should be checked for age estimation?

(A) Wrist and knee

(B) Hip and elbow

(C) Hip and knee

(D) Head and shoulder

Correct Answer: (A) Wrist and knee

Solution: For age estimation, the wrist (particularly the distal radius and ulna) and knee (especially the growth plates) are the most reliable joints to assess for skeletal maturity. These joints are often examined through X-rays to evaluate epiphyseal closure.

Quick Tip

The wrist and knee are the best joints to evaluate for age estimation due to the distinct changes in bone maturation that occur in these areas.

---

58. What is the device/implant shown in this following picture used for femur neck fracture?

(A) Condylar plate

(B) Dynamic condylar screw

(C) Dynamic hip screw

(D) Locking plate

Correct Answer: (C) Dynamic hip screw

Solution: The dynamic hip screw (DHS) is commonly used for the fixation of femoral neck fractures. It allows for controlled compression at the fracture site, which promotes healing and reduces the risk of non-union.

Quick Tip

The dynamic hip screw is specifically designed for femoral neck fractures, providing stable fixation and promoting healing through controlled compression.

---

59. Pain in the back of the leg and thigh after lifting heavy weight. Which segment is involved?

(A) L4

(B) L5

(C) L3

(D) S1

Correct Answer: (B) L5

Solution: Pain in the back of the leg and thigh, especially after lifting, is commonly associated with compression or irritation of the L5 nerve root. This can cause referred pain along the sciatic nerve distribution, affecting the posterior thigh and leg.

Quick Tip

The L5 nerve root is commonly involved in cases of sciatic nerve pain, often triggered by activities like lifting or bending.

---

60. Fracture of the base of the 5th metatarsal, below knee cast should be worn for:

(A) 6-8 weeks

(B) 2-3 weeks

(C) 16-20 weeks

(D) 3-5 weeks

Correct Answer: (A) 6-8 weeks

Solution: A fracture at the base of the 5th metatarsal, particularly a Jones fracture, typically requires 6-8 weeks of immobilization in a below-the-knee cast. This period allows for healing of the bone and prevents complications such as non-union.

Quick Tip

Base of the 5th metatarsal fractures generally require 6-8 weeks of immobilization, with appropriate follow-up to monitor healing.

---

61. A football player had a twist of the knee and ankle, clinically no bony injury was appreciated. The examiner is doing the test as shown here. Which test is this?

(A) Ant drawer for ACL

(B) Post drawer for PCL

(C) McMurray

(D) Lachman

Correct Answer: (D) Lachman

Solution: The Lachman test is a specific test for assessing the integrity of the anterior cruciate ligament (ACL). It is performed with the knee in a slightly flexed position and involves anterior translation of the tibia to test the ACL's stability.

Quick Tip

The Lachman test is one of the most sensitive and specific tests for detecting ACL tears, especially in the acute phase.

62. Fracture at which site will affect the longitudinal growth of the bone?

(A) Epiphyseal plate

(B) Epiphysis

(C) Metaphysis

(D) Diaphysis

Correct Answer: (A) Epiphyseal plate

Solution: The epiphyseal plate, also known as the growth plate, is responsible for the longitudinal growth of the bone. Fractures involving this area can disrupt normal bone growth and lead to limb length discrepancies or deformities.

Quick Tip

Injuries to the epiphyseal plate can disrupt normal bone growth and lead to permanent deformities or growth abnormalities.

---

63. The patient is unable to make the ”OK” sign. Which muscle is involved?

(A) FDS (Flexor Digitorum Superficialis)

(B) FDP (Flexor Digitorum Profundus)

(C) FIC (Flexor Indicis Proprius)

Correct Answer: (B) FDP

Solution: The inability to make the ”OK” sign is due to dysfunction of the Flexor Digitorum Profundus (FDP) muscle. The FDP is responsible for flexing the distal phalanx of the fingers, which is essential for forming the ”OK” sign.

Quick Tip

The FDP is responsible for flexion of the distal phalanx, and its weakness can lead to difficulty making the ”OK” sign.

64. Which area is fractured in the given X-ray?

(A) Tibial tuberosity

(B) Medial epicondyle of tibia

(C) Gerdy's tubercle

Correct Answer: (A) Tibial tuberosity

Solution: The tibial tuberosity is the bony prominence where the patellar tendon attaches. Fractures in this area are common in adolescents, particularly after a forceful contraction of the quadriceps muscle, as seen in conditions like Osgood-Schlatter disease.

Quick Tip

Fractures of the tibial tuberosity are often seen in active adolescents and can result from trauma or repetitive stress.

---

65. Which nerve will be commonly involved if the injury occurs at the marked levels?

(A) L4

(B) L5

(C) L2

(D) L3

Correct Answer: (B) L5

Solution: The L5 nerve root is most commonly involved in spinal injuries at the lower lumbar levels. It is responsible for sensory and motor functions in the lower extremities, and damage to this root can result in foot drop, weakness of the dorsiflexors, and sensory loss in the dorsum of the foot.

Quick Tip

L5 nerve root lesions are often associated with foot drop and weakness in the dorsiflexion of the foot, and they are common in lumbar spine injuries.

66. Artery passing between medial malleolus and the Achilles tendon?

Correct Answer: Posterior tibial artery

Solution: The posterior tibial artery passes between the medial malleolus and the Achilles tendon, providing blood supply to the posterior compartment of the leg and foot. It can be palpated just behind the medial malleolus.

Quick Tip

The posterior tibial artery is an important landmark in the lower leg, commonly used to assess circulation in the foot.

---

67. A child with a left femur shaft fracture, managed by plating. Which of the following types of callus formation occurs?

(A) Creeping substitution

(B) Primary callus

(C) Secondary callus

Correct Answer: (B) Primary callus

Solution: Primary callus formation is the early process that begins after bone fracture, where the initial callus is formed to stabilize the fracture site. This is typically seen when the fracture is treated with plating, where direct bone healing occurs without significant callus formation as in secondary healing.

Quick Tip

Primary callus formation occurs in fractures treated with rigid fixation, such as plating, allowing for direct bone healing without much secondary callus.

---

68. What is the most likely diagnosis for the lesion shown here?

Correct Answer: Sunburst

Solution: The ”sunburst” appearance is characteristic of certain bone tumors, particularly osteosarcoma. The radiographic appearance shows spiculated or radiating bone formation, which resembles a sunburst pattern.

Quick Tip

The sunburst pattern is often seen in aggressive bone tumors like osteosarcoma and is a key diagnostic feature on radiographs.

---

69. A diaphyseal tumor, probably small round blue cells. Which test/translocation is useful for diagnosis?

(A) T11,22

(B) T15,17

Correct Answer: (A) T11,22

Solution: The translocation T(11;22)(q24;q12) is characteristic of Ewing’s sarcoma, which is a common diaphyseal tumor made up of small round blue cells. This translocation is useful for diagnosing Ewing’s sarcoma and differentiating it from other small round blue cell tumors.

Quick Tip

The T(11;22)(q24;q12) translocation is a hallmark of Ewing’s sarcoma, a common malignancy in children and adolescents.

---

70. What is the level of amputation shown here?

Correct Answer: Below Knee Amputation

Solution: Below knee amputation (BKA) involves the removal of the lower leg below the knee joint, typically preserving the knee and femur. This type of amputation is performed for various reasons, including severe trauma or infection affecting the lower leg.

Quick Tip

Below knee amputation preserves the knee joint and is often preferred when the upper part of the leg is not severely affected.

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71. A 40-year-old RTA case is brought to the casualty and declared brought dead by the doctor. The doctor informs the police official and sends the body to the mortuary. Autopsy in this case will be conducted on the request of:

(A) PP (Public Prosecutor)

(B) Defence lawyer

(C) Dr.

(D) Investigating officer

Correct Answer: (D) Investigating officer

Solution: In cases of sudden or unexplained deaths, particularly following an accident, the autopsy is typically performed at the request of the investigating officer or police authorities to determine the cause of death. This is a legal requirement in many jurisdictions.

Quick Tip

An autopsy following an accident or unexplained death is generally ordered by the investigating officer or police to determine the cause of death.

---

72. A 30-year-old male dead body was brought for autopsy. The doctor notices greyish white waxy material with preserved facial features. Which is true of the following change?

(A) High temperature needed

(B) Hot and dry environment needed

(C) Starts very early after death

(D) It is a form of body preservation by saponification of fats

Correct Answer: (D) It is a form of body preservation by saponification of fats

Solution: The greyish white waxy material described is indicative of adipocere, which forms through the saponification of fats in the body. This occurs when the body is exposed to moisture, and it typically happens in a cool, moist environment. It is a late-stage form of body preservation and does not require high temperatures.

Quick Tip

Adipocere formation is a form of body preservation due to the saponification of body fats, usually occurring in moist conditions and over an extended period after death.

---

73. The microscopic image of the organism was analyzed in a drowning case. Which is correct about them?

(A) Contains silica and chlorophyll point

(B) Are microscopic unicellular bacteria

(C) Present only in bone marrow

(D) Are not resistant to acids and heat

Correct Answer: (A) Contains silica and chlorophyll point

Solution: In a drowning case, the microscopic organisms observed may include diatoms, which are unicellular algae that contain silica in their cell walls. The presence of silica and chlorophyll is a distinctive feature of diatoms, which are often used as markers in forensic investigations of drowning.

Quick Tip

Diatoms, which contain silica and chlorophyll, are important markers in forensic medicine, especially in drowning cases, as they can be detected in the victim's tissues and organs.

---

74. The range of fire by a rifled firearm per the image:

(A) Contact

(B) Close

(C) Distant

(D) Cannot be opined

Correct Answer: (B) Close

Solution: The term ”close range” typically refers to distances where the firearm is fired within a few feet of the target, usually less than 1 meter. In a forensic context, the gunshot residue patterns and the wound characteristics can help determine the range of fire.

Quick Tip

Close-range firing can often be identified by the presence of gunshot residues on the victim or target, and the spread of the wound pattern.

---

75. A pregnant female comes to a gynecologist who sends her for USG. On USG twin pregnancy noted with about one month difference in the age of fetuses. Which is true of the following?

(A) Superfetation

(B) Superfecundation

(C) Suppositious child

(D) Posthumous child

Correct Answer: (A) Superfetation

Solution: Superfetation is a rare phenomenon where two fetuses with different gestational ages develop in the womb at different times. This occurs when a second, fertilized egg implants in the uterus during an existing pregnancy, resulting in two fetuses of different ages.

Quick Tip

Superfetation is extremely rare and involves the fertilization of an additional egg during an ongoing pregnancy, leading to twins of different gestational ages.

---

76. The findings in the image are suggestive of which poisoning?

(A) OPC (Organophosphorus Compounds)

(B) Arsenic

(C) Lead

(D) Mercury

Correct Answer: (B) Arsenic

Solution: Arsenic poisoning can cause a range of symptoms including abdominal pain, vomiting, and a distinctive pattern of skin changes such as hyperpigmentation and scaling. It is often seen in cases of acute or chronic poisoning due to contaminated water or food.

Quick Tip

Arsenic poisoning typically presents with gastrointestinal symptoms, skin changes, and sometimes neurological symptoms.

---

77. Many people have consumed contaminated alcohol and present with abdominal pain, confusion, and decreased vision. Methyl alcohol concentration detected as 20 mg percent. On assessment, which metabolites will be found?

(A) Formic acid and lactic acid

(B) Glycolic acid and oxalic acid

(C) Oxalic acid and formic acid

(D) Glyoxylic acid and formic acid

Correct Answer: (B) Glycolic acid and oxalic acid

Solution: Methyl alcohol (methanol) is metabolized in the liver to formaldehyde and formic acid, which can cause metabolic acidosis. However, the ingestion of methanol also leads to the accumulation of glycolic acid and oxalic acid, which contribute to the toxic effects and metabolic acidosis.

Quick Tip

In methanol poisoning, glycolic acid and oxalic acid are important metabolites to identify, and their presence in blood can confirm the diagnosis.

---

78. A person comes to the emergency department after consumption of a substance, the form and dose of which is not known to relatives. The patient shows tachypnea, hypotension. On metabolic assessment, high anion gap acidosis is noted with hypocalcemia. Diagnosis?

(A) Methyl alcohol

(B) Ethylene glycol

(C) Dhatura

(D) Ethyl alcohol

Correct Answer: (B) Ethylene glycol

Solution: Ethylene glycol poisoning typically presents with metabolic acidosis, tachypnea, hypotension, and hypocalcemia. It is metabolized to glycolic acid and oxalic acid, which contribute to the high anion gap acidosis. The presence of hypocalcemia is a characteristic finding in ethylene glycol toxicity.

Quick Tip

Ethylene glycol poisoning can be life-threatening, with metabolic acidosis and hypocalcemia being key diagnostic signs.

---

79. A 36-year-old woman (G4L3P3) presents in full-term labor. Labor arrested at 8cm cervical dilation. Emergency C-section was done after counseling, the baby was alive but intractable postpartum hemorrhage (PPH) occurred. Emergency hysterectomy was done to save the life of the mother. Which is the appropriate classification?

(A) C

(B) P

(C) T

(D) T

Correct Answer: (A) C

Solution: The classification system being referred to is the obstetric classification for the outcome of the pregnancy. In this case, the patient has delivered a live baby but experienced complications such as intractable PPH, requiring emergency hysterectomy. The ”C” refers to a cesarean section.

Quick Tip

The ”C” classification in obstetrics refers to a cesarean section, often due to complications like arrest of labor or hemorrhage.

---

80. A 30-year-old female abuser with suicidal tendencies is brought to the hospital. Mydriasis, tachypnea, tachycardia observed. Diagnosis?

(A) Cocaine

(B) Morphine

(C) Heroin

(D) Chlorpheniramine

Correct Answer: (A) Cocaine

Solution: Cocaine use often leads to mydriasis (dilated pupils), tachypnea, and tachycardia. Cocaine is a stimulant that increases sympathetic nervous system activity, which results in the observed clinical signs.

Quick Tip

Mydriasis, tachycardia, and tachypnea are commonly seen with stimulant use such as cocaine. These signs help differentiate it from opioid intoxication.

---

81. MTP in a 21-year-old, 10-week pregnancy is to be done by medical methods using:

(A) Intrauterine hyperosmotics

(B) Dinoprostone

(C) Oxytocin infusion

(D) M + M (Methotrexate and Misoprostol)

Correct Answer: (D) M + M (Methotrexate and Misoprostol)

Solution: Medical termination of pregnancy (MTP) in the early stages (up to 10 weeks) is often done using a combination of Methotrexate and Misoprostol (M + M). Methotrexate inhibits cell division, while Misoprostol induces uterine contractions to expel the pregnancy.

Quick Tip

M + M (Methotrexate and Misoprostol) is an effective medical method for early medical termination of pregnancy.

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82. A 22-week pregnancy unmarried 14-year-old girl, who is a rape victim, comes at your clinic for medical termination. What is true for medical abortion?

(A) MTP can be done in rape victim till 24 weeks

(B) Only one doctor's opinion required

(C) Only done if risk of life

(D) MTP can be done after permission of medical board

Correct Answer: (A) MTP can be done in rape victim till 24 weeks

Solution: In cases of rape, medical termination of pregnancy (MTP) is legally permissible until 24 weeks of pregnancy, provided that the conditions laid out by the Medical Termination of Pregnancy Act are met, such as the risk to the physical or mental health of the woman.

Quick Tip

MTP in cases of rape can be done up to 24 weeks of pregnancy in India, under the conditions specified by the MTP Act.

---

83. This is seen in the postmortem examination of which type of asphyxia:

(A) Throttling

(B) Smothering

(C) Hanging

(D) Garrotting

Correct Answer: (B) Smothering

Solution: Smothering occurs when the airway is blocked by a foreign object or covering, leading to asphyxia. Postmortem findings often include signs of airway obstruction, such as congestion or edema in the respiratory tract, along with the characteristic lack of external injury.

Quick Tip

Smothering results from the obstruction of the airway by a foreign object or material, and postmortem examination often reveals signs of airway congestion.

---

84. A patient from a railway station is arrested by police and shows symptoms like dilated pupils, sweating, hot skin, and staggering gait. He is suspected to have intoxication from:

(A) Dhatura

(B) Cocaine

(C) Alcohol

(D) Morphine

Correct Answer: (A) Dhatura

Solution: Dhatura (also known as Jimson weed) contains tropane alkaloids that have anticholinergic properties. Symptoms of Dhatura poisoning include dilated pupils, hot dry skin, tachycardia, and confusion, which match the described symptoms.

Quick Tip

Dhatura poisoning is characterized by anticholinergic symptoms, including dilated pupils, dry skin, and altered mental status.

---

85. In MTP at 28 weeks for congenital anomalies, whose presence is not required?

(A) Obstetrician

(B) Lawyer

(C) Pediatrician

(D) Sonologist

Correct Answer: (B) Lawyer

Solution: For medical termination of pregnancy (MTP) at 28 weeks due to congenital anomalies, the presence of an obstetrician, pediatrician, and sonologist is required. However, a lawyer's presence is not required for the procedure to proceed, though legal formalities may be involved.

Quick Tip

MTP at 28 weeks due to congenital anomalies requires the involvement of medical professionals like obstetricians, pediatricians, and sonologists, but not necessarily a lawyer.

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86. A G5P4 woman comes for routine sonography for the first time. She has had four daughters and wants a boy this time. She asks for sex determination. To be in line with the above-depicted guidelines, what will you choose?

(A) Will check routine ANC and sex for developmental abnormalities and do not reveal gender to the patient

(B) Will check routine ANC and sex for developmental abnormalities and reveal gender to the patient

(C) Reveal gender if a girl

(D) Check only routine ANC, do not check sex

Correct Answer: (A) Will check routine ANC and sex for developmental abnormalities and do not reveal gender to the patient

Solution: According to medical ethics and legal guidelines in many countries, sex determination is prohibited unless there is a medical indication, such as detecting sex-linked developmental abnormalities. The gender of the fetus should not be revealed unless necessary for medical reasons.

Quick Tip

Sex determination is not permitted unless there is a valid medical reason for doing so, such as assessing for sex-linked developmental issues.

---

87. A child was born after the death of his father, and some of them claimed that the child is not from his biological father. DNA fingerprinting was done to identify the father, and the deceased father was found to be the biological father. This child is called as:

(A) Posthumous child

(B) Suppositious child

(C) Illegitimate child

Correct Answer: (A) Posthumous child

Solution: A posthumous child is one who is conceived after the death of the biological father. DNA fingerprinting can confirm the biological relationship, and in this case, it was found that the child is indeed the biological offspring of the deceased father.

Quick Tip

Posthumous children are conceived after the father's death and are legally considered as his children if paternity can be confirmed.

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88. A child was a victim of sexual assault, and a test was done using a perianal swab. What's the name of this test? The test showed yellow needle-shaped crystals.

(A) Barberio test

(B) Teichman test

(C) Takayama test

(D) Florence test

Correct Answer: (A) Barberio test

Solution: The Barberio test is used to detect the presence of spermatozoa in cases of sexual assault. The test is conducted using a perianal swab and can reveal characteristic yellow needle-shaped crystals formed by spermatozoa.

Quick Tip

The Barberio test is specifically used to detect sperm in cases of sexual assault, and the presence of yellow needle-shaped crystals confirms the finding.

---

89. Which one is correct about the sequence of rigor mortis?

(A) Centre to periphery

(B) Head to foot

(C) Foot to head

(D) Simultaneously

Correct Answer: (B) Head to foot

Solution: Rigor mortis, the postmortem stiffening of muscles, typically follows a sequence that starts in the head and progresses down the body towards the feet. This sequence is often used in forensic investigations to estimate the time of death.

Quick Tip

Rigor mortis begins in the small muscles of the face and progresses down the body, ending in the lower extremities.

---

90. In a sexual assault case in court, ”in camera” trial refers to:

(A) Closed court proceedings

(B) Recording of proceedings

(C) Open court proceedings

(D) Proceedings occurring in a different place

Correct Answer: (A) Closed court proceedings

Solution: An ”in camera” trial refers to closed court proceedings, where the case is heard in private to protect the privacy of the individuals involved, particularly in sensitive matters such as sexual assault cases. These proceedings are not open to the public or the media.

Quick Tip

”In camera” trials are conducted in private, especially in sensitive cases like sexual assault, to maintain privacy and dignity of the victims and witnesses.

---

91. An 18-year-old male accused of rape claims he is 16 years old. Which joint X-ray should be done?

(A) Elbow and ankle

(B) Knee and wrist

(C) Shoulder and head

(D) Hip knee

Correct Answer: (B) Knee and wrist

Solution: In order to determine the age of the individual, X-rays of the knee and wrist are commonly used to assess skeletal maturity. The closure of growth plates in these joints

provides important clues about the biological age of an individual, which is helpful in forensic age determination.

Quick Tip

Knee and wrist X-rays are standard for assessing skeletal maturity and estimating age, as these joints exhibit predictable patterns of growth plate closure.

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92. Sour taste is mediated by: - PHYSIOLOGY (PART A)

(A) TRPV3 Channel

(B) Metabolic receptors

(C) GPCR T1R1

(D) GPCR T1R3

Correct Answer: (D) GPCR T1R3

Solution: Sour taste is primarily mediated by the activation of GPCR T1R3 (G-protein coupled receptor), which is involved in detecting acidic substances. The T1R family of receptors, including T1R3, play a key role in the detection of basic taste sensations like sweetness and sourness.

Quick Tip

Sour taste is detected through the GPCR T1R3, which is sensitive to hydrogen ions in acidic solutions, triggering the sour taste sensation.
