

CUET PG Public Health - 2025 Question Paper with Solutions

Time Allowed :90 Minutes	Full Marks :300	Total Questions :75
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. The test is of 1 hour duration.
2. The question paper consists of 50 questions. The maximum marks are 250.
3. 5 marks are awarded for every correct answer, and 1 mark is deducted for every wrong answer.

Q1. What is the role of reverse transcriptase in recombinant DNA technology?

- (A) It leaves RNA at specific sequences
- (B) It synthesizes DNA from an RNA template
- (C) It repairs damaged DNA
- (D) It unwinds DNA during replication

Correct Answer: (B) It synthesizes DNA from an RNA template

Solution: Step 1: Understand the function of reverse transcriptase.

Reverse transcriptase is an enzyme that synthesizes DNA from an RNA template. This process is essential in recombinant DNA technology, especially when creating complementary DNA (cDNA) from RNA.

Quick Tip

Reverse transcriptase is crucial for converting RNA into DNA, a fundamental step in gene cloning and cDNA library construction.

Q2. A point mutation that changes a codon but does not alter the resulting amino acid is classified as -

- (A) Missense mutation
- (B) Nonsense mutation
- (C) Silent mutation
- (D) Frameshift mutation

Correct Answer: (C) Silent mutation

Solution: Step 1: Identify the type of mutation described.

A silent mutation is a point mutation that changes a codon but results in the same amino acid being incorporated into the protein.

Quick Tip

Silent mutations do not affect the protein sequence because they do not alter the final amino acid.

Q3. Which enzyme is primarily responsible for relieving supercoiling during DNA replication?

- (A) DNA helicase
- (B) DNA ligase
- (C) DNA polymerase
- (D) Topoisomerase

Correct Answer: (D) Topoisomerase

Solution: Step 1: Understand the role of topoisomerase.

Topoisomerase is the enzyme that relieves the tension and supercoiling in DNA by making transient cuts to the DNA strands and then rejoining them. This process is crucial during DNA replication.

Quick Tip

Topoisomerases help prevent DNA from becoming tangled during replication by managing supercoiling.

Q4. What is the primary purpose of using T4 DNA ligase in recombinant DNA technology?

- (A) To cut DNA at specific sequences
- (B) To join DNA fragments with complementary sticky ends
- (C) To synthesize DNA from RNA
- (D) To unwind DNA for replication

Correct Answer: (B) To join DNA fragments with complementary sticky ends

Solution: Step 1: Understand the role of T4 DNA ligase.

T4 DNA ligase is used to catalyze the formation of phosphodiester bonds between adjacent nucleotides, effectively joining DNA fragments with complementary sticky ends. This is a crucial step in recombinant DNA technology.

Quick Tip

T4 DNA ligase is essential for sealing DNA fragments together, a key step in cloning and plasmid construction.

Q5. What is the role of ATP in bioluminescence reactions?

- (A) To phosphorylate luciferase.
- (B) To act as an energy source for luciferin oxidation.
- (C) To stabilize the light emission.
- (D) To generate NADH for the reaction.

Correct Answer: (B) To act as an energy source for luciferin oxidation.

Solution: Step 1: Understand the role of ATP in bioluminescence.

ATP provides the energy necessary for the oxidation of luciferin, which is a key step in the bioluminescent reaction catalyzed by luciferase.

Quick Tip

ATP is the primary energy source driving the light emission in bioluminescence reactions.

Q6. Match the LIST-I with LIST-II

LIST-I	LIST-II
A. Plague	I. Bacillus anthracis
B. Anthrax	II. Treponema Pallidum
C. Syphilis	III. Plasmodium spp.
D. Malaria	IV. Yersinia pestis

- (1) A-II, B-I, C-III, D-IV
- (2) A-I, B-III, C-IV, D-II
- (3) A-IV, B-I, C-II, D-III
- (4) A-IV, B-II, C-III, D-I

Correct Answer: (3) A-IV, B-I, C-II, D-III

Solution: Step 1: Identify the causative agents for each disease.

- ****Plague**** (A) is caused by ****Yersinia pestis**** (IV).
- ****Anthrax**** (B) is caused by ****Bacillus anthracis**** (I).

- **Syphilis** (C) is caused by **Treponema Pallidum** (II).
- **Malaria** (D) is caused by **Plasmodium spp.** (III).

Quick Tip

Each infectious disease has a unique causative organism that is critical for diagnosis and treatment.

Q7. A single amino acid substitution in a protein causes sickle-cell disease. Identify the correct statements regarding it.

- (A) It is an inherited blood disorder.
- (B) Hydrophobic interactions between hemoglobin proteins lead to their aggregation into a fiber.
- (C) Glutamic acid is replaced by valine in beta-globin chain of haemoglobin.
- (D) The red blood cells in the patients are disc shaped and carry oxygen.
- (E) Capacity to carry oxygen is greatly reduced.

Correct Answer: (2) A, B and E only

Solution: Step 1: Understand sickle-cell disease.

Sickle-cell disease is an inherited blood disorder caused by a single amino acid substitution in the hemoglobin protein, where glutamic acid is replaced by valine. This substitution creates hydrophobic interactions that cause hemoglobin to aggregate and form fibers. These fibers distort the red blood cells, making them sickle-shaped and reducing their ability to carry oxygen.

Quick Tip

Sickle-cell disease results from a mutation in the hemoglobin gene that affects the shape and function of red blood cells.

Q8. Arrange the following scientific events in chronological sequence (oldest to latest) A. Florence Nightingale organized hospitals with minimized cross infections. B. Joseph Lister developed aseptic techniques. C. Fanny Hesse advocated use of agar as a solidifying material for microbiological media. D. Elie Metchnikoff discovered phagocytosis.

- (A) A, B, C, D
- (B) A, C, B, D
- (C) B, A, D, C
- (D) C, B, D, A

Correct Answer: (1) A, B, C, D

Solution: Step 1: Arrange the events in chronological order.

- Florence Nightingale's work on organizing hospitals with minimized infections was one of the earliest contributions, dating back to the mid-1800s. - Joseph Lister followed with his development of aseptic techniques in the late 1800s. - Fanny Hesse later proposed the use of agar in microbiological media in the late 1800s. - Finally, Elie Metchnikoff discovered phagocytosis in the early 1900s.

Quick Tip

Understanding the timeline of major scientific advancements helps in contextualizing their impact on future research.

Q9. Arrange the causative agent as per the ascending order of their incubation period for the disease development, as mentioned in bracket: A. *Clostridium perfringens* (food poisoning) B. *Salmonella typhi* (Typhoid) C. Bubonic (Plague) D. HIV (AIDS)

- (A) A, B, C, D
- (B) A, C, B, D
- (C) B, C, A, D
- (D) C, B, D, A

Correct Answer: (C) B, C, A, D

Solution: Step 1: Understand the incubation periods of the diseases.

- ***Clostridium perfringens*** (food poisoning) has a short incubation period, typically within hours. - ***Salmonella typhi*** (Typhoid) has a moderate incubation period, around 6-30 days. - **Bubonic plague** has an incubation period of about 2-6 days. - **HIV** (AIDS) has a long incubation period, with symptoms often appearing 2-4 weeks post-infection, and the full disease may develop over several years.

Quick Tip

The order of the incubation periods for these diseases from shortest to longest is: *Salmonella typhi*, Bubonic plague, *Clostridium perfringens*, HIV.

Q10. The typical sequence for bacterial growth curve is:

- (A) Exponential/Log phase
- (B) Lag Phase
- (C) Stationary Phase

(D) Death/Decline Phase

Correct Answer: (2) A, B, C, D

Solution: Step 1: Understand the bacterial growth phases.

The bacterial growth curve typically follows four phases: - **Lag phase** (B): Where bacteria adjust to the environment. - **Exponential/Log phase** (A): Bacteria divide at a constant rate. - **Stationary phase** (C): The growth rate equals the death rate. - **Death/Decline phase** (D): Nutrient depletion and waste accumulation lead to cell death.

Quick Tip

The growth curve follows this sequence: Lag phase, Exponential phase, Stationary phase, and Death phase.

Q11. Contact between two people with different types of culture leading to diffusion of culture both ways is known as:

- (1) Socialization
- (2) Social stress
- (3) Acculturation
- (4) Social defence

Correct Answer: (3) Acculturation

Solution: Step 1: Define the process of acculturation.

Acculturation refers to the process in which two or more cultures come into contact, leading to the exchange of cultural traits. This exchange happens in both directions, influencing each culture.

Quick Tip

Acculturation involves mutual cultural exchange, often occurring between groups in close contact.

Q12. Hidden hunger is a form of undernutrition due to deficiency of:

- (1) Vitamins and Minerals
- (2) Carbohydrates
- (3) Proteins
- (4) Fats

Correct Answer: (1) Vitamins and Minerals

Solution: Step 1: Define hidden hunger.

Hidden hunger refers to micronutrient deficiencies, such as the lack of essential vitamins and minerals, that can occur despite adequate calorie intake. This form of undernutrition is not immediately visible but affects overall health.

Quick Tip

Hidden hunger primarily involves deficiencies in vitamins and minerals that lead to long-term health issues.

Q13. Anti-larval measures to control vector-borne diseases include which of the following? A. Environmental Control B. Biological Control C. Residual Sprays D. Genetic Control

- (A) A and B only
- (B) C and D only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (C) A, B, C and D

Solution: Step 1: Understand the anti-larval measures.

Anti-larval measures to control vector-borne diseases involve several strategies: - **Environmental control** (A) includes removing or managing breeding sites. - **Biological control** (B) uses natural predators or pathogens to control larval populations. - **Residual sprays** (C) involve the application of insecticides that remain effective for a long time. - **Genetic control** (D) involves manipulating the genetics of vectors to reduce their populations.

Quick Tip

Effective vector control often involves a combination of methods targeting different stages of the vector's lifecycle.

Q14. Classify the following foods in ascending order (lowest to highest) according to their Glycaemic Index: A. Whole grains B. Baked potato C. Brown rice D. Blackberry

- (A) C, B, A, D
- (B) A, C, B, D
- (C) D, A, C, B
- (D) C, B, D, A

Correct Answer: (C) D, A, C, B

Solution: Step 1: Understand the Glycaemic Index (GI).

The Glycaemic Index measures how quickly a carbohydrate-containing food raises blood glucose levels. Foods with a low GI are digested more slowly, while foods with a high GI cause a rapid spike in blood sugar. - **Blackberry** (D) has a low GI. - **Whole grains** (A) have a moderate GI. - **Brown rice** (C) has a higher GI than whole grains but lower than baked potatoes. - **Baked potato** (B) has the highest GI.

Quick Tip

Low-GI foods are preferable for better blood sugar management, particularly in people with diabetes.

Q15. Match the LIST-I with LIST-II

LIST-I	LIST-II
A. Lathyrism B. Endemic ascites C. Salmonellosis D. Hepatitis A and E	I. Pyrrolizidine alkaloids (Jhunjhunja seeds contaminating Gondhli) II. Viral disease III. Bacterial disease IV. Beta oxalyl amino alanine (Khesri dal)

- (1) A-IV, B-I, C-III, D-II
(2) A-I, B-III, C-II, D-IV
(3) A-I, B-II, C-IV, D-III
(4) A-III, B-IV, C-I, D-II

Correct Answer: (3) A-I, B-II, C-IV, D-III

Solution: Step 1: Match diseases with causative agents.

- **Lathyrism** (A) is caused by **Beta oxalyl amino alanine (Khesri dal)** (IV). - **Endemic ascites** (B) is a **Viral disease** (II). - **Salmonellosis** (C) is a **Bacterial disease** (III). - **Hepatitis A and E** (D) are **Viral diseases** (II).

Quick Tip

Each disease has a unique causative agent that is essential for its identification and treatment.

Q16. Match the LIST-I with LIST-II

LIST-I (Topic)		LIST-II (Explanation)	
A.	Crowd	I.	When a group of people come together temporarily, motivated by a common interest without leadership
B.	Mob	II.	Community of a few families living together
C.	Band	III.	When a group of people come together temporarily, led by a leader who forces members into action
D.	Herd	IV.	When a group of people come together temporarily led by a leader where members of the group have to follow orders of the leader without question

Figure 1: TableQ16

- (1) A-I, B-II, C-III, D-IV
- (2) A-I, B-III, C-II, D-IV
- (3) A-III, B-II, C-IV, D-I
- (4) A-III, B-IV, C-II, D-I

Correct Answer: (2) A-I, B-III, C-II, D-IV

Solution: Step 1: Understand the characteristics of different social groups.

- **Crowd** (A) is a group motivated by a common interest without leadership (**I**). - **Mob** (B) is a group led by a leader who forces action (**III**). - **Band** (C) refers to a community of a few families living together (**II**). - **Herd** (D) is led by a leader where members follow orders without question (**IV**).

Quick Tip

Social groups can be categorized by their motivation, leadership, and structure.

Q17. Which of the following are examples of food fortification? A. Iodization of salt B. Vitamin D in milk C. Vanilla essence in Ice cream D. Saccharin in toothpaste

- (A) A, B and D only
- (B) A, B and C only
- (C) A, C and D only
- (D) A and B only

Correct Answer: (D) A and B only

Solution: Step 1: Understand food fortification.

Food fortification involves adding essential nutrients to food items that may not otherwise provide them in sufficient amounts. - **Iodization of salt** (A) and **Vitamin D in milk** (B) are both examples of food fortification. - **Vanilla essence in ice cream** (C) and **Saccharin in toothpaste** (D) are not fortifications, as they do not add essential nutrients.

Quick Tip

Food fortification aims to prevent nutritional deficiencies by adding micronutrients to commonly consumed foods.

Q18. Arrange the following food items in descending order (highest to lowest) according to presence of amount of Vitamin C in them: A. Lime B. Potato C. Amla or gooseberry D. Guava

- (A) A, C, B, D
- (B) A, D, B, C
- (C) B, A, D, C
- (D) C, D, A, B

Correct Answer: (D) C, D, A, B

Solution: Step 1: Compare the Vitamin C content.

- **Amla or gooseberry** (C) has the highest amount of Vitamin C, followed by **Guava** (D). - **Lime** (A) also contains significant Vitamin C, but less than the above. - **Potato** (B) has the lowest Vitamin C content among the options.

Quick Tip

Vitamin C is found in high concentrations in citrus fruits, berries, and certain vegetables like amla and guava.

Q19. The legislations for social security measures for industrial workers in India includes all except:

- (1) Workmen's Compensation Act, 1923
- (2) Central Maternity Benefit Act, 1961
- (3) Employees State Insurance Act, 1948
- (4) Water Prevention and Control of Pollution Act, 1974

Correct Answer: (4) Water Prevention and Control of Pollution Act, 1974

Solution: Step 1: Identify relevant legislations.

- **Workmen's Compensation Act, 1923** (1), **Central Maternity Benefit Act, 1961** (2), and **Employees State Insurance Act, 1948** (3) are all related to social security for industrial workers. - The **Water Prevention and Control of Pollution Act, 1974** (4) is related to environmental regulations and not to social security measures for workers.

Quick Tip

Social security measures for industrial workers are aimed at protecting workers' rights and welfare, including health benefits, compensation, and maternity protection.

Q20. Scale for measuring socio-economic status in urban areas ONLY widely used in India is:

- (1) Pareek and Kulshrestha Scale
- (2) Kuppuswamy Scale

- (3) B G Prasad Scale
- (4) Hollingshed Scale

Correct Answer: (2) Kuppuswamy Scale

Solution: Step 1: Identify the socio-economic status scales.

The **Kuppuswamy Scale** (2) is widely used in India to measure socio-economic status, particularly in urban areas. - The **Pareek and Kulshrestha Scale** (1) and **B G Prasad Scale** (3) are also used, but the Kuppuswamy Scale is the most commonly applied in urban areas. - The **Hollingshed Scale** (4) is not widely used in India.

Quick Tip

The Kuppuswamy Scale takes into account income, education, and occupation to assess socio-economic status in urban areas.

Q21. Koplik's spots in oral mucosa along with rashes are seen in which disease?

- (1) Mumps
- (2) Chickenpox
- (3) Rubella
- (4) Measles

Correct Answer: (4) Measles

Solution: Step 1: Understand the significance of Koplik's spots.

Koplik's spots are characteristic of **measles**, appearing as small white spots on the oral mucosa. These spots, along with the rash, are considered diagnostic of measles.

Quick Tip

Koplik's spots are a key diagnostic feature of measles, usually appearing before the rash.

Q22. Which of the following statement is true about First-aid in case of snake bite? A. Immobilize in the same way as a fractured limb B. Incise or manipulate the bitten site C. Give beverages or stimulants D. Do not apply any compression in the form of tight ligatures

- (1) A and D only
- (2) A and C only
- (3) A, C and D
- (4) B, C and D only

Correct Answer: (3) A, C and D

Solution: Step 1: Understand first-aid measures for snake bites.

- ****Immobilize the affected limb**** (A) to slow down the spread of venom. - ****Do not manipulate the bitten site**** (B) or incise it, as this can worsen the situation. - ****Avoid giving stimulants or beverages**** (C) to the victim. - ****Do not apply tight ligatures**** (D), as it can exacerbate venom spread.

Quick Tip

First-aid for snake bites includes immobilizing the limb, keeping the person calm, and seeking immediate medical help.

Q23. Isolation is important in the control of which disease?

- (1) Diphtheria
- (2) Hepatitis A
- (3) Tuberculosis
- (4) HIV-AIDS

Correct Answer: (3) Tuberculosis

Solution: Step 1: Understand the need for isolation.

****Isolation**** is particularly important in the control of ****tuberculosis (TB)****, as it is a highly contagious airborne disease. Preventing the spread of TB to others is essential to control its transmission.

Quick Tip

Isolation of TB patients helps prevent the spread of this infectious disease, particularly in crowded settings.

Q24. Commonest type of cancer among males in India is:

- (1) Lung cancer
- (2) Oral Cavity cancer
- (3) Prostate cancer
- (4) Bladder cancer

Correct Answer: (2) Oral Cavity cancer

Solution: Step 1: Identify the most common cancer.

In India, **oral cavity cancer** is the most common type of cancer among males. This is often related to the high prevalence of tobacco and betel nut consumption.

Quick Tip

Tobacco and betel nut use are major risk factors for oral cavity cancer, especially in India.

Q25. According to IMNCI (Integrated Management of Neonatal and Childhood Illness) classification, fast breathing is present in a child aged 12 months up to 5 years if respiration rate is more than or equal to:

- (1) 60
- (2) 50
- (3) 40
- (4) 30

Correct Answer: (3) 40

Solution: Step 1: Understand IMNCI classification for fast breathing.

According to the IMNCI guidelines, a child aged 12 months to 5 years is classified as having fast breathing if their respiratory rate is more than or equal to 40 breaths per minute.

Quick Tip

Fast breathing is a key indicator in the diagnosis of respiratory infections in young children.

Q26. According to WHO BMI (Body-mass index) classification, Pre-obese value is:

- (1) 25.00-29.99
- (2) 30.00-34.99
- (3) 20.00-24.99
- (4) 18.5-24.99

Correct Answer: (1) 25.00-29.99

Solution: Step 1: Understand the BMI classification.

The **pre-obese** category, according to the WHO BMI classification, includes individuals with a BMI between **25.00** and **29.99**.

Quick Tip

BMI classification helps assess body weight in relation to height, aiding in the identification of underweight, normal weight, pre-obesity, and obesity.

Q27. Risk factors for non-communicable diseases are all of the following except:

- (1) Tobacco and alcohol
- (2) Raised cholesterol
- (3) Contaminated water
- (4) Sedentary lifestyle

Correct Answer: (3) Contaminated water

Solution: Step 1: Understand the risk factors for non-communicable diseases (NCDs).

Non-communicable diseases (NCDs) such as heart disease, diabetes, and cancer are linked to risk factors like **tobacco and alcohol use**, **raised cholesterol**, and a **sedentary lifestyle**. However, **contaminated water** is more closely associated with communicable diseases, not NCDs.

Quick Tip

NCDs are influenced by lifestyle choices, including diet, physical activity, and substance use, rather than infectious agents.

Q28. According to the National Immunisation Schedule, OPV (oral polio vaccine) contains how many types of Poliovirus? A. Type 1 B. Type 2 C. Type 3 D. Type 4

- (1) A, B and C only
- (2) A and C only
- (3) A and B only
- (4) B, C and D only

Correct Answer: (1) A, B and C only

Solution: Step 1: Understand the types of poliovirus in OPV.

The **oral polio vaccine (OPV)** contains **Type 1**, **Type 2**, and **Type 3** poliovirus strains to provide immunity against these three types of the virus. **Type 4** poliovirus is not included in the OPV.

Quick Tip

The inclusion of Type 1, 2, and 3 in OPV helps ensure broad immunity against polio.

Q29. According to National Immunisation Schedule, OPV (oral polio vaccine) contains how many types of Poliovirus? A. Type 1 B. Type 2 C. Type 3 D. Type 4

- (1) A, B and C only
- (2) A and C only
- (3) A and B only
- (4) B, C and D only

Correct Answer: (1) A, B and C only

Solution: Step 1: Understand the types of poliovirus in OPV.

The **oral polio vaccine (OPV)** contains **Type 1**, **Type 2**, and **Type 3** poliovirus strains to provide immunity against these three types of the virus. **Type 4** poliovirus is not included in the OPV.

Quick Tip

OPV includes Type 1, Type 2, and Type 3 to provide immunity against the three known strains of poliovirus.

Q30. Match the LIST-I with LIST-II

LIST-I	LIST-II
A. BCG	I. Toxoid
B. Rabies	II. Killed whole organism
C. Tetanus	III. Live attenuated
D. Pneumococcus	IV. Polysaccharide

- (1) A-I, B-III, C-II, D-IV
- (2) A-II, B-IV, C-I, D-III
- (3) A-IV, B-II, C-I, D-III
- (4) A-III, B-II, C-I, D-IV

Correct Answer: (1) A-I, B-III, C-II, D-IV

Solution: Step 1: Match vaccines with their types.

- **BCG** (A) is a **Live attenuated** vaccine (**III**). - **Rabies** (B) is a **Killed**

whole organism** vaccine (**II**). - **Tetanus** (C) is a **Toxoid** vaccine (**I**). - **Pneumococcus** (D) is a **Polysaccharide** vaccine (**IV**).

Quick Tip

Vaccines are classified based on the nature of the agent used to provoke an immune response.

Q31. The goal of the population approach to shift the community distribution of blood pressure towards lower levels involves reduction of salt intake to an average of not more than:

- (1) 3 grams per day
- (2) 4 grams per day
- (3) 5 grams per day
- (4) 6 grams per day

Correct Answer: (3) 5 grams per day

Solution: Step 1: Understand the population approach to blood pressure control.

To reduce the risk of hypertension and its associated complications, the World Health Organization (WHO) recommends limiting daily salt intake to **5 grams** for adults. This measure helps reduce the average blood pressure in the population.

Quick Tip

Reducing salt intake can help in lowering blood pressure and prevent hypertension-related complications in the community.

Q32. Laboratory diagnosis of HIV infection is done through which of the following tests? A. Absolute CD4 lymphocyte count B. WESTERN Blot C. HIV viral load test D. ELISA test

- (1) D and B
- (2) A and C
- (3) A, C and D
- (4) C and D

Correct Answer: (4) C and D

Solution: Step 1: Understand the diagnostic tests for HIV.

The laboratory diagnosis of **HIV infection** is primarily done through **ELISA** (Enzyme-Linked Immunosorbent Assay) and **HIV viral load test**. - The **ELISA test** (D) detects

antibodies against HIV. - The **HIV viral load test** (C) measures the amount of HIV in the blood, providing insight into the severity of the infection. - The **Western Blot** (B) is often used to confirm a positive ELISA result, and the **Absolute CD4 count** (A) helps in assessing the immune status but is not typically used for initial diagnosis.

Quick Tip

ELISA and HIV viral load tests are commonly used for the diagnosis and monitoring of HIV infection.

Q33. Neonatal Tetanus is well controlled by all, except:

- (1) Antibiotics
- (2) Clean delivery surface
- (3) Clean blade for cutting the cord and clean tie for the cord
- (4) Tetanus immunization

Correct Answer: (1) Antibiotics

Solution: Step 1: Understand neonatal tetanus control.

Neonatal tetanus is a preventable disease caused by contamination of the umbilical cord during delivery. Control measures include: - **Clean delivery surface** (2), - **Clean blade for cutting the cord and clean tie for the cord** (3), - **Tetanus immunization** (4). However, **antibiotics** (1) are not the primary control measure for neonatal tetanus, as the disease prevention is primarily based on proper hygiene during delivery and immunization.

Quick Tip

Neonatal tetanus can be effectively prevented by ensuring clean delivery practices and immunization of the mother with tetanus toxoid.

Q34. Which of the following is the true statement in the case of Leprosy:

- (1) The indeterminate type of Leprosy is bacteriologically positive.
- (2) Tuberculoid type of Leprosy is bacteriologically negative.
- (3) Lepromatous type of Leprosy is bacteriologically negative.
- (4) Pure neuritic type of Leprosy is bacteriologically positive.

Correct Answer: (2) Tuberculoid type of Leprosy is bacteriologically negative.

Solution: Step 1: Understand the types of Leprosy.

- **Indeterminate type** of Leprosy is bacteriologically negative, not positive. - **Tuberculoid**

type** of Leprosy is **bacteriologically negative**, typically showing a few skin lesions and nerve damage. - **Lepromatous type** is **bacteriologically positive**, with numerous skin lesions and extensive nerve involvement. - **Pure neuritic type** of Leprosy is bacteriologically negative and affects the peripheral nerves without skin lesions.

Quick Tip

The bacteriological test for Leprosy shows positivity in lepromatous and indeterminate types but is negative in tuberculoid and pure neuritic types.

Q35. Appropriate clinical management of Acute Diarrheal diseases in children is:

- (1) Give tea or coffee
- (2) Oral Rehydration therapy with reduced osmolarity Oral Rehydration Salt and Zinc supplementation
- (3) Antibiotics only
- (4) Stop breastfeeding

Correct Answer: (2) Oral Rehydration therapy with reduced osmolarity Oral Rehydration Salt and Zinc supplementation

Solution: Step 1: Understand the management of Acute Diarrheal diseases in children.

The management of acute diarrhea includes **Oral Rehydration Therapy (ORT)** with **reduced osmolarity Oral Rehydration Salts (ORS)** and **Zinc supplementation** to prevent dehydration and reduce the severity of the illness. - **Antibiotics** (3) are not routinely recommended unless there is evidence of bacterial infection. - **Tea or coffee** (1) is not recommended for rehydration. - **Stopping breastfeeding** (4) is also not advised; breastfeeding should continue during diarrhea.

Quick Tip

Oral rehydration therapy and zinc are critical in the management of diarrhea to prevent dehydration and promote faster recovery.

Q36. Screening programmes for detection of Diabetes Mellitus is:

- (1) Primordial Level of Prevention
- (2) Primary Level of Prevention
- (3) Secondary Level of Prevention
- (4) Tertiary Level of Prevention

Correct Answer: (3) Secondary Level of Prevention

Solution: Step 1: Understand the levels of prevention.

Screening for **Diabetes Mellitus** is a form of **secondary prevention**, aimed at identifying individuals who are at risk or in the early stages of the disease, so they can receive appropriate treatment before complications arise. - **Primary prevention** (2) focuses on preventing the disease altogether through lifestyle changes. - **Tertiary prevention** (4) is aimed at managing established disease and preventing further complications. - **Primordial prevention** (1) addresses broader social determinants of health and prevents risk factors from developing.

Quick Tip

Secondary prevention, such as screening, is crucial for the early detection and management of diabetes, thereby reducing complications.

Q37. Match List-I with List-II

LIST-I	LIST-II
A. Bhore	I. Primary Health Units with 75 bedded hospitals for 10-20000 population
B. Mudaliar	II. One basic health worker per 10000 population
C. Chadah	III. All India Health Service on the pattern of IAS
D. Kartar Singh	IV. One Primary Health Centre for the population of 50000

(1) A-III, B-I, C-II, D-IV

(2) A-II, B-I, C-III, D-IV

(3) A-I, B-III, C-II, D-IV

(4) A-IV, B-II, C-III, D-I

Correct Answer: (3) A-I, B-III, C-II, D-IV

Solution: Step 1: Match committees with their recommendations.

- **Bhore** (A) recommended **Primary Health Units with 75 bedded hospitals for 10-20000 population** (I). - **Mudaliar** (B) recommended **One Primary Health Centre for the population of 50000** (IV). - **Chadah** (C) recommended **One basic health worker per 10000 population** (II). - **Kartar Singh** (D) recommended **All India Health Service on the pattern of IAS** (III).

Quick Tip

Each committee proposed health system reforms, with specific recommendations for the development of healthcare infrastructure in India.

Q38. "Blinding" is most commonly done in:

- (1) Case Control study
- (2) Randomized Controlled Trials
- (3) Cohort study
- (4) Cross-sectional study

Correct Answer: (2) Randomized Controlled Trials

Solution: Step 1: Understand "blinding" in research.

"Blinding" refers to the practice of keeping participants, clinicians, or both unaware of certain aspects of a study to prevent bias. It is most commonly used in **Randomized Controlled Trials (RCTs)** to ensure that the outcomes are not influenced by participants' or researchers' expectations. - **Case-Control studies** (1) and **Cohort studies** (3) may also involve blinding, but it is more commonly associated with RCTs. - **Cross-sectional studies** (4) typically do not involve blinding.

Quick Tip

Blinding in randomized controlled trials reduces bias and improves the reliability of the study's results.

Q40. The study design for developing the new vaccine is:

- (1) Cross-sectional study
- (2) Cohort Study
- (3) Longitudinal study
- (4) Randomized Controlled trial

Correct Answer: (4) Randomized Controlled trial

Solution: Step 1: Understand the study design for vaccine development.

For developing a new vaccine, the most appropriate study design is a **Randomized Controlled Trial (RCT)**. This study design allows researchers to assess the efficacy and safety of the vaccine by randomly assigning participants to treatment and control groups.

Quick Tip

Randomized Controlled Trials (RCTs) are considered the gold standard for evaluating the effectiveness of interventions like vaccines.

Q41. Attributes of a mentally healthy person in the Mental Dimensions of Health include:
A. Faces problems and tries to solve them intelligently B. Coping with stress and anxiety C. Commitment to integrity, principles, ethics, belief, and commitment to some higher beings D. Has good self-control and balances rationally and emotionally

- (1) A, B and D only
- (2) A, B and C only
- (3) B, C and D only
- (4) A, C and D only

Correct Answer: (1) A, B and D only

Solution: Step 1: Understand the attributes of mental health.

- **A** (Faces problems and tries to solve them intelligently), **B** (Coping with stress and anxiety), and **D** (Has good self-control and balances rationally and emotionally) are attributes of a mentally healthy person. - **C** (Commitment to integrity, principles, ethics, belief, and commitment to some higher beings) is more related to personal values and spiritual health, but is not a direct attribute of mental health.

Quick Tip

Mental health involves problem-solving, emotional regulation, and coping with stress effectively.

Q42. Increase in Prevalence of a disease depends on: A. Incidence of disease B. Communicable period of disease C. Increased Duration of disease/illness D. Increased mortality due to the disease

- (1) A and D only
- (2) A and C only
- (3) A and B only
- (4) C and D only

Correct Answer: (2) A and C only

Solution: Step 1: Understand the factors affecting disease prevalence.

- **Incidence** (A) refers to the number of new cases of a disease in a given time period, which directly affects prevalence. - **Duration** (C) refers to how long individuals remain sick, which also impacts the prevalence of a disease. - **Communicable period** (B) and **mortality** (D) do influence the disease spread, but they do not directly affect the prevalence as much as incidence and duration.

Quick Tip

Prevalence is a function of both the rate of new cases (incidence) and how long people stay sick (duration).

Q43. Arrange the given step-by-step approach in the investigation of an Epidemic in ascending order. A. Formulation of hypothesis B. Verification of diagnosis C. Data analysis D. Confirmation of the existence of an epidemic

- (1) A, D, C, B
- (2) B, C, A, D
- (3) B, D, C, A
- (4) C, B, D, A

Correct Answer: (3) B, D, C, A

Solution: Step 1: Understand the steps in investigating an epidemic.

- The first step is **confirmation of the existence of an epidemic** (D). - Then, the **verification of diagnosis** (B) is done to ensure that cases are indeed related to the suspected disease. - **Data analysis** (C) follows, to study the patterns and causes of the epidemic. - Finally, the **formulation of a hypothesis** (A) occurs, based on the data, to test the possible cause and spread of the epidemic.

Quick Tip

The investigation of an epidemic involves confirming the outbreak, diagnosing the cases, analyzing the data, and then formulating a hypothesis for further study.

Q44. Match indicators of health (List-I) with their Classification (List-II)

LIST-I	LIST-II
A. Notification rates	I. Mortality Indicators
B. Population-bed ratio	II. Morbidity Indicators
C. Case-fatality rate	III. Health-care delivery Indicators
D. Rate of population increase	IV. Socio-economic Indicators

- (1) A-III, B-II, C-I, D-IV
- (2) A-I, B-III, C-II, D-IV
- (3) A-II, B-III, C-I, D-IV
- (4) A-III, B-IV, C-I, D-II

Correct Answer: (2) A-I, B-III, C-II, D-IV

Solution: Step 1: Match health indicators with their classifications.

- **Notification rates** (A) are used to measure **mortality** and **morbidity**, so they are classified as **Mortality Indicators** (I). - **Population-bed ratio** (B) is used to assess healthcare delivery, so it falls under **Health-care delivery Indicators** (III). - **Case-fatality rate** (C) indicates the proportion of deaths among those with a specific disease, so it is a **Morbidity Indicator** (II). - **Rate of population increase** (D) is a **Socio-economic Indicator** (IV), reflecting population dynamics and economic growth.

Quick Tip

Health indicators are categorized into mortality, morbidity, healthcare delivery, and socio-economic indicators to evaluate overall health status.

Q45. According to vaccine vial monitors, a vaccine is to be discarded and not to be used if: A. Inner square color is lighter than outer circle B. Inner circle color is lighter than outer square C. Inner square color is same as the outer circle D. Inner square color is darker than outer circle

- (1) C and D only
- (2) A and B only
- (3) A, C and D only
- (4) A and C only

Correct Answer: (3) A, C and D only

Solution: Step 1: Understand the vaccine vial monitor system.

Vaccine vial monitors (VVM) are used to assess the heat exposure of vaccines. If the inner square color is **lighter than the outer circle**, the vaccine should be discarded. - If the inner square color is **same** as the outer circle, or **darker** than the outer circle, the vaccine is considered to be exposed to excessive heat and should not be used.

Quick Tip

Vaccine vial monitors provide an easy way to determine whether a vaccine has been exposed to potentially harmful levels of heat.

Q46. Match the LIST-I with LIST-II

LIST-I	
A. Isolation	I. Separation of infected persons from well persons exposed to communicable disease
B. Quarantine	II. Limitation of freedom of movements of well person exposed to communicable disease
C. Elimination	III. Termination of all transmission of infectious agent
D. Eradication	IV. Interruption in transmission of a disease entirely

- (1) A-IV, B-II, C-I, D-III
- (2) A-II, B-IV, C-I, D-III
- (3) A-IV, B-II, C-III, D-I
- (4) A-II, B-IV, C-III, D-I

Correct Answer: (3) A-IV, B-II, C-III, D-I

Solution: Step 1: Match each concept with its explanation.

- **Isolation** (A) involves the **separation of infected persons** (IV) to prevent the spread of the disease. - **Quarantine** (B) is used for well individuals exposed to a communicable disease to prevent the spread of infection and lasts for the incubation period (II). - **Elimination** (C) refers to the **termination of transmission** by eliminating the infectious agent (III). - **Eradiation** (D) refers to the **interruption in transmission** of a disease entirely (I).

Quick Tip

The key difference between eradication and elimination is that eradication means completely wiping out a disease, while elimination focuses on controlling its transmission in a given area.

Q47. All are true about Screening tests for a disease except:

- (1) Done on apparently healthy people
- (2) Not a basis for treatment
- (3) Based on one criteria or cut off point
- (4) Based on evaluation of number of symptoms, signs and laboratory findings

Correct Answer: (4) Based on evaluation of number of symptoms, signs and laboratory findings

Solution: Step 1: Understand the role of screening tests.

Screening tests are done to identify individuals who may have a disease, even if they do not show symptoms. - Screening is based on one **criterion or cut-off point** (3), and is generally used in **healthy individuals** (1). - Screening is not a direct basis for treatment (2). - Screening tests do not rely on the **evaluation of symptoms, signs, and laboratory findings** (4), which is part of the diagnostic process.

Quick Tip

Screening tests are valuable for early detection of diseases but are not diagnostic or used for treatment decisions.

Q48. How many vaccine vials are carried in Vaccine Carriers?

- (1) 6-8
- (2) 12-14
- (3) 16-20
- (4) 2-4

Correct Answer: (1) 6-8

Solution: Step 1: Understand vaccine carrier capacity.

Vaccine carriers are used for transporting vaccines in field conditions. The typical capacity of a vaccine carrier is **6 to 8 vaccine vials**.

Quick Tip

Vaccine carriers help maintain the cold chain during vaccine transport, ensuring vaccine efficacy.

Q49. Active immunity is acquired by:

- (1) Administration of Immunoglobulin
- (2) Transferring of antibodies across placenta
- (3) Following subclinical infection like Polio and Diphtheria
- (4) Administration of antisera or anti-toxins

Correct Answer: (3) Following subclinical infection like Polio and Diphtheria

Solution: Step 1: Understand the concept of active immunity.

Active immunity is acquired through the body's own immune response after exposure to a pathogen, such as through natural infection (e.g., subclinical infection like Polio and Diphtheria) or vaccination. - **Passive immunity** involves the transfer of antibodies (e.g., administration of immunoglobulin or anti-toxins), which provides short-term protection.

Quick Tip

Active immunity provides long-lasting protection, whereas passive immunity offers temporary protection.

Q50. Specificity of a Screening Test is:

- (1) Ability of the test to identify correctly those who do not have the disease
- (2) Ability of the test to identify correctly those who have the disease
- (3) The probability that a patient with a positive test has, in fact, the disease in question
- (4) The probability that a patient with a negative test does not have the disease in question

Correct Answer: (1) Ability of the test to identify correctly those who do not have the disease

Solution: Step 1: Understand the concept of specificity.

****Specificity**** refers to the ability of a test to correctly identify those ****without the disease****, i.e., the proportion of true negatives. - ****Sensitivity****, on the other hand, measures the ability to correctly identify those ****with the disease****.

Quick Tip

High specificity means fewer false positives, making it useful in confirming the absence of a disease.

Q51. One ASHA worker is posted for a population of:

- (1) 3000
- (2) 2000
- (3) 1000
- (4) 4000

Correct Answer: (2) 2000

Solution: Step 1: Understand ASHA worker posting guidelines.

In India, one ****ASHA (Accredited Social Health Activist)**** worker is typically assigned to a population of ****2000**** people, which is a part of the rural healthcare delivery system.

Quick Tip

ASHA workers play a crucial role in promoting health awareness, facilitating healthcare access, and encouraging preventive health practices.

Q52. Community Health Officer is posted at:

- (1) Primary Health Centre
- (2) Health and Wellness Centre / Ayushman Aarogya Mandir

- (3) Community Health Centre
- (4) District Hospital

Correct Answer: (3) Community Health Centre

Solution: Step 1: Understand the role of Community Health Officer.

A **Community Health Officer** (CHO) is typically posted at the **Community Health Centre (CHC)**, which is the main healthcare facility at the block level, providing primary healthcare services.

Quick Tip

The Community Health Officer ensures that primary health services reach rural and underserved areas.

Q53. According to National Immunisation Schedule, arrange in sequence the vaccines to be given to a child from birth till 5 years of age: A. Inactivated Polio Vaccine B. Oral Polio vaccine-0 dose C. DPT booster-1 D. Measles 1 dose

- (1) A, B, C, D
- (2) B, C, A, D
- (3) B, C, D, A
- (4) B, A, D, C

Correct Answer: (3) B, C, D, A

Solution: Step 1: Understand the immunisation schedule.

- **Oral Polio vaccine-0 dose** (B) is given at birth. - **DPT booster-1** (C) is given at 18 months. - **Measles 1 dose** (D) is given at 9 months. - **Inactivated Polio Vaccine** (A) is given at 6, 10, and 14 weeks.

Quick Tip

Immunisation should follow the recommended schedule for timely protection against infectious diseases.

Q54. Exclusive breast-feeding for an infant is recommended till:

- (1) 3 months
- (2) 5 months
- (3) 6 months

(4) 9 months

Correct Answer: (3) 6 months

Solution: Step 1: Understand breastfeeding guidelines.

****Exclusive breastfeeding**** is recommended for infants up to ****6 months**** of age, as it provides all the necessary nutrients for healthy growth and development.

Quick Tip

Exclusive breastfeeding for the first 6 months ensures optimal infant health and immune development.

Q55. The concept of "Social physician" was recommended by:

- (1) Chadah Committee
- (2) Mukherji Committee
- (3) Mudaliar Committee
- (4) Bhore Committee

Correct Answer: (3) Mudaliar Committee

Solution: Step 1: Understand the concept of "Social physician".

The concept of ****"Social physician"**** was recommended by the ****Mudaliar Committee****, which emphasized the role of doctors in addressing social determinants of health in rural India.

Quick Tip

The ****Mudaliar Committee**** played a key role in shaping India's approach to healthcare in rural areas, focusing on the integration of social and health services.

Q56. National Health Programme for control of Tuberculosis currently in use by the Government of India is:

- (1) National Tuberculosis Elimination Programme
- (2) National Tuberculosis Eradication Programme
- (3) National Tuberculosis Control Programme
- (4) Revised National Tuberculosis Control Programme

Correct Answer: (1) National Tuberculosis Elimination Programme

Solution: Step 1: Understand the current TB control program.

The **National Tuberculosis Elimination Programme (NTEP)** is the current program aimed at eliminating tuberculosis in India. It replaced the earlier **National Tuberculosis Control Programme (NTCP)** and focuses on strengthening diagnosis, treatment, and surveillance.

Quick Tip

The goal of the NTEP is to eliminate tuberculosis as a public health problem by 2025 in India.

Q57. The Terminal Contraceptive method is:

- (1) Female sterilization
- (2) Intrauterine device
- (3) Combined Oral Contraceptive Pill
- (4) Diaphragm

Correct Answer: (1) Female sterilization

Solution: Step 1: Understand the terminal contraceptive method.

Female sterilization is a permanent or **terminal contraceptive method**, as it provides long-term, irreversible contraception. Other methods like IUDs or pills are reversible.

Quick Tip

Terminal methods like female sterilization offer a permanent solution to contraception and are highly effective.

Q58. Sex Ratio is:

- (1) Number of males per 1000 females in a given population
- (2) Number of females per 1000 males in a given population
- (3) Number of males per 1000 live births
- (4) Number of females per 1000 live births

Correct Answer: (1) Number of males per 1000 females in a given population

Solution: Step 1: Understand the definition of sex ratio.

The **sex ratio** is the number of males per 1000 females in a given population. It is an important demographic indicator used to assess gender balance.

Quick Tip

The sex ratio is crucial for understanding population dynamics and gender equity in a society.

Q59. Pearl Index is defined as:

- (1) Number of failures per 100 woman-years of exposure.
- (2) Number of births per 100 woman-years of exposure.
- (3) Number of abortions per 100 woman-years of exposure.
- (4) Number of deaths per 100 woman-years of exposure.

Correct Answer: (1) Number of failures per 100 woman-years of exposure.

Solution: Step 1: Understand the Pearl Index.

The **Pearl Index** is used to measure the effectiveness of a contraceptive method, defined as the number of **failures** (unintended pregnancies) per 100 woman-years of exposure.

Quick Tip

The Pearl Index is widely used in clinical trials to evaluate the efficacy of contraceptive methods.

Q60. Strength of association between risk factor and outcome is measured by: A. Odds Ratio
B. Attributable Risk C. Population Attributable Risk D. Relative Risk

- (1) A and B only
- (2) A and C only
- (3) B and D only
- (4) A and D only

Correct Answer: (4) A and D only

Solution: Step 1: Understand measures of association.

The **Odds Ratio (A)** and **Relative Risk (D)** are both used to measure the strength of association between a **risk factor** and **outcome** in epidemiological studies.

Quick Tip

Both Odds Ratio and Relative Risk help quantify the relationship between exposure to a risk factor and the likelihood of an outcome.

Q61. According to Bio-Medical Waste Management Rules, 2016, match LIST-I with LIST-II

LIST-I	LIST-II
A. Yellow	I. Soiled Dressings and plaster cast
B. Blue	II. Broken glassware like vials and ampules
C. Red	III. Intravenous tubes and catheters
D. White	IV. Syringes with fixed needles

- (1) A-I, B-II, C-III, D-IV
- (2) A-I, B-III, C-II, D-IV
- (3) A-II, B-I, C-III, D-IV
- (4) A-III, B-IV, C-I, D-II

Correct Answer: (1) A-I, B-II, C-III, D-IV

Solution: Step 1: Match bin colors with the corresponding types of biomedical waste.

- **Yellow** bins are for **soiled dressings and plaster casts** (I). - **Blue** bins are for **broken glassware** like vials and ampules (II). - **Red** bins are for **intravenous tubes and catheters** (III). - **White** bins are for **syringes with fixed needles** (IV).

Quick Tip

The color-coded system helps in the proper segregation and disposal of biomedical waste, ensuring safety and environmental protection.

Q62. The color "Red" under the Triage system carried out at the site of a disaster indicates:

- (1) Medium priority treatment or transfer
- (2) Dead or Moribund patients
- (3) Highest priority treatment or transfer
- (4) Ambulatory patients

Correct Answer: (3) Highest priority treatment or transfer

Solution: Step 1: Understand the Triage system.

In the **Triage system**, **Red** indicates the **highest priority treatment or transfer** for patients who require immediate medical attention to survive. These patients are typically in critical condition.

Quick Tip

The triage system helps prioritize care during mass casualty incidents by categorizing patients based on the urgency of their medical needs.

Q63. According to WHO child growth standards, the Growth Chart of weight for age, Z-score curves for the normal zone of weight is:

- (1) 1.0 to +2
- (2) -2 to +2
- (3) 0 to +1
- (4) Above +2

Correct Answer: (2) -2 to +2

Solution: Step 1: Understand the WHO Growth Standards.

According to the **WHO child growth standards**, a **Z-score** of **-2 to +2** represents the normal range for weight-for-age. A Z-score outside this range indicates underweight or overweight.

Quick Tip

Z-scores are used to assess whether a child's growth is within the expected range.

Q64. Arrange the following causes of neonatal deaths in India in decreasing order of frequency (commonest cause to least common cause): A. Birth asphyxia B. Pneumonia C. Diarrhea D. Preterm birth

- (1) C, B, A, D
- (2) A, C, B, D
- (3) D, A, B, C
- (4) B, C, D, A

Correct Answer: (2) A, C, B, D

Solution: Step 1: Understand the common causes of neonatal death in India.

- **Birth asphyxia** (A) is the leading cause of neonatal death in India. - **Diarrhea** (C) is another common cause of neonatal deaths. - **Pneumonia** (B) follows as a significant cause. - **Preterm birth** (D) is also a major factor but ranks lower than the others.

Quick Tip

Addressing these causes through healthcare interventions can significantly reduce neonatal mortality.

Q65. Coefficient of correlation (represented by the symbol "r") is calculated:

- (1) To find out whether there is a significant association or not between the two variables.
- (2) To find out whether there is a significant relationship or not between the two variables.
- (3) To find out whether there is a significant variability or not between the two variables.
- (4) To find out whether there is a significant matching or not between the two variables.

Correct Answer: (1) To find out whether there is a significant association or not between the two variables.

Solution: Step 1: Understand the use of correlation.

The **correlation coefficient** ("r") measures the **strength and direction of the association** between two variables. It indicates how closely the two variables are related.

Quick Tip

The correlation coefficient is useful for determining the degree to which two variables are associated, but it does not imply causation.

Q66. Purification of water at household level through Chlorine tablets is done by:

- (1) A single tablet of 0.5 g is sufficient to disinfect 20 litres of water
- (2) Two tablets of 0.5 g are sufficient to disinfect 20 litres of water
- (3) A single tablet of 0.5 g is sufficient to disinfect 1 litre of water
- (4) Two tablets of 0.5 g are sufficient to disinfect 1 litre of water

Correct Answer: (1) A single tablet of 0.5 g is sufficient to disinfect 20 litres of water

Solution: Step 1: Understand the use of chlorine tablets for water purification.

A single **0.5 g chlorine tablet** is sufficient to disinfect **20 litres of water**, making it an efficient method for purifying water in households.

Quick Tip

Chlorine tablets are a simple and effective way to purify water in emergency situations or areas without access to treated water.

Q67. Measure of Central Tendency useful in markedly skewed distribution is:

- (1) Mean
- (2) Median
- (3) Geometric mean
- (4) Mode

Correct Answer: (2) Median

Solution: Step 1: Understand the impact of skewed data.

In a **skewed distribution**, the **mean** is highly affected by outliers, while the **median** is a better measure of central tendency because it is not influenced by extreme values.

Quick Tip

When data is skewed, the **median** is often the best measure of central tendency as it provides a better central value representation.

Q68. Match List-I with List-II

LIST-I	LIST-II
A. Anopheles	I. Malaria
B. Aedes	II. Japanese Encephalitis
C. Culex	III. Chikungunya fever
D. Mansonides	IV. Brugian Filariasis

- (1) A-I, B-II, C-III, D-IV
- (2) A-I, B-III, C-II, D-IV
- (3) A-I, B-II, C-IV, D-III
- (4) A-I, B-IV, C-III, D-II

Correct Answer: (1) A-I, B-II, C-III, D-IV

Solution: Step 1: Match vectors with their corresponding diseases.

- **Anopheles** (A) is the vector for **Malaria** (I). - **Aedes** (B) is the vector for **Chikungunya fever** (III).
- **Culex** (C) is the vector for **Japanese Encephalitis** (II).
- **Mansonides** (D) is the vector for **Brugian Filariasis** (IV).

Quick Tip

Different mosquito species are responsible for transmitting different infectious diseases.

Q69. Measures of variations or dispersion of data are: A. Interquartile Range B. Mode C. Standard Deviation D. Weighted Mean

- (1) A and D only
- (2) A and C only
- (3) B and C only
- (4) A and B only

Correct Answer: (2) A and C only

Solution: Step 1: Understand measures of variation.

- **Interquartile range (A)** and **Standard deviation (C)** are both measures of dispersion or variation in data. - The **Mode (B)** is a measure of central tendency, not dispersion. - **Weighted mean (D)** is also a type of central tendency measurement.

Quick Tip

Dispersion measures like the **interquartile range** and **standard deviation** help understand the spread of data, whereas measures like the **mode** focus on central values.

Q70. Arrange the various methods of mosquito control according to life history of mosquitoes from egg to adult stages: A. Source reduction through engineering methods like filling, levelling B. Screening of buildings with bronze gauge C. Biological control through fish D. Residual sprays with Malathion

- (1) A, B, D, C
- (2) A, D, B, C
- (3) B, A, D, C
- (4) A, C, D, B

Correct Answer: (4) A, C, D, B

Solution: Step 1: Understand mosquito control methods.

- **Source reduction (A)** is the first step, eliminating breeding grounds. - **Biological control (C)** involves using natural predators like fish to reduce mosquito larvae. - **Residual sprays (D)** are used to kill adult mosquitoes. - **Screening of buildings (B)** comes last to prevent mosquitoes from entering homes.

Quick Tip

Mosquito control should begin with eliminating breeding grounds, followed by using natural predators and chemical methods to manage adult populations.

Q71. Waste water from kitchens and bathrooms NOT containing excreta is called:

- (1) Sewage
- (2) Refuse
- (3) Sludge
- (4) Sullage

Correct Answer: (4) Sullage

Solution: Step 1: Define wastewater terminology.

Sullage refers to **wastewater from kitchens and bathrooms** that does not contain excreta, unlike **sewage**, which includes waste from toilets.

Quick Tip

Sullage is a term used to describe non-sewage wastewater, often from domestic sources like washing dishes and bathing.

Q72. Best sampling method where every unit in the population has an equal chance of being included in the sample is:

- (1) Convenience Sampling
- (2) Quota Sampling
- (3) Simple Random Sampling
- (4) Judgemental Sampling

Correct Answer: (3) Simple Random Sampling

Solution: Step 1: Understand Simple Random Sampling.

Simple Random Sampling is a sampling method where every unit in the population has an equal chance of being included in the sample. This ensures unbiased selection and is the most representative method of sampling.

Quick Tip

Simple Random Sampling eliminates bias and ensures each member of the population has an equal chance of selection.

Q73. Which of the mosquitoes is easily distinguished by white stripes on the black body?

- (1) Culex
- (2) Anopheles
- (3) Mansonoides
- (4) Aedes

Correct Answer: (4) Aedes

Solution: Step 1: Identify the distinctive characteristics of Aedes mosquitoes.

Aedes mosquitoes are easily distinguished by the white stripes on their black body and legs. This characteristic is often used to identify them, particularly in the case of the **Aedes aegypti** species, which is known for transmitting diseases like dengue and Zika.

Quick Tip

Aedes mosquitoes are characterized by distinctive white markings on their body and legs, which set them apart from other species.

Q74. The proportion of frequencies lying on either side of the mean in a normal distribution curve within a range of +1 to -1 standard deviation is approximately:

- (1) 95
- (2) 68
- (3) 50
- (4) 75

Correct Answer: (2) 68

Solution: Step 1: Understand the properties of a normal distribution.

In a **normal distribution**, approximately **68**

Quick Tip

In a normal distribution, about 68

Q75. In India, birth weight of less than 2.5 kg is considered low birth weight:

- (1) 2.5
- (2) 2.0
- (3) 1.5
- (4) 3.0

Correct Answer: (1) 2.5

Solution: Step 1: Understand the definition of low birth weight.

In India, a **low birth weight** (LBW) is defined as a birth weight of **less than 2.5 kg**. LBW is a significant risk factor for infant mortality and various developmental complications.

Quick Tip

Low birth weight is a critical indicator of newborn health, with a threshold of 2.5 kg marking the cutoff.
