

CUET 2026 May 25 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. The growth curve observed in a population growing under limited resources is:

- (A) J-shaped curve
- (B) S-shaped curve
- (C) Zig-zag curve
- (D) Bell-shaped curve

Correct Answer: (B) S-shaped curve

Solution:

Concept: Population growth under resource limitation follows the logistic growth model.

The logistic growth equation is:

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

where:

N = Population density

r = Intrinsic rate of increase

K = Carrying capacity

Step 1: Understand unlimited resource growth.

When resources are unlimited, population increases exponentially and forms a:

J-shaped curve

Step 2: Understand limited resource growth.

When resources become limited:

- Population growth slows down
- Competition increases
- Population stabilizes near carrying capacity

This produces an:

S-shaped (sigmoid) curve

Therefore, the correct answer is:

S-shaped curve

Quick Tip: Remember:

Exponential growth → J-shape

Logistic growth → S-shape

Carrying capacity (K) limits population growth.

2. Assertion (A): Viroids are infectious RNA particles without a protein coat.

Reason (R): Viroids mainly infect plants and cause diseases like potato spindle tuber disease.

- (A) Both A and R are true and R is the correct explanation of A
(B) Both A and R are true but R is not the correct explanation of A
(C) A is true but R is false
(D) A is false but R is true

Correct Answer: (B) Both A and R are true but R is not the correct explanation of A

Solution:

Step 1: Check Assertion (A).

Viroids are:

- Small infectious RNA molecules
- Lack protein coat
- Simpler than viruses

Hence Assertion (A) is true.

Step 2: Check Reason (R).

Viroids infect plants and can cause diseases such as:

Potato spindle tuber disease

Hence Reason (R) is also true.

Step 3: Check explanation relation.

Reason (R) gives an example of disease caused by viroids, but it does not explain why viroids lack protein coat.

Hence:

Both A and R are true but R is not the correct explanation

Quick Tip: Remember:

- Virus = nucleic acid + protein coat
- Viroid = naked RNA only
- Prion = infectious protein particle

3. Match the following:

List-I		List-II	
(A)	Darwin	(I)	Theory of Natural Selection
(B)	H.M.S. Beagle	(II)	Voyage related to evolution studies
(C)	Mimicry	(III)	Protective resemblance
(D)	Pathogen	(IV)	Disease causing organism

Choose the correct answer from the options given below:

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

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

Solution:

Step 1: Match Darwin.

Darwin proposed:

Theory of Natural Selection

Thus:

$$A \rightarrow I$$

Step 2: Match H.M.S. Beagle.

H.M.S. Beagle was the ship used during Darwin's voyage.

Thus:

$$B \rightarrow II$$

Step 3: Match Mimicry and Pathogen.

Mimicry:

Protective resemblance

Pathogen:

Disease causing organism

Thus:

$$C \rightarrow III$$

$$D \rightarrow IV$$

Therefore:

$$A-I, B-II, C-III, D-IV$$

Quick Tip: Remember:

Darwin \rightarrow Natural Selection

H.M.S. Beagle \rightarrow Darwin's voyage

Pathogen \rightarrow Disease causing agent

4. DNA ligase is mainly used in biotechnology because it:

- (A) Cuts DNA at specific sites
- (B) Joins DNA fragments together
- (C) Synthesizes RNA molecules
- (D) Breaks hydrogen bonds

Correct Answer: (B) Joins DNA fragments together

Solution:

Concept: DNA ligase acts as a molecular glue in recombinant DNA technology.

Step 1: Understand function of DNA ligase.

DNA ligase:

- Joins DNA fragments
- Forms phosphodiester bonds
- Helps produce recombinant DNA

Step 2: Eliminate incorrect options.

- Restriction enzymes cut DNA
- RNA polymerase synthesizes RNA
- Helicase breaks hydrogen bonds

Therefore, the correct answer is:

Joins DNA fragments together

Quick Tip: Remember:

Restriction enzyme → Cuts DNA

DNA ligase → Joins DNA

5. In gel electrophoresis, DNA fragments are separated mainly on the basis of:

- (A) Shape
- (B) Density
- (C) Charge only
- (D) Size

Correct Answer: (D) Size

Solution:

Concept: Gel electrophoresis is a technique used to separate DNA fragments.

DNA molecules are negatively charged due to phosphate groups and move towards the positive electrode.

Step 1: Understand movement of DNA in gel.

When electric current is passed:

- DNA fragments move through agarose gel
- Smaller fragments move faster
- Larger fragments move slower

Step 2: Identify basis of separation.

Since smaller fragments travel more distance in the same time:

DNA fragments are separated based on size

Therefore, the correct answer is:

Size

Quick Tip: Remember:

Smaller DNA fragment → Moves faster in gel

Larger DNA fragment → Moves slower

6. During oogenesis, the primary oocyte remains arrested in:

- (A) Metaphase-II
- (B) Prophase-I
- (C) Anaphase-I
- (D) Telophase-II

Correct Answer: (B) Prophase-I

Solution:

Concept: Oogenesis is the process of formation of female gametes.

Step 1: Understand primary oocyte formation.

During fetal life:

- Oogonia divide mitotically
- They form primary oocytes

Step 2: Identify arrest stage.

Primary oocytes begin meiosis-I but get arrested at:

Prophase-I

specifically in diplotene stage.

Step 3: Understand completion.

The arrested oocyte resumes meiosis only after puberty during ovulation.

Therefore, the correct answer is:

Prophase-I

Quick Tip: Remember:

Primary oocyte → Prophase-I arrest

Secondary oocyte → Metaphase-II arrest

7. Match the following phases of menstrual cycle with their characteristic events:

List-I		List-II	
(A)	Menstrual phase	(I)	Ovulation occurs
(B)	Follicular phase	(II)	Breakdown of endometrium
(C)	Ovulatory phase	(III)	Corpus luteum formation
(D)	Luteal phase	(IV)	Follicular growth

Choose the correct answer from the options given below:

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

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

Solution:

Step 1: Identify menstrual phase.

During menstrual phase:

Endometrium breaks down

Thus:

$$A \rightarrow II$$

Step 2: Identify follicular phase.

During follicular phase:

Ovarian follicles grow

Thus:

$$B \rightarrow IV$$

Step 3: Identify ovulatory and luteal phases.

Ovulatory phase:

Ovulation occurs

Luteal phase:

Corpus luteum forms

Thus:

$$C \rightarrow I$$

$$D \rightarrow III$$

Therefore:

$$A - II, B - IV, C - I, D - III$$

Quick Tip: Remember:

- Menstrual phase → Endometrial shedding
- Follicular phase → Follicle growth
- Ovulation → Release of ovum
- Luteal phase → Corpus luteum

8. The female reproductive part of a flower is:

- (A) Stamen
- (B) Anther
- (C) Pistil
- (D) Filament

Correct Answer: (C) Pistil

Solution:

Concept: A flower contains male and female reproductive organs.

Step 1: Identify male reproductive parts.

Male reproductive organ:

Stamen

It consists of:

Anther + Filament

Step 2: Identify female reproductive part.

Female reproductive organ:

Pistil (Carpel)

It consists of:

- Stigma
- Style
- Ovary

Therefore, the correct answer is:

Pistil

Quick Tip: Remember:

Stamen → Male part

Pistil/Carpel → Female part

9. Assertion (A): In RNA, thymine is replaced by uracil.

Reason (R): Uracil pairs with adenine during base pairing.

- (A) Both A and R are true and R is the correct explanation of A
- (B) Both A and R are true but R is not the correct explanation of A
- (C) A is true but R is false
- (D) A is false but R is true

Correct Answer: (B) Both A and R are true but R is not the correct explanation of A

Solution:

Step 1: Check Assertion (A).

RNA contains:

Adenine, Guanine, Cytosine and Uracil

Instead of thymine, RNA contains uracil.

Hence Assertion (A) is true.

Step 2: Check Reason (R).

Uracil pairs with adenine through hydrogen bonding.

Hence Reason (R) is also true.

Step 3: Check explanation relation.

The reason states the pairing property of uracil, but it does not explain why thymine is absent in RNA.

Thus:

Both A and R are true but R is not the correct explanation

Quick Tip: Remember:

DNA → Contains Thymine

RNA → Contains Uracil

10. Which of the following statements regarding gene therapy is correct?

- (A) It is used only in plants
- (B) It involves replacement or correction of defective genes
- (C) It destroys all genes inside the body
- (D) It is a method of protein digestion

Correct Answer: (B) It involves replacement or correction of defective genes

Solution:

Concept: Gene therapy is a modern biotechnological technique used to treat genetic disorders.

Step 1: Understand gene therapy.

Gene therapy aims to:

- Replace defective genes
- Correct abnormal genes
- Introduce functional genes

Step 2: Eliminate incorrect options.

- It is not limited to plants
- It does not destroy all genes
- It is unrelated to protein digestion

Therefore, the correct answer is:

Replacement or correction of defective genes

Quick Tip: Remember:

Gene therapy → Treats genetic disorders

It works by introducing functional genes into cells.
