

28-9-2015

Std. XII(C)

BIOLOGY

Time : 3 hr.

Marks : 70

General Instructions :

- (i) There are a total of 26 questions and five sections in the question paper.
- (ii) Section A contains question no. 1 to 5 of one mark each.
- (iii) Section B contains question no. 6 to 10 of 3 marks each.
- (iv) Section C contains question no. 11 to 22 of 3 marks each.
- (v) Section D contains question no. 23, value based question of 4 marks.
- (vi) Section E contains questions no. 24 to 26, long answer type questions of 5 marks each.
- (vii) Internal Choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks.

SECTION-A

1. Mention the site where syngamy occurs in amphibians and reptiles respectively.
2. Identify and write the correct statement :
 - (a) In grasshopper males, two sex chromosomes are X and Y types.
 - (b) In grasshopper males, there exist XO type of sex determinants.
3. On which plant did Taylor and his colleagues perform their experiments?
4. What are interferons ?
5. Define an anticodon.

SECTION-B

6. Show DNA replication with the help of a diagram.
7. Differentiate between 'capping' and 'tailing'.
8. Name the host and site where the following occur in the life cycle of a malarial parasite
 - (a) Formation of gametocytes
 - (b) Fusion of gametocytes
9. Write the function of :—
 - (a) Acrosome
 - (b) Seminal vesicles.
10. What is apomixis and what is its importance ?

OR

Differentiate between Parthenogenesis and parthenocarpy.

SECTION-C

11. Why is the frequency of red-green colour-blindness more common in males? Explain with the help of a cross.
12. (a) Genetic codes can be universal and degenerate. Write about them, giving one example of each.
 - (b) Explain aminoacylation of t-RNA.
13. (a) When and how does placenta develop in human female.
 - (b) How is the placenta connected to the embryo ?
 - (c) Placenta acts as an endocrine gland. Explain.

14. Draw a labelled diagram of an antheridium.

OR

Draw the Structure of human sperm.

15. A true breeding pea plant homozygous for axial violet flowers is crossed with another pea plant with terminal white flowers (aaVv)
- What would be the phenotype and genotype of F_1 and F_2 generation?
 - Give the phenotypic ratio of F_2 generation
 - List the Mendel's generalisations that can be derived from the above cross.
16. (a) Distinguish between passive and active immunity.
(b) Expand MALT.
17. (a) How does the Mediterranean orchid ophrys ensure its pollination by bees?
(b) Name the type of pollination that ensures genetic variation.
(c) Why do you think the exine should be hard? What is the function of germ pore?
18. Explain why antibody molecule is represented as H_2L_2 .
19. Give reasons :-
- Both strands of DNA are not copied during transcription.
 - DNA is considered a better hereditary material than RNA?
 - Why hn RNA is required to undergo splicing?
20. Explain how the inheritance pattern of the two diseases haemophilia and sickle cell anaemia differ from each other. Write the symptoms of haemophilia and sickle cell anaemia in humans.
21. Describe Frederick Griffith's experiment on streptococcus pneumoniae. Discuss the conclusion he arrived at.
22. A woman has conceived and implantation has occurred in her uterus. Explain the sequence of changes up to parturition which takes place within her body.

SECTION-D

23. In a maternity clinic, for some reasons the authorities are not able to hand over the two newborns to their respective real parents. Name and describe the technique that you would suggest to sort out the matter. What are the other two applications of the same technique.

SECTION-E

24. Explain the life cycle of HIV

OR

- What are primary and secondary lymphoid organs?
- Distinguish between benign and malignant tumour.

25. Explain test cross with example.

OR

Describe the mechanism of inheritance of the ABO system of blood group.

26. Explain Lac-operon model of gene expression.