

GATE 2026 XH Question Paper with Solutions

Time Allowed :3 Hour	Maximum Marks :100	Total Questions :65
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General Instructions

Please read the following instructions carefully:

- This question paper is divided into three sections:
 - General Aptitude (GA):** 10 questions (5 questions \times 1 mark + 5 questions \times 2 marks) for a total of 15 marks.
 - Environmental Science and Engineering + Engineering Mathematics:**
 - Part A (Mandatory):** 36 questions (1 questions \times 1 mark + 19 questions \times 2 marks) for a total of 55 marks.
 - Part B (Section 1):** Candidates can choose either Part B1 (Surveying and Mapping) or Part B2 (Section 2). Each part contains 16 questions (8 questions \times 1 mark + 11 questions \times 2 marks) for a total of 30 marks.
- The total number of questions is **65**, carrying a maximum of **100 marks**.
- The duration of the exam is **3 hours**.
- Marking scheme:
 - For 1-mark MCQs, $\frac{1}{3}$ mark will be deducted for every incorrect response.
 - For 2-mark MCQs, $\frac{2}{3}$ mark will be deducted for every incorrect response.
 - No negative marking for numerical answer type (NAT) questions.
 - No marks will be awarded for unanswered questions.
- Ensure you attempt questions only from the optional section (Part B1 or Part B2) you have selected.
- Follow the instructions provided during the exam for submitting your answers.

1. In microeconomics, opportunity cost refers to:

- (A) Total cost of production
- (B) Accounting cost
- (C) Cost of the next best alternative forgone
- (D) Marginal cost

Correct Answer: (C) Cost of the next best alternative forgone

Solution:

Step 1: Understanding the Concept:

Opportunity cost is a fundamental principle in economics arising from the reality of scarcity. Because resources (time, money, labor) are limited, choosing one option means giving up the benefits of another.

Step 2: Detailed Explanation:

Opportunity cost does not represent the monetary cost of all choices, but specifically the value of the single most valuable alternative that was not selected.

For example, if you spend an hour studying, the opportunity cost might be the sleep you lost or the leisure time you gave up, whichever was your "next best" preference.

It is an "economic cost" rather than just an "accounting cost" because it includes implicit costs (the value of sacrificed alternatives) alongside explicit costs (actual cash payments).

Option (A) refers to total expenditure; Option (B) refers only to recorded expenses; Option (D) refers to the cost of producing one additional unit.

Step 3: Final Answer:

The opportunity cost is defined as the cost of the next best alternative forgone.

Quick Tip

In exam problems, if a person has three options (X, Y, and Z) ranked in that order of preference, the opportunity cost of choosing X is the value of Y, not the value of Y + Z.

2. Which of the following is an example of a metaphor?

- (A) He runs like a cheetah
- (B) The classroom was noisy
- (C) Time is a thief
- (D) She is very intelligent

Correct Answer: (C) Time is a thief

Solution:

Step 1: Understanding the Concept:

A metaphor is a figure of speech that describes an object or action in a way that isn't literally true, but helps explain an idea or make a comparison.

Unlike a simile, it does not use connecting words like "like" or "as".

Step 2: Detailed Explanation:

- **Option (A):** "He runs like a cheetah" is a **Simile** because it uses the word "like" to make a comparison.

- **Option (B):** "The classroom was noisy" is a literal description or a plain statement of fact.

- **Option (C):** "Time is a thief" is a **Metaphor**. It directly equates time to a thief to suggest

that time "steals" moments from our lives, without using "like" or "as".

- **Option (D):** "She is very intelligent" is a literal statement describing a person's quality.

Step 3: Final Answer:

"Time is a thief" is the correct example of a metaphor.

Quick Tip

To distinguish between metaphors and similes quickly:

Metaphor = A is B.

Simile = A is like B.

3. According to Emile Durkheim, the concept of anomie refers to:

- (A) Social harmony
- (B) Normlessness in society
- (C) Class conflict
- (D) Cultural diffusion

Correct Answer: (B) Normlessness in society

Solution:

Step 1: Understanding the Concept:

Anomie is a sociological term introduced by Emile Durkheim in his study of the division of labor and suicide.

It describes a condition of instability resulting from a breakdown of standards and values.

Step 2: Detailed Explanation:

Durkheim argued that during periods of rapid social or economic change, the existing social norms and rules may no longer be effective or clear.

When individuals feel a lack of social regulation and clear moral guidance, they experience "anomie" or normlessness.

- Option (A) is the opposite of anomie.
- Option (C) "Class conflict" is a term primarily associated with Karl Marx.
- Option (D) "Cultural diffusion" refers to the spread of cultural beliefs and social activities from one group to another.

Step 3: Final Answer:

Anomie refers to a state of normlessness in society.

Quick Tip

Associate "Anomie" with Durkheim's "Suicide" study, specifically "Anomic Suicide," which occurs when society undergoes major disruptions (like economic crashes) that cause a lack of regulation.

4. Which part of the brain is primarily responsible for memory and learning?

- (A) Medulla
- (B) Hypothalamus
- (C) Cerebellum
- (D) Hippocampus

Correct Answer: (D) Hippocampus

Solution:

Step 1: Understanding the Concept:

The human brain consists of specialized regions that handle different cognitive and physiological functions.

Memory processing is largely localized within the limbic system.

Step 2: Detailed Explanation:

- **Medulla:** Responsible for vital autonomic functions like breathing, heart rate, and blood pressure.
- **Hypothalamus:** Regulates homeostasis, including hunger, thirst, sleep, and body temperature.
- **Cerebellum:** Primarily controls balance, posture, and fine motor coordination.
- **Hippocampus:** A small, curved formation in the temporal lobe that is crucial for the formation of new memories and associated with learning and emotions. Damage to this area often results in the inability to form new long-term memories.

Step 3: Final Answer:

The hippocampus is the primary brain structure responsible for memory and learning.

Quick Tip

Think of the Hippocampus as the "Campus" (Learning/Memory) where you go to study. This mnemonic helps link the name to its function.

5. The concept of separation of powers is most closely associated with:

- (A) Karl Marx
- (B) John Locke
- (C) Montesquieu
- (D) Jean-Jacques Rousseau

Correct Answer: (C) Montesquieu

Solution:

Step 1: Understanding the Concept:

Separation of powers is a political doctrine which advocates that the three branches of government (Legislature, Executive, and Judiciary) should be kept separate and distinct.

Step 2: Detailed Explanation:

The French philosopher **Baron de Montesquieu** articulated this theory in his 1748 work, "The Spirit of the Laws" (*De l'esprit des lois*).

He argued that dividing government power prevents any one branch from becoming too powerful, thereby protecting individual liberty and preventing tyranny.

- John Locke influenced the idea of natural rights and a social contract, but Montesquieu developed the specific framework for tripartite separation.
- Rousseau is known for the "General Will" and Marx for "Historical Materialism".

Step 3: Final Answer:

The concept is most closely associated with Montesquieu.

Quick Tip

Montesquieu = 3 syllables (roughly) for 3 branches. It is the cornerstone of the U.S. Constitution and many modern democratic systems.

6. Which school of philosophy emphasizes that knowledge comes primarily from sensory experience?

- (A) Rationalism
- (B) Idealism
- (C) Empiricism
- (D) Existentialism

Correct Answer: (C) Empiricism

Solution:

Step 1: Understanding the Concept:

Epistemology is the branch of philosophy concerned with the nature and origin of knowledge.

Different schools argue whether knowledge is innate or acquired.

Step 2: Detailed Explanation:

- **Rationalism (A):** Argues that reason and logic are the primary sources of knowledge, often believing in "innate ideas" (e.g., Descartes, Spinoza).
- **Idealism (B):** Suggests that reality is fundamentally mentally constructed or immaterial (e.g., Plato, Kant).
- **Empiricism (C):** Asserts that knowledge is derived from sense-perception and evidence gathered through the five senses. Famous empiricists include John Locke, who described the mind as a *tabula rasa* (blank slate).
- **Existentialism (D):** Focuses on individual existence, freedom, and choice (e.g., Sartre, Kierkegaard).

Step 3: Final Answer:

Empiricism is the school that emphasizes sensory experience as the source of knowledge.

Quick Tip

Keyword link: **Empirical** evidence = Evidence based on **Experience** and **Observation**.

7. The Indus Valley Civilization is also known as:

- (A) Vedic Civilization
- (B) Harappan Civilization
- (C) Mesopotamian Civilization
- (D) Egyptian Civilization

Correct Answer: (B) Harappan Civilization

Solution:

Step 1: Understanding the Concept:

The Indus Valley Civilization (IVC) was a Bronze Age civilization in the northwestern regions of South Asia, lasting from 3300 BCE to 1300 BCE.

Step 2: Detailed Explanation:

In archaeology, a culture or civilization is often named after the type-site (the first site to be discovered and excavated).

- **Harappa** was the first site of this civilization to be excavated in 1921 by Daya Ram Sahni.
- Because Harappa was the representative site, the entire civilization is frequently referred to as the **Harappan Civilization**.
- The Vedic Civilization followed the IVC.
- Mesopotamia and Egypt were contemporary but distinct civilizations in different geographical

regions.

Step 3: Final Answer:

The Indus Valley Civilization is also known as the Harappan Civilization.

Quick Tip

The IVC is famous for its advanced urban planning, grid-like streets, and sophisticated drainage systems. The two largest sites are Harappa and Mohenjo-Daro.
