

CUET PG 2026 Public Health Question Paper with Solutions(Memory Based)

Time Allowed :1 Hours 30 minutes	Maximum Marks :300	Total Questions :75
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General Instructions

1. The exam lasts 90 minutes (1 hour 30 minutes).
2. There are 75 Multiple Choice Questions (MCQs) to be answered.
3. +4 marks for every correct answer. -1 mark (negative marking) for every incorrect answer. 0 marks for unanswered or un-attempted questions.
4. For any discrepancy in questions, the English version is considered final (except for language-specific papers).
5. Click one of the four options to choose an answer.
6. You must click "Save & Next" to confirm your response. Only saved answers are considered for evaluation.
7. Use "Mark for Review & Next" to flag a question for later. You can unselect or change your answer using the "Clear Response" button.
8. All calculations must be done on the Rough Sheets provided at the centre. These must be returned to the invigilator after the exam.

1. Which point mutation changes a codon but does not alter the resulting amino acid?

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

Correct Answer: (C) Silent mutation

Solution:

Step 1: Understanding the Concept:

Point mutations are genetic changes where a single nucleotide base is substituted, inserted, or deleted.

The effect on the protein depends on whether the new codon codes for the same or a different amino acid.

Step 2: Detailed Explanation:

A **Silent mutation** is a type of point mutation where the DNA sequence is changed, but the resulting amino acid remains the same.

This phenomenon occurs because the genetic code is **degenerate** (or redundant), meaning that

multiple codons can code for the same amino acid.

For example, if the codon GGG (Glycine) mutates to GGA, it still codes for Glycine, so the protein structure remains unaffected.

In contrast:

- **Missense mutation** results in a different amino acid.
- **Nonsense mutation** creates a premature stop codon.
- **Frameshift mutation** shifts the entire reading frame by adding or deleting bases.

Step 3: Final Answer:

The mutation that does not alter the amino acid is the Silent mutation.

💡 Quick Tip

Silent mutations often occur in the third position of the codon, also known as the "wobble" position, where base pairing is less specific.

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

- (A) To synthesize DNA from an RNA template
- (B) To cut DNA at specific sites
- (C) To join DNA fragments
- (D) To amplify DNA sequences

Correct Answer: (A) To synthesize DNA from an RNA template

Solution:

Step 1: Understanding the Concept:

Normally, transcription moves from DNA to RNA.

Reverse transcriptase is an enzyme that reverses this flow, moving from RNA back to DNA.

Step 2: Detailed Explanation:

In recombinant DNA technology, scientists often need to clone eukaryotic genes.

However, eukaryotic DNA contains introns (non-coding regions) that bacteria cannot remove.

To solve this, researchers isolate the processed mRNA (which has no introns) and use **reverse transcriptase** to create a DNA copy called **cDNA (complementary DNA)**.

This cDNA can then be easily expressed in bacterial hosts.

- Option (B) describes Restriction Endonucleases.
- Option (C) describes DNA Ligase.
- Option (D) describes PCR (Polymerase Chain Reaction) using Taq Polymerase.

Step 3: Final Answer:

The primary role of reverse transcriptase is the synthesis of DNA using an RNA template.

💡 Quick Tip

Reverse transcriptase is a "DNA polymerase" that is "RNA-dependent."

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

- (A) DNA ligase
- (B) Helicase
- (C) Topoisomerase
- (D) Primase

Correct Answer: (C) Topoisomerase

Solution:

Step 1: Understanding the Concept:

As DNA helicase unwinds the double helix at the replication fork, the DNA ahead of the fork becomes overwound or "supercoiled" due to torsional stress.

Step 2: Detailed Explanation:

Topoisomerases (such as DNA Gyrase in bacteria) are enzymes that cut the DNA backbone, allow the strands to rotate to relieve the stress, and then reseal the backbone.

Without this enzyme, the DNA would become so tangled and tight that replication would stop.

- **DNA Ligase** seals "nicks" between DNA fragments.
- **Helicase** breaks hydrogen bonds to unzip the strands.
- **Primase** places the RNA primer needed for DNA polymerase to start.

Step 3: Final Answer:

The enzyme that relieves torsional strain or supercoiling is Topoisomerase.

💡 Quick Tip

Think of Topoisomerase as the "detangler" of the DNA strands during the replication process.

4. According to WHO, what is the BMI (Body Mass Index) classification range for a "pre-obese" individual?

- (A) 18.5 – 24.9
- (B) 25.0 – 29.9
- (C) 30.0 – 34.9
- (D) 35.0 – 39.9

Correct Answer: (B) 25.0 – 29.9

Solution:

Step 1: Understanding the Concept:

BMI is a standard tool used to categorize individuals based on their weight-to-height ratio to assess health risks.

Step 2: Key Formula or Approach:

The BMI formula is:

$$BMI = \frac{Weight\ (kg)}{Height\ (m)^2}$$

Step 2: Detailed Explanation:

The World Health Organization (WHO) provides the following international classifications for adults:

- **Underweight:** < 18.5
- **Normal Weight:** $18.5 - 24.9$
- **Overweight:** ≥ 25.0
- **Pre-obese:** $25.0 - 29.9$ (a sub-category of overweight)
- **Obese Class I:** $30.0 - 34.9$
- **Obese Class II:** $35.0 - 39.9$
- **Obese Class III:** ≥ 40.0

Step 3: Final Answer:

The "pre-obese" range is specifically defined as $25.0 - 29.9$.

 Quick Tip

In common language, "pre-obese" is often simply called "overweight."

5. In the Integrated Management of Neonatal and Childhood Illness (IMNCI), what is the respiration rate threshold for "fast breathing" in a child aged 12 months to 5 years?

- (A) ≥ 40 breaths per minute
- (B) ≥ 50 breaths per minute
- (C) ≥ 60 breaths per minute
- (D) ≥ 70 breaths per minute

Correct Answer: (A) ≥ 40 breaths per minute

Solution:

Step 1: Understanding the Concept:

IMNCI uses simple clinical signs to categorize the severity of illness in children.
Fast breathing is a key indicator of pneumonia.

Step 2: Detailed Explanation:

The threshold for "fast breathing" depends on the child's age because normal resting respiratory rates decrease as a child grows:

1. **Age < 2 months:** ≥ 60 breaths/min.
2. **Age 2 months to 12 months:** ≥ 50 breaths/min.
3. **Age 12 months to 5 years:** ≥ 40 breaths/min.

Since the question asks for a child aged 12 months to 5 years, the threshold is 40.

Step 3: Final Answer:

The threshold for fast breathing in a child aged 1 to 5 years is ≥ 40 breaths per minute.

 Quick Tip

Remember the 60-50-40 rule for IMNCI respiratory rates based on age groups.

6. Which type of immunity is acquired through the administration of a vaccine?

- (A) Natural active immunity
- (B) Natural passive immunity
- (C) Artificial active immunity
- (D) Artificial passive immunity

Correct Answer: (C) Artificial active immunity

Solution:**Step 1: Understanding the Concept:**

Immunity is classified as **Natural** (via environmental exposure) or **Artificial** (via medical intervention), and as **Active** (body produces antibodies) or **Passive** (body receives ready-made antibodies).

Step 2: Detailed Explanation:

- **Active Immunity** means the individual's immune system is stimulated to produce its own antibodies and memory cells.

- **Artificial** means it was induced by a medical procedure like vaccination.

When a vaccine (antigen) is injected, it triggers an immune response without causing the disease.

This is known as **Artificial Active Immunity**.

- **Artificial Passive** would be injecting pre-formed antibodies (like Anti-rabies serum).

- **Natural Active** is getting an infection naturally.

- **Natural Passive** is antibodies from mother to fetus.

Step 3: Final Answer:

Vaccination provides Artificial Active Immunity.

 Quick Tip

Artificial = Medical intervention. Active = You make the antibodies yourself.

7. According to the National Immunization Schedule, which types of poliovirus are contained in the Oral Polio Vaccine (OPV)?

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

Correct Answer: (D) Type 1, Type 2, and Type 3

Solution:

Step 1: Understanding the Concept:

OPV was originally developed as a trivalent vaccine to protect against all three wild strains of poliovirus.

Step 2: Detailed Explanation:

The standard Oral Polio Vaccine (Sabin vaccine) is traditionally **trivalent (tOPV)**, containing attenuated strains of Poliovirus **Types 1, 2, and 3**.

Note: In 2016, India and the rest of the world "switched" from trivalent OPV to bivalent OPV (Types 1 and 3 only) because Type 2 wild polio was eradicated.

However, in general competitive exam contexts, "OPV" usually refers to the classic trivalent composition unless "bivalent" or "current" is specified.

Step 3: Final Answer:

The classic Oral Polio Vaccine contains Types 1, 2, and 3.

 Quick Tip

The "Switch" in 2016 was specifically to remove the Type 2 component from OPV.

8. "Koplik's spots" on the oral mucosa are a pathognomonic sign of which infectious disease?

- (A) Rubella
- (B) Measles
- (C) Chickenpox
- (D) Scarlet fever

Correct Answer: (B) Measles

Solution:

Step 1: Understanding the Concept:

A "pathognomonic sign" is a symptom that is specifically characteristic of a particular disease and can be used to make a definitive diagnosis.

Step 2: Detailed Explanation:

Koplik's spots are small, white spots (often compared to grains of salt) on a reddened background that appear on the inside of the cheeks.

They typically appear 2 to 3 days before the measles rash begins.

Their presence is diagnostic for **Measles** (Rubeola).

Rubella (German measles) shows Forchheimer spots (petechiae on the soft palate), not Koplik's spots.

Step 3: Final Answer:

Koplik's spots are the hallmark sign of Measles.

💡 Quick Tip

Look for Koplik's spots opposite the lower molars during the prodromal phase of measles.

9. Which study design is considered the "gold standard" for developing and testing a new vaccine?

- (A) Cohort study
- (B) Case-control study
- (C) Randomized Controlled Trial (RCT)
- (D) Cross-sectional study

Correct Answer: (C) Randomized Controlled Trial (RCT)

Solution:

Step 1: Understanding the Concept:

Epidemiological research designs range in their ability to prove causality.

Step 2: Detailed Explanation:

The **Randomized Controlled Trial (RCT)** is an experimental study where participants are randomly allocated to a treatment group or a control group.

This design minimizes bias and confounding variables, providing the strongest evidence of a cause-and-effect relationship.

Because it offers the most rigorous testing of efficacy and safety, it is considered the **gold standard** for clinical research and vaccine development.

Cohort and case-control studies are observational and cannot prove causation as effectively as RCTs.

Step 3: Final Answer:

The Randomized Controlled Trial (RCT) is the gold standard for testing vaccines.

💡 Quick Tip

Randomization is the key feature that makes the RCT the strongest study design.

10. What happens to the prevalence of a disease if the duration of the illness increases while incidence remains constant?

- (A) Decreases
- (B) Remains unchanged
- (C) Increases
- (D) Becomes zero

Correct Answer: (C) Increases

Solution:**Step 1: Understanding the Concept:**

Incidence measures new cases, while prevalence measures all existing cases.

Step 2: Key Formula or Approach:

The relationship between prevalence (P), incidence (I), and average duration (D) is expressed as:

$$P \approx I \times D$$

Step 2: Detailed Explanation:

If the incidence (I) is constant, but the duration (D) of the illness increases (e.g., people live

longer with a chronic disease due to better care), the number of people living with the disease at any given time will go up.

Mathematically, if D increases in the formula $P \approx I \times D$, then P must also increase.

Step 3: Final Answer:

The prevalence of the disease increases.

💡 Quick Tip

Prevalence = "The pool of disease." If the tap (incidence) stays the same but the drain (recovery/death) is slower, the pool fills up.

11. Which statistical test is most appropriate for comparing the mean hemoglobin levels between two independent groups?

- (A) Paired t-test
- (B) Chi-square test
- (C) Independent t-test
- (D) ANOVA

Correct Answer: (C) Independent t-test

Solution:

Step 1: Understanding the Concept:

The choice of a statistical test depends on the type of data (continuous vs. categorical) and the relationship between the groups.

Step 2: Detailed Explanation:

1. **Hemoglobin levels:** This is continuous (numerical) data.
 2. **Two independent groups:** These are two separate sets of people (e.g., males vs. females).
- **Independent t-test:** Used to compare the means of two independent groups.
 - **Paired t-test:** Used for the same group at two different times.
 - **Chi-square test:** Used for categorical data (e.g., yes/no).
 - **ANOVA:** Used to compare means across three or more groups.

Step 3: Final Answer:

The Independent t-test is used for comparing means of two separate groups.

💡 Quick Tip

Continuous Data + 2 Groups = t-test.
Continuous Data + 3+ Groups = ANOVA.

12. Which Indian legislative act provides social security measures specifically for industrial workers regarding maternity benefits?

- (A) Factories Act, 1948
- (B) Employees' State Insurance Act, 1948
- (C) Maternity Benefit Act, 1961
- (D) Minimum Wages Act, 1948

Correct Answer: (B) Employees' State Insurance Act, 1948

Solution:

Step 1: Understanding the Concept:

Social security in India is administered through various acts that provide benefits during specific life events like sickness or childbirth.

Step 2: Detailed Explanation:

The **Employees' State Insurance (ESI) Act, 1948** is a comprehensive social security scheme designed for industrial workers. It provides medical benefits and cash payments for sickness, disablement, and specifically **maternity**.

While the Maternity Benefit Act of 1961 exists, it generally applies to establishments not covered by the ESI scheme.

For organized industrial workers, ESI is the primary act providing these social security measures.

Step 3: Final Answer:

The Employees' State Insurance Act, 1948 provides these benefits to industrial workers.

 Quick Tip

ESI Act is the first major social security legislation in independent India.

13. What is the commonest type of cancer among males in India?

- (A) Lung cancer
- (B) Oral cancer
- (C) Prostate cancer
- (D) Stomach cancer

Correct Answer: (B) Oral cancer

Solution:

Step 1: Understanding the Concept:

Cancer epidemiology in India is heavily influenced by lifestyle factors, particularly the use of

tobacco in various forms.

Step 2: Detailed Explanation:

According to data from the National Cancer Registry Programme (NCRP), **Oral cancer** (including lip and oral cavity) is the most frequent cancer among Indian men.

This high incidence is primarily linked to the widespread use of smokeless tobacco (chewing tobacco, gutka, etc.).

Lung cancer is the second most common cancer in Indian males.

Step 3: Final Answer:

Oral cancer is the leading cancer among males in India.

 Quick Tip

In Indian females, the most common cancer is Breast cancer, followed by Cervical cancer.

14. Which type of "blinding" is most commonly utilized in Randomized Controlled Trials (RCTs) to reduce bias?

- (A) Single-blind
- (B) Double-blind
- (C) Triple-blind
- (D) Open-label

Correct Answer: (B) Double-blind

Solution:

Step 1: Understanding the Concept:

Blinding is a method used to prevent participants and researchers from knowing which treatment is being given, thereby reducing psychological and observer bias.

Step 2: Detailed Explanation:

- **Single-blind:** Only the patient doesn't know.
- **Double-blind:** Both the **patient** and the **doctor/investigator** don't know who is getting the treatment vs. the placebo. This is the standard in clinical trials to ensure objective results.
- **Triple-blind:** The patient, the doctor, and the person analyzing the data are all unaware.
- **Open-label:** Everyone knows the treatment allocation.

Step 3: Final Answer:

Double-blind is the most common form of blinding used in RCTs.

 Quick Tip

Double-blinding prevents the "placebo effect" in patients and "expectation bias" in researchers.

15. Which nutrient deficiency is the primary cause of "hidden hunger" in a population?

- (A) Protein deficiency
- (B) Carbohydrate deficiency
- (C) Micronutrient deficiency
- (D) Fat deficiency

Correct Answer: (C) Micronutrient deficiency

Solution:

Step 1: Understanding the Concept:

Hidden hunger refers to a form of malnutrition where people eat enough calories but don't get essential vitamins and minerals.

Step 2: Detailed Explanation:

Even if a person consumes enough energy (carbohydrates/fats), they can still be malnourished if their diet lacks **micronutrients** like Iron, Iodine, Zinc, and Vitamin A.

Because the person doesn't feel "hungry" in the traditional sense, the deficiency remains "hidden."

This leads to serious health consequences such as anemia, stunted growth, and weakened immune systems.

Step 3: Final Answer:

Micronutrient deficiency is the cause of hidden hunger.

 Quick Tip

Hidden hunger affects over 2 billion people worldwide, often in low-income regions with monotonous diets.

16. What are the four components of the WHO health system building blocks?

- (A) Service delivery, Health workforce, Health information systems, Access to essential medicines
- (B) Financing, Governance, Infrastructure, Technology
- (C) Nutrition, Sanitation, Education, Immunization
- (D) Prevention, Treatment, Rehabilitation, Research

Correct Answer: (A) Service delivery, Health workforce, Health information systems, Access to essential medicines

Solution:

Step 1: Understanding the Concept:

The WHO framework for health systems consists of six core building blocks that work together to improve health outcomes.

Step 2: Detailed Explanation:

The six WHO building blocks are:

1. Service delivery
2. Health workforce
3. Health information systems
4. Access to essential medicines
5. Financing
6. Leadership/Governance

Option (A) accurately lists four of these official components.

Step 3: Final Answer:

The components listed in Option (A) are part of the WHO health system building blocks.

 Quick Tip

Remember: "S-H-I-M-F-G" (Service, Health workforce, Info, Medicines, Finance, Governance).