

NEET MDS 2022 Memory Based Question Paper With Solution

Time Allowed :3 Hours 20 Minutes

Maximum Marks :720

Total Questions :200

General Instructions

Read the following instructions very carefully and strictly follow them:

- (A) The NEET MDS Exam will be structured with a total of 720 marks.
- (B) The total duration of the exam is 3 Hours 20 Minutes.
- (C) The exam will be divided into 3 sections:
 - 1. General Anatomy, Physiology, and Biochemistry.
 - 2. General Pathology, Microbiology, and Pharmacology.
 - 3. Dental and Oral Pathology.
- (D) Each section will contain multiple-choice questions (MCQs) with four options.
- (E) Negative marking will apply for incorrect answers. For each incorrect answer, 1 mark will be deducted.
- (F) Ensure that you read each question carefully before answering.
- (G) No electronic devices, including calculators or mobile phones, are allowed inside the examination hall.
- (H) Candidates must carry their Admit Cards and valid ID proof to the examination center.

1 Physiology

1. Which of the following will cause a decrease in Extracellular K⁺?

- (A) Lactic Acids
- (B) Epinephrine
- (C) Glucagon
- (D) Atropine

Correct Answer: (D) Atropine

Solution:

Lactic acid is known to increase extracellular potassium (K⁺) concentration. Epinephrine, also known as adrenaline, can cause an increase or decrease in extracellular K⁺ depending on the dose and the specific physiological conditions. In general, epinephrine has a tendency to increase extracellular K⁺. Glucagon has a tendency to increase extracellular K⁺.

Atropine, which is a muscarinic acetylcholine receptor antagonist, can cause a decrease in extracellular K⁺. It's important to note that the exact effect of these substances on extracellular K⁺ can be influenced by various factors such as dose, duration, and overall physiological state of the organism.

Quick Tip

Atropine is commonly used in clinical practice to counteract bradycardia and can have an effect on extracellular K⁺ levels.

2. Which of the following will be involved in baroreceptor reflex?

- (A) Negative feedback
- (B) Positive feedback
- (C) Adaptive control
- (D) Feed forward

Correct Answer: (A) Negative feedback

Solution:

The baroreceptor reflex is a mechanism that helps maintain blood pressure homeostasis and involves **negative feedback**. When blood pressure rises, baroreceptors in the carotid sinus

and aortic arch detect the change and send signals to the brain, which triggers responses to lower blood pressure. Conversely, if blood pressure falls, the reflex mechanisms raise the pressure.

Quick Tip

Baroreceptor reflexes are essential for regulating blood pressure in response to changes in posture or activity level.

3. Which of the following events occurs during Phase B to raise body temperature to hypothalamus set point?

- (A) Shivering
- (B) Sweating
- (C) Decrease in thermogenesis
- (D) Cutaneous vasodilation

Correct Answer: (A) Shivering

Solution:

In Phase B of temperature regulation, the body attempts to raise its temperature to the hypothalamus set point. **Shivering** is the key event that increases heat production through muscle activity. Shivering helps generate heat to warm the body. The other options (sweating, decrease in thermogenesis, and cutaneous vasodilation) are related to cooling the body, not raising its temperature.

Quick Tip

Shivering is a protective mechanism activated by the body when it needs to increase its temperature, especially in cold conditions.

4. Which nucleus is involved in hemiballismus?

- (A) Globus pallidus
- (B) Caudate nucleus
- (C) Substantia nigra

(D) Subthalamic

Correct Answer: (D) Subthalamic

Solution:

The correct answer is **Subthalamic nucleus**. Hemiballismus is a type of movement disorder characterized by wild, flailing movements of one limb. It is caused by damage to the **subthalamic nucleus**, a small nucleus located in the diencephalon, which is involved in regulating movement. When the subthalamic nucleus is damaged, it can disrupt the normal balance of excitatory and inhibitory signals to the basal ganglia, leading to the uncontrolled movements seen in hemiballismus.

Quick Tip

Hemiballismus can often be seen after a stroke affecting the subthalamic nucleus, leading to one-sided, uncontrolled movements.

2 Psychiatry

5. A patient came to OPD with a complaint of paresis and numbness after sleeping on his arm. Why?

- (A) A fibers are more susceptible to pressure than C fibers.
- (B) B fibers are more susceptible to pressure than A fibers.
- (C) C fibers are more susceptible to pressure than A fibers.
- (D) A fibers are more susceptible to pressure than B fibers.

Correct Answer: (A) A fibers are more susceptible to pressure than C fibers.

Solution:

The correct answer is **A fibers are more susceptible to pressure than C fibers**. The A fibers, which are responsible for motor function and touch sensation, are myelinated and larger in diameter compared to the C fibers, which are unmyelinated and smaller. As a result, A fibers are more susceptible to being compressed under pressure, causing temporary paresis (weakness) and numbness. This can occur when a person sleeps on their arm, compressing the nerves.

Quick Tip

Temporary compression of nerves (like sleeping on an arm) often causes numbness and weakness due to pressure on A fibers, which can be relieved by changing positions.

6. A patient is brought to the emergency department with symptoms of respiratory depression and suspected to have overdosed on opioids. What should be the next step?

- (A) Naloxone
- (B) Buprenorphine
- (C) Naltrexone
- (D) Methadone

Correct Answer: (A) Naloxone

Solution:

The next step in this situation should be to administer **Naloxone (Narcan)**. Naloxone is an opioid antagonist, meaning that it can counteract the effects of opioids. Overdose on opioids can cause respiratory depression, which can lead to decreased breathing and decreased oxygenation of the body's tissues. Naloxone works by binding to the same receptors in the brain that opioids bind to, thereby reversing the effects of the opioids and restoring normal breathing. Naloxone is a fast-acting medication that can quickly reverse the effects of an opioid overdose, and it is often used in emergency situations to save the life of someone who has overdosed. Buprenorphine and methadone are both opioids used to treat opioid addiction, while naltrexone is also an opioid antagonist like naloxone, but it is used for the treatment of opioid addiction, rather than for emergency reversal of opioid overdose.

Quick Tip

Naloxone is the drug of choice in opioid overdose situations as it rapidly reverses respiratory depression caused by opioids.

7. A 16-year old female has an irresistible urge to eat, followed by episodes of self-induced vomiting. She is also on appetite suppressants. What is the diagnosis?

- (A) Anorexia nervosa

- (B) Bulimia nervosa
- (C) Pica disorder
- (D) Binge eating disorder

Correct Answer: (B) Bulimia nervosa

Solution:

The diagnosis in this case is likely **Bulimia Nervosa**. Bulimia Nervosa is an eating disorder characterized by a cycle of binge eating, followed by compensatory behaviors such as self-induced vomiting, use of laxatives, fasting, or excessive exercise to prevent weight gain. Individuals with bulimia nervosa often have an intense fear of gaining weight and a distorted body image, and they may engage in binge eating despite already feeling full. The use of appetite suppressants in this case may be an attempt to control weight, which is a common feature of bulimia nervosa.

Anorexia Nervosa is a related eating disorder characterized by a fear of weight gain and a distorted body image, but it is primarily characterized by restriction of food intake, rather than binge eating followed by purging. Pica is a disorder characterized by the persistent eating of non-food items, and Binge Eating Disorder is characterized by recurrent episodes of binge eating without the compensatory behaviors seen in bulimia nervosa.

Quick Tip

Bulimia nervosa involves a cycle of binge eating and purging behaviors, which can have serious long-term health consequences.

8. A patient consumed a large number of TCA pills during the depressive episode and presented with altered sensorium, hypotension, and high QRS complexes. What should be the next step?

- (A) DC cardioversion
- (B) Start antiarrhythmic drug
- (C) NaHCO_3
- (D) None of the above

Correct Answer: (C) NaHCO_3

Solution:

The next step in this situation should be to administer **sodium bicarbonate (NAHCO₃)**.

The patient has likely ingested a large amount of tricyclic antidepressants (TCAs), which can lead to a dangerous condition called tricyclic antidepressant toxicity. TCAs can cause a wide range of symptoms, including altered sensorium, hypotension, and arrhythmias. One of the key treatment strategies in TCA toxicity is to alkalize the urine to increase the elimination of the drugs from the body. Sodium bicarbonate (NAHCO₃) is commonly used for this purpose as it can quickly raise the pH of the blood and urine, which can help to speed up the elimination of the TCA and reduce the severity of symptoms.

DC cardioversion and antiarrhythmic drugs may be used in some cases of TCA toxicity to treat specific arrhythmias, but the initial step in most cases should be to administer sodium bicarbonate to alkalize the urine and promote elimination of the drugs.

Quick Tip

In cases of TCA toxicity, sodium bicarbonate helps to alkalize the blood and urine, which can reduce the effects of the drug and promote its elimination.

3 Surgery

9. A 45-year old female underwent thyroidectomy. On the 3rd day she developed perioral numbness. Further investigation involves:

- (A) Free T₃, T₄
- (B) RAI Scan
- (C) Calcium, Phosphate and PTH levels
- (D) T₃, T₄, TSH

Correct Answer: (C) Calcium, Phosphate and PTH levels

Solution:

The next step in this situation should be to measure the **calcium, phosphate, and parathyroid hormone (PTH) levels**. Perioral numbness can occur as a complication of thyroidectomy, especially if the parathyroid glands, which regulate calcium levels in the body, are accidentally removed or damaged during the procedure. The primary function of the parathyroid glands is to regulate calcium levels, and if they are damaged or removed, the

levels of calcium, phosphate, and PTH in the blood can become abnormal. A measurement of the calcium, phosphate, and PTH levels can help to determine if the patient has developed **hypoparathyroidism**, which is a condition characterized by low levels of PTH and low calcium levels.

Quick Tip

Perioral numbness after thyroidectomy is a common sign of hypocalcemia due to hypoparathyroidism. Early detection through PTH and calcium levels is critical for management.

10. All of the following are the components of MEN-2b except:

- (A) Megalocon
- (B) Marfanoid habitus
- (C) Mucosal neuroma
- (D) Parathyroid adenoma

Correct Answer: (D) Parathyroid adenoma

Solution:

MEN-2b (Multiple Endocrine Neoplasia type 2b) is a rare genetic syndrome that includes the following components: **megalocon**, **marfanoid habitus**, and **mucosal neuromas**. These are characteristic signs of the disease.

However, **parathyroid adenoma** is not part of MEN-2b. Parathyroid adenomas are typically associated with MEN-1 or MEN-2a, but not MEN-2b. MEN-2b is most commonly associated with medullary thyroid cancer, pheochromocytomas, and mucosal neuromas.

Quick Tip

In MEN-2b, early detection of pheochromocytomas and medullary thyroid cancer is essential for management.

4 PSM

11. Most effective way of controlling rabies in the urban population?

- (A) Test all dogs for rabies
- (B) Vaccinate the dog population
- (C) Administer rabies vaccine to all humans
- (D) Health education of people

Correct Answer: (B) Vaccinate the dog population

Solution:

The most effective way of controlling rabies in the urban population is to **vaccinate the dog population**. Rabies is primarily transmitted to humans through the bite of an infected animal, with dogs being the most common source of transmission. In order to control the spread of rabies in urban areas, it is crucial to focus on the dog population as a source of infection. This can be achieved by implementing programs to vaccinate dogs against rabies, either through mass vaccination campaigns or by requiring that all dogs be vaccinated as a condition of ownership.

Testing all dogs for rabies would be helpful in identifying infected animals, but it is not a practical solution for controlling the spread of the disease in a large population.

Administering rabies vaccine to all humans is also important, but it is not as effective as controlling the disease at its source in the animal population. Health education of people is an important aspect of rabies control, but it is not enough on its own to prevent the spread of the disease.

Quick Tip

Vaccination of the dog population is a key preventive measure in rabies control, especially in urban areas.

12. To promote healthspan the best recommendation is:

- (A) Restricted calories intake
- (B) Yoga and exercise
- (C) Reduce stress level
- (D) All of the above

Correct Answer: (D) All of the above

Solution:

The best recommendation to promote healthspan is '**All of the above**'. Healthspan refers to the length of time an individual lives in good health, without the presence of chronic diseases or disability. To promote healthspan, it is important to adopt a comprehensive approach that addresses multiple aspects of health and well-being. Restricted calories intake, especially calorie restriction with adequate nutrition, has been shown to increase lifespan in some animal models and is being actively studied for its effects on human health. Yoga and exercise are both important for promoting physical fitness and reducing the risk of chronic diseases such as heart disease, diabetes, and certain types of cancer. Reducing stress levels is also important for promoting healthcare, as chronic stress has been linked to a range of negative health outcomes, including cardiovascular disease, sleep problems, and depression. Adopting a healthy lifestyle that includes a balanced diet, regular physical activity, stress management techniques, and other habits that support health and well-being can help promote healthspan and improve quality of life.

Quick Tip

Adopting a balanced lifestyle with exercise, stress management, and proper nutrition is key to increasing healthspan.

13. Copper-T is contraindicated in:

- (A) Menstruation
- (B) Broken Condom
- (C) Trophoblastic diseases
- (D) Postpartum after delivery

Correct Answer: (C) Trophoblastic diseases

Solution:

Copper-T, an intrauterine device (IUD), is contraindicated in **trophoblastic diseases**. These diseases, such as hydatidiform mole, involve abnormal growth of the trophoblast cells, and the use of Copper-T could worsen the condition. It should not be used in such cases.

Copper-T is a safe and effective form of contraception for most women but is contraindicated

in certain conditions like trophoblastic diseases.

Quick Tip

Copper-T should not be used in cases of trophoblastic disease due to the increased risk of complications.

14. Green colour in Triage signifies:

- (A) Dear patients
- (B) High priority patients
- (C) Ambulatory patients
- (D) Moderate priority patients

Correct Answer: (C) Ambulatory patients

Solution:

In Triage, the **green colour** signifies **ambulatory patients**. These are patients who are able to walk and have minor injuries or conditions. They can wait for treatment after more critical patients have been attended to. The Triage system is designed to prioritize patients based on the severity of their condition to provide timely care.

Quick Tip

Green-tagged patients in Triage are considered to be in stable condition and can wait until more critical cases are managed.

15. Broken glass vaccine vials at the Vaccination centre are supposed to be disposed of in which container?

- (A) Yellow bag
- (B) Red bag
- (C) Sharps container
- (D) Blue puncture proof container

Correct Answer: (D) Blue puncture proof container

Solution:

Broken glass vaccine vials at the vaccination centre should be disposed of in a **blue**

puncture proof container. This is a standard safety procedure to prevent injuries from broken glass and to ensure that hazardous materials are disposed of in a safe manner. The blue puncture-proof container is specifically designed to safely contain sharp objects like broken glass vials.

Quick Tip

Always dispose of sharp objects such as broken glass vials in puncture-proof containers to avoid injury and contamination.

5 Pharmacology

16. The drug of choice in Paracetamol overdose is:

- (A) N-acetylcysteine
- (B) Dopamine
- (C) Hydralazine
- (D) Furosemide

Correct Answer: (A) N-acetylcysteine

Solution:

The drug of choice in Paracetamol overdose is **N-acetylcysteine** (also known as Acetylcysteine). N-acetylcysteine is used as an antidote in the treatment of paracetamol (acetaminophen) overdose because it helps to prevent or reduce liver damage caused by the overdose. It works by replenishing the levels of glutathione, a natural antioxidant that helps to protect the liver from damage. Dopamine, Hydralazine, and Furosemide are not used as the drug of choice in Paracetamol overdose.

Quick Tip

Early administration of N-acetylcysteine in paracetamol overdose is crucial to preventing liver damage.

17. A patient on digoxin therapy accidentally consumes 8 tablets of digoxin 0.25 mg. Two hours later, he presented to the emergency doctor with a heart rate of 54 bpm and

ECG evidence of third-degree AV block. What is the immediate management of this patient?

- (A) Digoxin immune fab
- (B) Lignocaine
- (C) Phenytoin
- (D) DC cardioversion

Correct Answer: (A) Digoxin immune fab

Solution:

In this scenario, the immediate management of the patient is to administer **Digoxin immune fab**. This is a specific antidote for digoxin toxicity, especially in cases with life-threatening symptoms like bradycardia and third-degree heart block. The use of Digoxin immune fab can rapidly reverse the toxic effects of digoxin and improve the patient's condition. Lignocaine, Phenytoin, and DC cardioversion may be considered for arrhythmias, but the primary treatment in digoxin toxicity is Digoxin immune fab.

Quick Tip

Digoxin immune fab is the specific antidote for digoxin toxicity and is used in cases of severe toxicity with symptoms such as heart block and bradycardia.

18. Which of the following hyperlipidemic drugs acts by inhibition of PCSK-9?

- (A) Atorvastatin
- (B) Evolocumab
- (C) Ezetimibe
- (D) Lomitapide

Correct Answer: (B) Evolocumab

Solution:

The drug that acts by inhibition of PCSK-9 is **Evolocumab**. PCSK-9 inhibitors are a class of drugs that work by increasing the availability of LDL receptors on liver cells, thus lowering LDL cholesterol levels in the blood. Evolocumab is a monoclonal antibody that inhibits PCSK-9, thereby reducing LDL cholesterol levels.

Quick Tip

Evolocumab is a PCSK-9 inhibitor used to treat hyperlipidemia, especially in patients with high LDL cholesterol levels who are at risk for cardiovascular events.

6 Pediatrics

19. A mother reported that her baby did not pass urine on postnatal day 1. What will be the next step?

- (A) Start IV hydration
- (B) Shift to NICU and investigate
- (C) Continue breastfeeding and observe
- (D) Start formula milk

Correct Answer: (B) Shift to NICU and investigate

Solution:

In this situation, the best next step would be to **shift the baby to NICU and investigate**. Failure to pass urine within the first 24 hours of life may indicate a potential urinary tract obstruction or other underlying issues such as renal failure. Immediate investigation is necessary to identify the cause and ensure proper management. IV hydration may also be required based on the clinical findings.

Quick Tip

Failure to pass urine within 24 hours of life in a newborn should prompt immediate evaluation for possible renal or urinary tract abnormalities.

20. Multiple fractures were detected in the antenatal ultrasound scan. What could be the diagnosis?

- (A) Achondroplasia
- (B) Osteogenesis imperfecta
- (C) Marfan syndrome

Correct Answer: (B) Osteogenesis imperfecta

Solution:

The correct diagnosis is **Osteogenesis imperfecta**. This is a genetic disorder characterized by fragile bones that break easily, often without a clear cause. Multiple fractures detected in an antenatal ultrasound may suggest this condition, especially if there is a family history of bone fragility. Achondroplasia and Marfan syndrome, while also genetic disorders, are not typically associated with multiple fractures detected in utero.

Quick Tip

Osteogenesis imperfecta can present with multiple fractures detected during pregnancy, and early diagnosis is essential for managing the condition in the newborn.

21. Which of the following diseases has autosomal recessive inheritance?

- (A) Osteogenesis imperfecta
- (B) Treacher Collins syndrome
- (C) Achondroplasia
- (D) Cystic fibrosis

Correct Answer: (D) Cystic fibrosis

Solution:

The disease with autosomal recessive inheritance is **Cystic fibrosis**. Cystic fibrosis is a genetic disorder caused by mutations in the CFTR gene, and it follows an autosomal recessive inheritance pattern. Both parents must carry a copy of the mutated gene for the disease to manifest in the child. Osteogenesis imperfecta and Achondroplasia are examples of autosomal dominant conditions, while Treacher Collins syndrome can have both dominant and recessive inheritance patterns depending on the mutation.

Quick Tip

Autosomal recessive diseases require both parents to be carriers for the child to inherit the condition.

22. A child with exercise fatigue presented to OPD. The features were suggestive of McArdle disease. Which of the following enzymes will be deficient in this?

- (A) Myo-Phosphorylase

- (B) Glucose 6 Phosphatase
- (C) Lysosomal Glucosidase
- (D) Phosphofructokinase

Correct Answer: (A) Myo-Phosphorylase

Solution:

McArdle disease, also known as glycogen storage disease type V, is caused by a deficiency in the enzyme **myophosphorylase**. Myophosphorylase is responsible for breaking down glycogen, a stored form of glucose, into glucose-1-phosphate, which can be used as a source of energy. In individuals with McArdle disease, the deficiency of this enzyme leads to the accumulation of glycogen in muscle cells, causing exercise intolerance and fatigue.

Quick Tip

McArdle disease results in muscle fatigue and exercise intolerance due to the inability to break down glycogen in muscle cells.

7 Orthopedics

23. MC complications of untreated radial head dislocation

- (A) Cubitus varus
- (B) Cubitus valgus
- (C) Damage to ulnar nerve
- (D) Myositis ossificans

Correct Answer: (B) Cubitus valgus

Solution:

The most common complication of untreated radial head dislocation is **cubitus valgus**. This condition occurs when the elbow joint becomes abnormally angled, leading to a misalignment of the arm and an increased risk of further injury. Other complications such as damage to the ulnar nerve or myositis ossificans can also occur, but cubitus valgus is the most typical outcome in cases of untreated radial head dislocation.

Quick Tip

Cubitus valgus can lead to functional limitations in arm movement and requires timely management to prevent long-term deformities.

24. A patient presented with multiple swelling in hand wrist. Finger X-ray is given.

Identify

- (A) Multiple Endochondromatosis
- (B) Multiple Brown Tumour
- (C) Multiple Osteophyte Growth
- (D) None of the above

Correct Answer: (A) Multiple Endochondromatosis

Solution:

The condition described is **Multiple Endochondromatosis**, which is a genetic disorder that causes multiple benign cartilage tumors to form, typically in the bones of the hands and wrists. These tumors may be visible on X-ray, and they are commonly seen in individuals with this disorder. The presence of multiple swellings in the hand and wrist along with characteristic X-ray findings leads to the diagnosis of Multiple Endochondromatosis.

Quick Tip

Multiple Endochondromatosis is typically diagnosed based on clinical presentation and characteristic radiographic findings.

25. Which will be the ideal treatment for Fibular Fracture?

- (A) Analgesic-Closed Reduction-Cast
- (B) Neurological Assessment-Analgesic
- (C) Neurological testing-Crif
- (D) Neurological assessment-Analgesic-cast

Correct Answer: (D) Neurological assessment-Analgesic-cast

Solution:

The ideal treatment for a fibular fracture is a combination of **neurological assessment, analgesics, and casting**. This approach addresses both the pain and any potential nerve damage associated with the fracture, while the cast provides stabilization and facilitates healing. Closed reduction may also be needed depending on the fracture type. Neurological assessment is important to check for nerve damage, especially since fibular fractures can sometimes involve injury to the peroneal nerve.

Quick Tip

Early assessment and prompt pain management are critical in fibular fractures to prevent complications and improve outcomes.

26. Given the radiograph of a 13-year-old child presented with a fall on elbow. Which of the bones has a fracture?

- (A) Humerus
- (B) Clavicle
- (C) Scapula
- (D) Ribs

Correct Answer: (B) Clavicle

Solution:

It is difficult to determine which bone has a fracture based solely on a description of the patient's presentation and the radiograph. An X-ray of the injured area would be needed to diagnose the fracture and determine which bone is involved. In this case, a fall on the elbow could result in a fracture of the humerus (upper arm bone), the clavicle (collarbone), scapula (shoulder blade), or ribs. The most likely fracture in this scenario, especially in children, is the **clavicle** as it is commonly fractured due to a fall on the outstretched arm or direct trauma.

Quick Tip

Clavicle fractures are common in children after a fall on the elbow or outstretched arm. X-ray confirmation is crucial.

8 General Medicine

27. Known cases of C.L.D with Ascites present with abdominal pain and tenderness. Ascitic tap shows presence of 60 PMN cells/Cu.mm. Which of the following is the likely etiology?

- (A) Tubercular Ascites
- (B) Malignant Ascites
- (C) Spontaneous Bacterial peritonitis
- (D) Chylous ascites

Correct Answer: (C) Spontaneous Bacterial peritonitis

Solution:

The presence of a high number of PMN cells (polymorphonuclear leukocytes) in an ascitic tap suggests the presence of inflammation, which is most commonly due to a bacterial infection. In this case, the likely etiology would be **spontaneous bacterial peritonitis** (SBP). SBP is a common and serious complication of cirrhosis, leading to bacterial infection of the ascitic fluid. Symptoms may include abdominal pain and tenderness, as well as fever and nausea. Tubercular ascites is caused by tuberculosis, which typically presents with fewer PMN cells and elevated lymphocytes in the ascitic fluid. Malignant ascites is associated with the spread of cancer to the peritoneal cavity, while chylous ascites is a rare type of ascites caused by lymphatic obstruction. Both of these conditions would typically present with fewer PMN cells in the ascitic fluid compared to SBP.

Quick Tip

Spontaneous bacterial peritonitis is a common complication of cirrhosis and ascites, requiring prompt treatment with antibiotics.

28. An 82-year-old patient with hypertension comes with acute onset of breathlessness. Chest X-ray is shown below. What should be done next?

- (A) Oxygen inhalation Antibiotics
- (B) Vasodilators
- (C) IV nitroglycerin

(D) Nebulized salbutamol

Correct Answer: (A) Oxygen inhalation Antibiotics

Solution:

In an 82-year-old patient with hypertension and acute onset of breathlessness, the first step would be to administer **oxygen inhalation and antibiotics**, particularly if there is a concern about an infectious cause, such as pneumonia or an acute exacerbation of a chronic condition like heart failure. Vasodilators and IV nitroglycerin may be considered if there is a suspicion of acute heart failure or ischemia, while nebulized salbutamol would be useful if the patient is presenting with a wheezing or obstructive component. The chest X-ray would help to further guide the management.

Quick Tip

Oxygen and antibiotics are essential in the management of acute breathlessness, especially when an infectious cause like pneumonia is suspected.

29. An adult patient complains of palpitations and presents with an irregularly irregular pulse. Pulse deficit is 20, HR=120/min, in BP 110/70 mm Hg. Which of the following will be found in this patient?

- (A) Absent a wave
- (B) High amplitude a wave
- (C) Normal a wave
- (D) B wave

Correct Answer: (A) Absent a wave

Solution:

The findings of an irregularly irregular pulse, pulse deficit, and high heart rate (HR=120/min) are suggestive of atrial fibrillation. In atrial fibrillation, the **a wave** is absent due to the lack of effective atrial contraction. The absence of the a wave is a characteristic finding in atrial fibrillation, especially when there is a pulse deficit, meaning that the radial pulse is not palpable for every beat of the heart. High amplitude a waves, normal a waves, and B waves are typically seen in other conditions like atrial flutter or heart failure.

Quick Tip

In atrial fibrillation, the absence of the a wave and the presence of a pulse deficit are key clinical signs.

30. A patient presents with digoxin toxicity. Pulse rate is 54/min with ECG evidence of a degree heart block. What is the best treatment?

- (A) Digoxin immune fab
- (B) Lidocaine
- (C) DC shock
- (D) Phenytoin

Correct Answer: (A) Digoxin immune fab

Solution:

The best treatment for digoxin toxicity with a pulse rate of 54 beats per minute and evidence of a degree heart block on ECG is administration of **digoxin-specific antibodies**, also known as **digoxin immune fab**. This treatment specifically binds to digoxin, neutralizing its effect and rapidly removing it from the bloodstream. Lidocaine is used to treat ventricular arrhythmias, but is not the first line of treatment for digoxin toxicity. Defibrillation (DC shock) is not typically used to treat digoxin toxicity. Phenytoin is an anticonvulsant medication, but would not be the first line of treatment for digoxin toxicity.

Quick Tip

For digoxin toxicity, digoxin immune fab is the most effective treatment for reversing the toxic effects.

9 Biology

31. A female presented with curdy white discharge. Sample microscopy showed a budding yeast cell with pseudohyphae. Which medium is used to differentiate the species of the causative organism?

- (A) Bird seed agar

(B) Chrome agar

(C) SDA

(D) PDA

Correct Answer: (B) Chrome agar

Solution:

The medium used to differentiate the species of the causative organism in this case, which is likely to be **Candida**, is **Chrome agar**. This medium is designed to help identify different species of *Candida* based on their color change in the presence of specific chromogenic substrates. Other media like Bird seed agar, SDA (Sabouraud Dextrose Agar), and PDA (Potato Dextrose Agar) are also used for fungal growth, but Chrome agar is preferred for species differentiation.

Quick Tip

Chrome agar is useful for identifying and differentiating *Candida* species based on colony color changes.

32. A farmer is presented with sinuses with a discharging granule on the leg; granules were crushed and examined. Which of the following statement is correct regarding this scenario:

(A) Can be caused by Bacteria and Fungi

(B) Involves Skin only. No deeper tissue involvement.

(C) Lymphocyte accumulation is present.

(D) Spread by the hematogenous route

Correct Answer: (A) Can be caused by Bacteria and Fungi

Solution:

The scenario you described could be caused by both **bacteria and fungi**, and involves deeper tissue involvement beyond just the skin. Sinuses with discharging granules on the leg can be indicative of a deeper infection that has spread from the skin to underlying tissues, such as the subcutaneous tissue or bone. This type of infection can result from a variety of causes, including both bacteria and fungi, and can be difficult to treat if left untreated for an

extended period of time. Lymphocyte accumulation may be present in the affected area as part of the body's immune response to the infection. The spread of the infection to deeper tissues can occur through a variety of routes, including the hematogenous route, where the infection spreads through the bloodstream to distant sites. It is important to obtain a proper diagnosis and prompt treatment for this type of infection to prevent further spread and complications. This involves examining a sample of the discharging material for laboratory analysis, such as culture and microscopic examination, to determine the specific cause of the infection and guide appropriate treatment.

Quick Tip

Proper identification and treatment of deep tissue infections involving sinuses are critical to prevent complications like systemic spread.

33. A woodworker presented with chronic localized infection of the skin on his lower legs and feet which were irregular, rough, cauliflower-like lesions. Microscopy of the biopsy shows copper penny-muriform cells and branched air bodies, the etiological agent is:

- (A) Chromoblastomycosis
- (B) Phaeohyphomycosis
- (C) Chromomycosis
- (D) Rhinosporidiosis

Correct Answer: (A) Chromoblastomycosis

Solution:

The correct etiological agent for the described skin infection is **Chromoblastomycosis**. Chromoblastomycosis is a fungal infection caused by different species of dematiaceous fungi and is characterized by chronic and persistent skin lesions that are rough and warty. The presence of copper penny-like muriform cells, as seen in the microscopy of the biopsy, supports the diagnosis of chromoblastomycosis. Phaeohyphomycosis and Rhinosporidiosis are different fungal infections with different clinical and histopathological features. Chromomycosis is not a recognized medical term.

Quick Tip

Chromoblastomycosis is commonly seen in individuals who have occupational exposure to soil or wood, especially in tropical and subtropical areas.

34. In a patient with rice water diarrhea, which will be involved?

- (A) GM1 ganglioside
- (B) GM2 ganglioside
- (C) Both A and B
- (D) None of the above

Correct Answer: (A) GM1 ganglioside

Solution:

In rice water diarrhea, which is commonly associated with **cholera**, the bacteria *Vibrio cholerae* produces toxins that affect the GM1 ganglioside receptor on the intestinal cells. The toxin increases cyclic AMP levels in enterocytes, leading to massive secretion of water and electrolytes, causing the characteristic rice water stool. GM2 ganglioside is not involved in this process.

Quick Tip

GM1 ganglioside is the key receptor involved in cholera toxin binding, leading to the secretion of water and electrolytes in the intestines.

35. A young boy presented with fever, sore throat, malaise and abdominal pain, conjunctival suffusion and calf tenderness. No history of cough, vomiting, haemorrhage and travel. What is the diagnosis?

- (A) Chikungunya
- (B) Leptospirosis
- (C) Dengue hemorrhagic fever
- (D) Hepatic encephalopathy with hepatitis A

Correct Answer: (B) Leptospirosis

Solution:

The clinical presentation of fever, sore throat, malaise, abdominal pain, conjunctival suffusion, and calf tenderness, without a history of cough, vomiting, hemorrhage, and travel, is most consistent with **Leptospirosis**. This zoonotic disease is caused by the *Leptospira* bacteria, which are typically transmitted through contact with water or soil contaminated by the urine of infected animals. Chikungunya and Dengue hemorrhagic fever present with different clinical features, and hepatic encephalopathy with hepatitis A typically presents with jaundice and altered mental status.

Quick Tip

Leptospirosis should be suspected in patients with a history of exposure to contaminated water or soil, especially with symptoms such as conjunctival suffusion and calf tenderness.

36. Which of the following is the best way to diagnose Clostridium-associated Diarrhea?

- (A) Stool culture
- (B) Toxin Demonstration
- (C) Blood culture
- (D) None of the above

Correct Answer: (D) None of the above

Solution:

The best diagnostic method for Clostridium-associated diarrhea, particularly caused by **Clostridium difficile**, is through the detection of *C. difficile* toxins in stool samples. This can be done using enzyme immunoassays or PCR testing for the toxin genes. Stool culture alone is not sufficient for diagnosing *C. difficile* infection, and blood cultures are typically negative for *C. difficile*. Toxin demonstration is the most accurate test, but none of the given options alone fully captures the best diagnostic approach.

Quick Tip

Toxin testing for *Clostridium difficile* is the gold standard for diagnosing *C. difficile* infection, not just stool culture or blood culture.

