

Punjab School Education Board

Sample Question Paper

10+2 Biology

Session 2023-24

Note:

1. Question paper has four parts A, B, C, D with total 17 questions.
2. Section-A has question number 1 having 28 parts of 1 mark each. 16 questions are MCQ type, 6 fill in the blanks and 6 are True/false.
3. Section-B has questions number 2 to 11-total 10 short answer type questions of 2 marks each. Question 4,6,9,10 have internal choice.
4. Section-C has questions number 12 to 15 -total 4 questions of 3 marks each. Question 14 and 15 have internal choice.
5. Section-D has question 16 and question 17 -total 2 questions of 5 marks each. Both questions have 100% internal choice.

Section A

Q1)

Each question carries one mark

Multiple Choice Questions

- I. The female gametophyte of a typical dicot at the time of fertilisation is
 - A. 8 – celled
 - B. 7 – celled
 - C. 6 – celled
 - D. 5 – celled
- II. Double fertilization is fusion of
 - A. Two eggs
 - B. Two eggs and polar nuclei
 - C. One male gamete with egg and other with synergid
 - D. One male gamete with egg and other with secondary nucleus
- III. Which among the following is the nutritive layer of anther
 - A. Epidermis
 - B. Endothecium
 - C. Tapetum
 - D. Middle Layers
- IV. Zygote is
 - A. Haploid
 - B. Diploid
 - C. Triploid
 - D. None of these
- V. Which among the following is an example of STD
 - A. Jaundice
 - B. Marasmus
 - C. Gonorrhoea
 - D. All of these

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- VI. Oral contraceptives are used by females to check
- Implantation
 - Fertilization
 - Ovulation
 - Entry of sperm
- VII. Sickle Cell anaemia is caused due to
- Protozoa
 - Virus
 - Bacteria
 - is a genetic disorder
- VIII. Which blood group is universal donor
- A
 - AB
 - B
 - O
- IX. In *E. coli* the Lac Operon get switched on when
- Lactose is present and it binds to repressor
 - Repressor binds to operator
 - RNA polymerase binds to operator
 - Lactose is absent
- X. The bones of forelimbs of whale, bat, cheeah and man are similar in structure, because
- One organism has given rise to another
 - they share a common ancestor
 - they perform the same function.
 - the have biochemical similarities.
- XI. If BOD of sample water is very high, the sample is
- highly polluted
 - less polluted
 - not polluted
 - Potable
- XII. Which of the following drug was first produced by sacrificing animals but is now produced by rDNA technology?
- Pencillin
 - Insulin
 - Paracetamol
 - Bt toxin
- XIII. The principle of competitive exclusion was stated by
- G. F. Gause
 - G.J. Mendel
 - Charles Darwin
 - Watson and Crick
- XIV. The interaction in which one species is benefitted and other is harmed is called
- Mutualism
 - Commensalism
 - Predation
 - Competition
- XV. Which of the following is ex-situ mode of conservation of biodiversity?
- National Park
 - Sacred grooves
 - Cryopreservation
 - Biosphere reserve

Write True or False

- XVI. Androgens are produced by Leydig cells.
- XVII. Insulin consists of 4 short polypeptide chains named as chain A, chain B, Chain C and chain D

- XVIII. The historical convention on biological diversity (The Earth Summit) was held in Rio de Janeiro in 1992.
- XIX. Plants are called producers because they fix atmospheric carbon dioxide.
- XX. Pyramid of energy is always inverted.

Fill in the blanks

- XXI. Haemophilia and Colour blindness arelinked disorders.
- XXII. A sequence of three nitrogen bases that code for an amino acid is called.....
- XXIII. The Residue left after Methane production from cattle dung is used as
- XXIV. Large scale production of biotechnological products involves use of.....
- XXV. Dead plant parts and animal remains are called

Comprehension passage

Read the passage carefully and answer the following questions

Cancerous cells just continue to divide giving rise to masses of cells called tumors. Tumors are of two types: benign and malignant. Benign tumors normally remain confined to their original location and do not spread to other parts of the body and cause little damage. The malignant tumors, on the other hand are a mass of proliferating cells called neoplastic or tumor cells. These cells grow very rapidly, invading and damaging the surrounding normal tissues.

- XXVI. What are the two main type of tumors?
- XXVII. Which type of tumors causes less damage to human body?
- XXVIII. Define neoplastic cells?

Section B

Each question carries 2 marks.

- Q2) Draw a labelled diagram for structure of sperm.
- Q3) Write a note on tubectomy.

OR

Expand
ZIFT
IVF

- Q4) What is incomplete dominance? Give an example.

OR

Define and design a test cross

- Q5) Enlist two essential roles of ribosome during translation
- Q6) What are Analogous organs? Give an example.
- Q7) Draw the labelled diagram for structure of antibody molecule .
- Q8) What are methanogens? Give one example.
- Q9) What are 'molecular scissors'? Give an example.

OR

What is downstreaming process.

- Q10) What are cry proteins? Name the organism that produces it.
- Q11) Define parasitism. Give an example.

OR

What are Sacred groves?

Section C

Each question carries 3 marks

- Q12) Explain the structure of transcription unit with diagram.
- Q13) "Convergent evolution leads to analogous organs" Explain with example.
- Q14) Name the causing agent of Typhoid. Also write down its symptoms and modes of transmission.

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OR

How do biofertilizers enrich the fertility of soil?

Q15) In recombinant DNA technology, vectors are used to transfer a gene of interest in the host cells. Mention any three features of vectors that are most suitable for this purpose.

OR

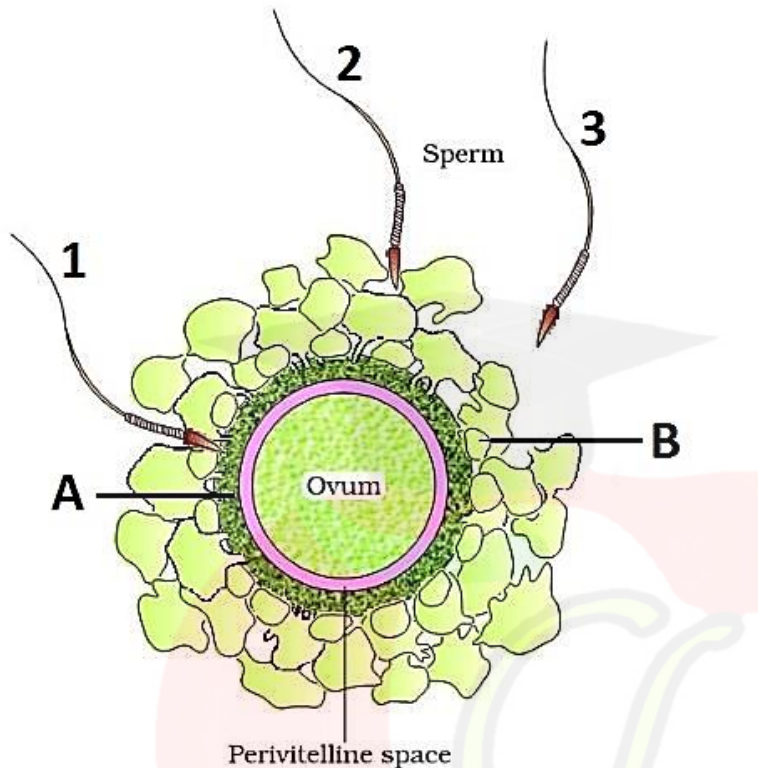
What is gene therapy? Illustrate using the example of adenosine deaminase deficiency.

Section D

Each question carries 5 marks

Q16) With a neat diagram explain 7 celled, 8 nucleate nature of female gametophyte. **OR**

Observe the given diagram and answer the following questions.



- A. What does this diagram depict? 1
- B. Label the parts A and B. 1X2=2
- C. Which one of the sperms would reach the ovum earlier? 1
- D. Name the specific region in the female reproductive system where the event represented in the diagram takes place. 1

Q17) Define ecological pyramids and describe with diagram pyramid of energy and number.

OR

What are main causes of loss of biodiversity?