

CUET 2026 May 19 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 ratio of number of microspore tetrads formed : total microspores produced from 50 MMCs is

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

Correct Answer: (C) 1 : 4

Solution:

Microspore mother cells (MMCs) undergo meiosis to produce microspores.

Step 1: Formation of tetrads

- One MMC undergoes meiosis.
- It forms one microspore tetrad.
- Each tetrad contains four microspores.

Step 2: Number of tetrads formed from 50 MMCs

$$50 \text{ MMCs} \Rightarrow 50 \text{ microspore tetrads}$$

Step 3: Total microspores formed Since each tetrad contains four microspores:

$$50 \times 4 = 200$$

Thus:

$$\text{Total microspores} = 200$$

Step 4: Find the required ratio

$$\text{Microspore tetrads} : \text{Total microspores} = 50 : 200$$

$$= 1 : 4$$

Option analysis:

- Option (A): Incorrect
- Option (B): Incorrect
- Option (C): Correct
- Option (D): Incorrect

Therefore:

(C)

Quick Tip: One MMC \Rightarrow one tetrad \Rightarrow four microspores.

2. The position of antipodals in mature embryo sac in angiosperm plant is

- (A) At chalazal end
- (B) At micropylar end
- (C) In central part
- (D) In synergid

Correct Answer: (A) At chalazal end

Solution:

The mature embryo sac of angiosperms is typically:

7-celled and 8-nucleate

It contains:

- Three antipodal cells
- Two synergids
- One egg cell
- One central cell containing two polar nuclei

Step 1: Position of egg apparatus

- Egg cell and synergids together form the egg apparatus.
- They are present at the micropylar end.

Step 2: Position of antipodal cells

- Antipodal cells are located opposite to the micropylar end.
- Hence they are present at the chalazal end.

Option analysis:

- Option (A): Correct
- Option (B): Incorrect, egg apparatus is present here
- Option (C): Incorrect
- Option (D): Incorrect, synergid is a cell type not a position

Therefore:

(A)

Quick Tip: In embryo sac:

Micropylar end → Egg apparatus

Chalazal end → Antipodal cells

3. Identify the correct sequence of mature embryo formation from zygote.

Stages given:

- (A) Heart-shaped embryo
- (B) Globular embryo
- (C) Proembryo
- (D) Mature embryo

Choose the correct answer from the options given below:

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

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

Solution:

Embryo development in angiosperms occurs in a definite sequence starting from the zygote.

Step 1: Formation of proembryo

- The zygote first undergoes mitotic divisions.
- This early developmental stage is called proembryo.

Step 2: Formation of globular embryo

- Further divisions produce a spherical structure.
- This stage is called globular embryo.

Step 3: Formation of heart-shaped embryo

- In dicot embryos, cotyledons begin to develop.

- The embryo acquires a heart-like shape.

Step 4: Formation of mature embryo

- The embryo fully differentiates into mature embryo.
- It contains plumule, radicle and cotyledons.

Thus, the correct sequence is:

$(C) \rightarrow (B) \rightarrow (A) \rightarrow (D)$

Option analysis:

- Option (A): Incorrect order
- Option (B): Incorrect order
- Option (C): Incorrect order
- Option (D): Correct

Therefore:

(D)

Quick Tip: Sequence of embryo development:

Proembryo → Globular embryo → Heart-shaped embryo → Mature embryo

4. Match List-I with List-II.

Choose the correct answer from the options given below:

List-I (Hormones)		List-II (Role/functions)	
(A)	LH	(I)	Causes stronger uterine contractions
(B)	FSH	(II)	Essential for maintenance of the endometrium during menstrual cycle
(C)	Oxytocin	(III)	Acts on Leydig cells and stimulates synthesis and secretion of androgens
(D)	Progesterone	(IV)	Acts on Sertoli cells and stimulates secretion of some factors which help in spermiogenesis

(A) $A \rightarrow (I), B \rightarrow (II), C \rightarrow (III), D \rightarrow (IV)$

(B) $A \rightarrow (III), B \rightarrow (I), C \rightarrow (II), D \rightarrow (IV)$

(C) $A \rightarrow (I), B \rightarrow (II), C \rightarrow (IV), D \rightarrow (III)$

(D) $A \rightarrow (III), B \rightarrow (IV), C \rightarrow (I), D \rightarrow (II)$

Correct Answer: (D) $A \rightarrow (III), B \rightarrow (IV), C \rightarrow (I), D \rightarrow (II)$

Solution:

Step 1: Function of LH

- LH acts on Leydig cells.
- It stimulates synthesis and secretion of androgens.

Thus:

$A \rightarrow (III)$

Step 2: Function of FSH

- FSH acts on Sertoli cells.
- It stimulates secretion of factors important for spermiogenesis.

Thus:

$$B \rightarrow (IV)$$

Step 3: Function of Oxytocin

- Oxytocin stimulates uterine muscle contractions during childbirth.

Thus:

$$C \rightarrow (I)$$

Step 4: Function of Progesterone

- Progesterone maintains the endometrium during menstrual cycle and pregnancy.

Thus:

$$D \rightarrow (II)$$

Therefore, the correct matching is:

$$A \rightarrow (III), \quad B \rightarrow (IV), \quad C \rightarrow (I), \quad D \rightarrow (II)$$

Hence:

(D)

Quick Tip: LH: Leydig cells

FSH: Sertoli cells

Oxytocin: Uterine contractions

Progesterone: Maintains endometrium

5. Select the correct statements regarding menstrual cycle in human female:

- (A) The first menstruation begins at puberty and is called menopause.
- (B) The ovulation takes place in the middle of cycle (about 14th day), when the level of progesterone is at maximum level.
- (C) In absence of fertilisation, the corpus luteum degenerates which causes the disintegration of

endometrium leading to menstruation.

(D) In human beings, menstrual cycle ceases around 50 years of age.

Choose the correct answer from the options given below:

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

Correct Answer: (D) (C) and (D) only

Solution:

Step 1: Analyze statement (A)

- The first menstruation at puberty is called:

menarche

- Menopause refers to permanent cessation of menstrual cycle around 45 – 50 years.

Thus:

(A) is incorrect

Step 2: Analyze statement (B)

- Ovulation generally occurs around:

14th day

of menstrual cycle.

- However, progesterone level is not maximum at ovulation.
- Progesterone reaches maximum during luteal phase after ovulation.

Thus:

(B) is incorrect

Step 3: Analyze statement (C)

- In absence of fertilisation, corpus luteum degenerates.
- This decreases progesterone level.
- Endometrium breaks down and menstruation occurs.

Thus:

(C) is correct

Step 4: Analyze statement (D)

- Menstrual cycle generally ceases around:

50 years

of age.

- This stage is called menopause.

Thus:

(D) is correct

Therefore, the correct statements are:

(C) and (D)

Hence:

(D)

Quick Tip:

Menarche → Beginning of menstruation

Menopause → Permanent cessation of menstruation

6. Arrange the following ducts pertaining to male reproductive system starting from seminiferous tubules.

Ducts given:

- (A) Vas deferens
- (B) Vasa efferentia
- (C) Rete testis
- (D) Epididymis

Choose the correct answer from the options given below:

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

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

Solution:

Sperms formed in seminiferous tubules pass through a definite sequence of ducts in male reproductive system.

Step 1: Seminiferous tubules open into:

Rete testis

Thus first duct is:

(C)

Step 2: Rete testis opens into:

Vasa efferentia

Thus next duct is:

(B)

Step 3: Vasa efferentia open into:

Epididymis

Thus next duct is:

(D)

Step 4: Epididymis continues as:

Vas deferens

Thus final duct is:

(A)

Therefore, the correct sequence is:

(C) → (B) → (D) → (A)

Option analysis:

- Option (A): Incorrect order
- Option (B): Incorrect order
- Option (C): Incorrect order
- Option (D): Correct

Hence:

(D)

Quick Tip: Path of sperms:

Seminiferous tubules → Rete testis → Vasa efferentia → Epididymis → Vas deferens

7. Which of the following statements is incorrect with respect to Medical Termination of Pregnancy?

- (A) They are considered safe during the first trimester.
- (B) It is legalized in India from 1971.
- (C) MTPs can be performed even after 24 weeks, but with the opinion of 2 registered medical practitioners on specific grounds.
- (D) About 20% of the total number of concerned pregnancies undergo MTP in a year globally.

Correct Answer: (C) MTPs can be performed even after 24 weeks, but with the opinion of 2

registered medical practitioners on specific grounds.

Solution:

Medical Termination of Pregnancy (MTP) refers to intentional termination of pregnancy before full term.

Step 1: Analyze statement (A)

- MTP is considered relatively safe during:

first trimester

- Risk increases in later stages of pregnancy.

Thus:

(A) is correct

Step 2: Analyze statement (B)

- MTP was legalized in India under:

Medical Termination of Pregnancy Act, 1971

Thus:

(B) is correct

Step 3: Analyze statement (C)

- NCERT states that MTPs are generally safe only during first trimester.
- Termination after advanced stages is not generally permitted except under special legal and medical conditions.
- The given statement is not accepted as correct in standard NCERT context.

Thus:

(C) is incorrect

Step 4: Analyze statement (D)

- Approximately:

20%

of pregnancies worldwide are medically terminated every year.

Thus:

(D) is correct

Therefore, the incorrect statement is:

(C)

Hence:

(C)

Quick Tip: MTP is considered safest during:

first trimester

and was legalized in India in:

1971

8. Select the correctly matched pair about sickle cell anaemia: Genotype : Phenotype

- (A) $Hb^A Hb^A$: Diseased phenotype
- (B) $Hb^A Hb^S$: Diseased phenotype
- (C) $Hb^S Hb^S$: Diseased phenotype
- (D) $Hb^S Hb^A$: Carrier of disease

Choose the correct answer from the options given below:

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

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

Solution:

Sickle cell anaemia is an autosomal recessive genetic disorder caused by abnormal haemoglobin:



Step 1: Analyze genotype $Hb^A Hb^A$

- Both alleles are normal.
- Individual is healthy.

Thus:

(A) is incorrect

Step 2: Analyze genotype $Hb^A Hb^S$

- Individual is heterozygous.
- Such individuals are carriers of disease.
- They generally do not show diseased phenotype.

Thus:

(B) is incorrect

Step 3: Analyze genotype $Hb^S Hb^S$

- Both alleles are sickle-cell alleles.
- Individual shows diseased phenotype.

Thus:

(C) is correct

Step 4: Analyze genotype $Hb^S Hb^A$

- This is heterozygous condition.
- Individual acts as carrier of disease.

Thus:

(D) is correct

Therefore, the correctly matched pairs are:

(C) and (D)

Hence:

(A)

Quick Tip:

$Hb^S Hb^S \Rightarrow$ Diseased

$Hb^A Hb^S \Rightarrow$ Carrier

9. Given below are two statements:

Statement I: Phenylketonuria is an example of pleiotropy

Statement II: Affected individuals lack an enzyme which converts phenylalanine into tyrosine.

In the light of the above statements, choose the most appropriate answer from the options given below:

- (A) Both Statement I and Statement II are correct
- (B) Both Statement I and Statement II are incorrect
- (C) Statement I is correct but Statement II is incorrect
- (D) Statement I is incorrect but Statement II is correct

Correct Answer: (A) Both Statement I and Statement II are correct

Solution:

Step 1: Analyze Statement I

- Phenylketonuria is a genetic disorder caused by mutation in a single gene.

- This single gene affects multiple traits such as mental development, skin pigmentation and metabolism.
- A single gene influencing multiple phenotypic traits is called:

pleiotropy

Thus:

Statement I is correct

Step 2: Analyze Statement II

- In phenylketonuria, the enzyme:

phenylalanine hydroxylase

is absent or deficient.

- Normally this enzyme converts:

phenylalanine \rightarrow tyrosine

- Due to enzyme deficiency, phenylalanine accumulates in body tissues.

Thus:

Statement II is correct

Therefore:

Both Statement I and Statement II are correct

Hence:

(A)

Quick Tip: Phenylketonuria:

Deficiency of phenylalanine hydroxylase

It is a classic example of:

pleiotropy

10. The scientist who noted that “The behaviour of chromosomes was parallel to the behaviour of genes” were:

- (A) Sutton and Boveri
- (B) de Vries, Correns and Tschermak
- (C) Punnett and Bateson
- (D) Morgan and Bridges

Correct Answer: (A) Sutton and Boveri

Solution:

Step 1: Recall chromosomal theory of inheritance

- Walter Sutton and Theodor Boveri observed similarities between:

behaviour of chromosomes

and:

behaviour of Mendelian factors (genes)

during meiosis.

Step 2: Their observations They noted that:

- Chromosomes occur in pairs.
- Genes also occur in pairs.
- Chromosomes segregate during gamete formation.
- Genes also segregate according to Mendel’s law.

These observations led to:

Chromosomal Theory of Inheritance

Step 3: Analyze other options

- de Vries, Correns and Tschermak rediscovered Mendel's laws.
- Punnett and Bateson worked on linkage.
- Morgan and Bridges provided experimental proof of chromosomal theory.

Thus the scientists who first noted the parallel behaviour were:

Sutton and Boveri

Therefore:

(A)

Quick Tip: Sutton and Boveri proposed:

Chromosomal Theory of Inheritance

by correlating chromosome behaviour with Mendelian inheritance.