

**Class: XII****Time Allowed: 35 minutes****MODEL PAPER EXAMINATION 2025****SUBJECT: BIOLOGY****SECTION "A"****Marks: 17****Note:** Attempt **ALL** questions from this section. Each question carries **ONE** mark.

1. The source of carbon for plants in the carbon cycle is:

A. Carbonate rocks	B. Atmospheric carbon dioxide
C. Fossil fuels	D. All of the above
2. Polymerase chain reaction (PCR) is a technique used to amplify DNA. What is the significance of PCR?

A. To sequence DNA	B. To identify genetic disorders
C. To study gene expression	D. All of the above
3. Which of the following stimulates the contraction of uterine muscles?

A. Oxytocin	B. Thyroxin	C. Growth hormone	D. Insulin
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4. Which of the following supported the theory of special creation?

A. George Buffon	B. Lamarck	C. Darwin	D. Suarez
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5. The genetic material of a fertilized egg is a combination of:

A. The mother's DNA only	B. The father's DNA only
C. Both the mother's and father's DNA	D. None of the above
6. Which of the following are **not** analogous organs?

A. Wing of insects	B. Wings of birds	C. Wings of bats	D. Arm of a man
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7. The theory on human population that inspired Darwin was proposed by:

A. Malthus	B. Lyell	C. Hutton	D. Wallace
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8. The process of cell differentiation involves:

A. The formation of gametes	B. The formation of zygotes
C. The specialization of cells for different functions	D. The replication of DNA
9. Southern blotting is a technique used to transfer DNA fragments from gel to a membrane. What is the significance of Southern blotting?

A. To identify genetic disorders	B. To sequence DNA
C. To study gene expression	D. All of the above
10. Life originated in:

A. Air	B. Water	C. Land	D. Space
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11. The pioneers in xerarch succession are:

A. Foliose lichens	B. Mosses	C. Crustose lichens	D. Shrubs
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12. Workers (honey bees) are:

A. Fertile females	B. Fertile males	C. Sterile females	D. Sterile males
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13. The International Society of Blood Transfusion has found more than:

A. 10 blood systems	B. 20 blood systems	C. 30 blood systems	D. 40 blood systems
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14. The major inhibitory neurotransmitter of the brain is:

A. Acetylcholine	B. Epinephrine	C. GABA	D. Endorphin
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15. Which of the following are synthesized from the amino acid tyrosine?

A. Epinephrine	B. Catecholamines	C. Thyroxine	D. All of the above
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16. "Philosophie Zoologique" was written by:

A. Wallace	B. Darwin	C. Weismann	D. Lamarck
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17. Which of the following dietary requirements is involved in nitrogen balance?

A. Carbohydrates	B. Vitamins	C. Proteins	D. Essential fatty acids
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(Practical Based Assessment)**Marks: 15****Q2:** Attempt **ALL** questions.

- i. A local gym is under scrutiny after several athletes were found using performance-enhancing substances. One coach defends the use of synthetic steroids, saying they "build muscle and improve endurance quickly." A health reporter decides to investigate further.



- A. Explain the role of artificially synthesized steroids in sports. [2 marks]
- B. List two long-term negative effects of steroid use in athletes. [2 marks]
- C. Why are such substances banned in professional sports? Explain any one ethical or health-based reason. [2 marks]



- ii. A psychology student observes how her younger sibling learns to navigate their new home. She notices how he stops reacting to the washing machine noise, learns to open the fridge by watching others, and eventually figures out the door lock mechanism on his own.
- A. From the above-mentioned scenario, match the four types of learning - habituation, conditioning, latent learning, and insight learning – to the given examples. [4 marks]
- B. Provide one new example of each learning type from daily life (not mentioned above). [4 marks]
- C. Why is insight learning considered more complex than the others? [1 mark]

END OF SECTION A

Class: XII

Time: 22 Hours 55 minutes

Q3:

MODEL PAPER EXAMINATION 2025

SUBJECT: BIOLOGY SECTION “B” AND SECTION “C”

SECTION “B” SHORT ANSWER QUESTIONS

Total Marks 68

36 Marks

Note: Answer any **FOUR** questions from Reasoning questions and any **FIVE** questions from non- Reasoning question. All Question carry equal marks:

Q3. (a) Reasoning Questions

- i. How does the structure of DNA contribute to its negative charge, and why is this important for its function?
- ii. How does the name "morula" reflect the characteristics of the early stages of embryonic development, and why is this term used?
- iii. In what ways do homologous organs provide evidence for the theory of evolution?
- iv. What is the significance of livestock in ecological and economic systems?
- v. How do secondary messengers facilitate the action of hydrophilic hormones within target cells, and what role does this mechanism play in cellular communication?
- vi. Can you explain the law of segregation and its relevance to genetics?
- vii. Why do animals produce different types of excretory wastes, and what factors influence this diversity?

Q3. (b) Non-Reasoning Questions.

- i. Differentiate between the following:
 - a. Vegetables of summer and vegetables of winter
 - b. Selection and hybridization
- ii. What is a gene?
- iii. What is a palindrome?
- iv. What are biological rhythms, and why are they important to humans?
- v. What is Rh incompatibility, and why can it be dangerous to the developing fetus and mother?
- vi. What is a stimulus, and how do organisms respond to it?
- vii. What are organizers, and what is the difference between primary and secondary induction?
- viii. Define the following terms:
 - a. Goiter
 - b. Gnath
 - c. Thymosin

SECTION “C” DETAILED ANSWER QUESTIONS

32 Marks

Note: Attempt any **TWO** from this section. All question carries equal marks:

- Q4. (a) Explain the structure and functions of lysosomes.
 (b) What is cellular respiration? Explain types of respiration in detail
- Q5. (a) What is amino acid? Explain peptide linkage formation
 (b) What is inflammation and what are its causes? How can it be controlled?
- Q6. (a) Describe the structure of blood vessels in man.
 (b) What do you understand by autoimmune disorder? Explain the role of T-cell and B-cell in transplant rejection.

END OF PAPER