CUET 2026 May 30 Shift 2 Biology

Question Paper (Memory-Based) with Solutions

Conducted by National Testing Agency (NTA)

General Instructions

(i) The examination will be conducted in Computer-Based Test (CBT) mode.

(ii) Each question carries +5 marks for correct answer and -1 mark for wrong answer.

(iii) The total number of questions are 50.

(iv) Duration of the exam is 1 hour (60 minutes).

1. RNA interference (RNAi) is a process that results in

(A) Replication of mRNA

(B) Inhibition of translation of mRNA

(C) Synthesis of proteins at a faster rate

(D) Duplication of DNA

Correct Answer: (B) Inhibition of translation of mRNA

Solution:

Step 1: Recall the concept of RNA interference.

RNA interference (RNAi) is a biological process in which a specific mRNA molecule is silenced by complementary RNA molecules.

Step 2: Understand its mechanism.

Double-stranded RNA (dsRNA) produces small interfering RNAs (siRNA), which bind to the target mRNA.

Step 3: Determine the effect.

Binding of siRNA leads to degradation of mRNA or prevents its translation.

Hence,

Translation of mRNA is inhibited

Therefore,

(B)

is the correct answer.

Quick Tip: RNAi is used in biotechnology to silence specific genes.

Example:

RNAi in nematode-resistant tobacco plants

Remember:

RNAi ⇒ Gene Silencing

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2. Match the structural genes of the Lac Operon in Column I with their functions in Column II.

Column I		**Column II**	
(A)	$lacZ$	(I)	$Permease$
(B)	$lacY$	(II)	$Transacetylase$
(C)	$lacA$	(III)	β-galactosidase

Choose the correct answer from the options given below:

(A) A-I, B-II, C-III

(B) A-III, B-I, C-II

(C) A-II, B-III, C-I

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

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

Solution:

Step 1: Recall the structural genes of the Lac Operon.

The Lac Operon contains three structural genes:

$$lacZ,\ lacY,\ lacA$$

Step 2: Recall their functions.

$$lacZ \rightarrow \beta\text{-galactosidase}$$

$$lacY \rightarrow \text{Permease}$$

$$lacA \rightarrow \text{Transacetylase}$$

Step 3: Match the columns.

$$A \rightarrow III$$

$$B \rightarrow I$$

$$C \rightarrow II$$

Thus,

$$\boxed{A-III,\ B-I,\ C-II}$$

Therefore,

$$\boxed{\text{(B)}}$$

is the correct answer.

Quick Tip: Lac Operon Gene Functions:

$$\boxed{lacZ \rightarrow \beta\text{-galactosidase}}$$

$$\boxed{lacY \rightarrow \text{Permease}}$$

$$\boxed{lacA \rightarrow \text{Transacetylase}}$$

A very common CUET/NEET molecular genetics question.

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3. Androgens are primarily secreted by which of the following cells?

(A) Sertoli cells

(B) Leydig cells (Interstitial cells)

(C) Spermatogonia

(D) Follicular cells

Correct Answer: (B) Leydig cells (Interstitial cells)

Solution:

Step 1: Recall the male reproductive hormones.

The principal male sex hormone is:

$$\boxed{\text{Testosterone}}$$

which belongs to the group of hormones called androgens.

Step 2: Identify the secreting cells.

The interstitial cells present between seminiferous tubules are called:

$$\boxed{\text{Leydig Cells}}$$

These cells secrete testosterone and other androgens.

Step 3: Evaluate the options.

- Sertoli cells → Nourish sperms ×

- Leydig cells → Secrete androgens ✓
- Spermatogonia → Germ cells ×
- Follicular cells → Female reproductive system ×

Therefore,

Leydig Cells

are responsible for androgen secretion.

Hence,

(B)

is the correct answer.

Quick Tip: Remember:

Leydig Cells → Testosterone

Sertoli Cells → Nourishment of Sperms

This distinction is frequently asked in CUET Biology.

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4. A test cross is performed by crossing an F_1 individual with

(A) Homozygous dominant parent

(B) Heterozygous parent

(C) Recessive parent

(D) Any parent

Correct Answer: (C) Recessive parent

Solution:

Step 1: Recall the definition of a test cross.

A test cross is used to determine the genotype of an individual showing a dominant phenotype.

Step 2: Identify the crossing partner.

The individual of unknown genotype is crossed with:

$$\boxed{\text{Homozygous Recessive Parent}}$$

Step 3: Understand its purpose.

If the unknown individual is heterozygous, both dominant and recessive phenotypes appear in the offspring.

If it is homozygous dominant, all offspring show the dominant phenotype.

Thus,

$$\boxed{\text{Test Cross} = \text{F}_1 \times \text{Recessive Parent}}$$

Therefore,

$$\boxed{\text{(C)}}$$

is the correct answer.

Quick Tip: Important Crosses:

$$\boxed{\text{Test Cross} = \text{Unknown} \times \text{Homozygous Recessive}}$$

$$\boxed{\text{Back Cross} = F_1 \times \text{Either Parent}}$$

Every test cross is a back cross, but every back cross is not a test cross.

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5. Arrange the following steps of the Polymerase Chain Reaction (PCR) in the correct sequence.

1. Primer Annealing
2. Denaturation

3. Extension by DNA Polymerase

Choose the correct answer from the options given below:

(A) 1 → 2 → 3

(B) 2 → 1 → 3

(C) 3 → 2 → 1

(D) 2 → 3 → 1

Correct Answer: (B) 2 → 1 → 3

Solution:

Step 1: Recall the purpose of PCR.

PCR is a technique used to amplify a specific DNA segment and produce millions of copies.

Step 2: Identify the first step.

The DNA strands are first separated by heating.

Denaturation

Step 3: Identify the second step.

Primers bind to complementary DNA sequences.

Annealing

Step 4: Identify the final step.

Taq DNA polymerase synthesizes new DNA strands.

Extension

Hence the correct sequence is:

Denaturation → Annealing → Extension

2 → 1 → 3

Therefore,

$$\boxed{\text{(B)}}$$

is the correct answer.

Quick Tip: PCR Steps:

$$\boxed{\text{D} \rightarrow \text{A} \rightarrow \text{E}}$$

$$\boxed{\text{Denaturation} \rightarrow \text{Annealing} \rightarrow \text{Extension}}$$

Remember:

$$\boxed{\text{PCR uses Taq DNA Polymerase}}$$

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6. Copper-T prevents pregnancy mainly by

(A) Inhibiting ovulation

(B) Killing spermatozoa and reducing sperm motility

(C) Blocking implantation by destroying the zygote

(D) Preventing fertilization by hormone secretion

Correct Answer: (B) Killing spermatozoa and reducing sperm motility

Solution:

Step 1: Recall what Copper-T is.

Copper-T is an intrauterine contraceptive device (IUD) placed inside the uterus.

Step 2: Understand the role of copper ions.

Copper ions released from the device:

- Increase phagocytosis of sperms
- Reduce sperm motility
- Reduce sperm fertilizing capacity

Step 3: Determine the correct mechanism.

Thus Copper-T mainly prevents fertilization by adversely affecting sperm activity.

Kills spermatozoa and reduces sperm motility

Hence,

(B)

is the correct answer.

Quick Tip: Examples of IUDs:

Copper-T

Cu-7

Multiload-375

Copper ions:

Decrease sperm motility and fertilizing capacity

A very important NCERT fact for CUET Biology.

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7. Orchid growing on a mango tree is an example of

(A) Parasitism

(B) Mutualism

(C) Commensalism

(D) Predation

Correct Answer: (C) Commensalism

Solution:

Step 1: Recall the interaction between orchid and mango tree.

An orchid grows on the branches of a mango tree to obtain support and better access to sunlight.

Step 2: Determine the effect on both organisms.

Orchid benefits

Mango tree neither benefits nor is harmed

Step 3: Identify the ecological interaction.

When one species benefits and the other remains unaffected, the interaction is called:

$$\boxed{\text{Commensalism}}$$

Therefore,

$$\boxed{\text{(C)}}$$

is the correct answer.

Quick Tip: Ecological Interactions:

$(+, +) \rightarrow$ Mutualism

$(+, 0) \rightarrow$ Commensalism

$(+, -) \rightarrow$ Parasitism / Predation

NCERT Example:

$$\boxed{\text{Orchid} + \text{Mango Tree} = \text{Commensalism}}$$

8. The symbol r in population ecology represents

(A) Carrying capacity

(B) Natality rate

(C) Intrinsic rate of natural increase

(D) Mortality rate

Correct Answer: (C) Intrinsic rate of natural increase

Solution:

Step 1: Recall the population growth equation.

For exponential population growth,

$$\frac{dN}{dt} = rN$$

where N is the population size.

Step 2: Interpret the term r.

The parameter r represents the growth potential of a population under ideal environmental conditions.

$$r = \text{Intrinsic Rate of Natural Increase}$$

Step 3: Identify the correct option.

Thus,

$$\boxed{r = \text{Intrinsic Rate of Natural Increase}}$$

Therefore,

$$\boxed{\text{(C)}}$$

is the correct answer.

Quick Tip: Population Growth Equations:

Exponential Growth:

$$\boxed{\frac{dN}{dt} = rN}$$

Logistic Growth:

$$\boxed{\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right)}$$

where

$$K = \text{Carrying Capacity}$$

and

$$r = \text{Intrinsic Rate of Natural Increase}$$

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9. Arrange the following trophic levels in the correct sequence of a food chain starting from producers.

1. Secondary Consumer
2. Producer
3. Primary Consumer
4. Tertiary Consumer

Choose the correct answer from the options given below:

(A) 2 → 3 → 1 → 4

(B) 1 → 2 → 3 → 4

(C) 2 → 1 → 3 → 4

(D) 3 → 2 → 1 → 4

Correct Answer: (A) 2 → 3 → 1 → 4

Solution:

Step 1: Recall the definition of a food chain.

A food chain represents the transfer of energy from one trophic level to another.

Step 2: Identify the trophic levels.

Producer

↓

Primary Consumer

↓

Secondary Consumer

↓

Tertiary Consumer

Step 3: Match with the numbering.

$$2 \rightarrow 3 \rightarrow 1 \rightarrow 4$$

Hence,

$$\boxed{2 \rightarrow 3 \rightarrow 1 \rightarrow 4}$$

Therefore,

$$\boxed{\text{(A)}}$$

is the correct answer.

Quick Tip: Typical Food Chain:

Grass → Rabbit → Fox → Tiger

Producer:

Grass

Primary Consumer:

Rabbit

Secondary Consumer:

Fox

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10. Match the following conservation strategies with their corresponding examples.

Column I		Column II	
(A)	$Ex-situ\ Conservation$	(I)	$BiosphereReserve$
(B)	$In-situ\ Conservation$	(II)	$WildlifeSanctuary$
(C)	$GeneBank$	(III)	$Cryopreservation$
(D)	$BotanicalGarden$	(IV)	$Conservationoutsidenaturalhabitat$

Choose the correct answer from the options given below:

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

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

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

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

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

Solution:

Step 1: Recall Ex-situ Conservation.

Conservation carried out outside the natural habitat is called:

$$\boxed{\text{Ex-situ Conservation}}$$

Examples include botanical gardens, zoological parks and gene banks.

Step 2: Recall In-situ Conservation.

Conservation within the natural habitat is called:

$$\boxed{\text{In-situ Conservation}}$$

Example:

$$\boxed{\text{Wildlife Sanctuary}}$$

Step 3: Recall Gene Banks.

Gene banks preserve genetic material through:

$$\boxed{\text{Cryopreservation}}$$

Step 4: Match the columns.

$$A \rightarrow IV$$

$$B \rightarrow II$$

$$C \rightarrow III$$

$$D \rightarrow IV$$

Thus,

$$\boxed{A-IV,\ B-II,\ C-III,\ D-IV}$$

Therefore,

(C)

is the correct answer.

Quick Tip: Conservation Methods:

In-situ → National Parks, Sanctuaries, Biosphere Reserves

Ex-situ → Zoos, Botanical Gardens, Gene Banks

Remember:

Cryopreservation → Gene Banks