



Std. 12  
11-01-2018

**Set 2**

Max. Marks : 70  
Time : 3 hrs.

General Instructions:

- i) All questions are compulsory.
- ii) This question paper consists of five Sections A, B, C, D and E. Section A contains 5 questions of one mark each, Section B is of 5 questions of two marks each, and Section C is of 12 questions of three marks each. Section D is of 1 question of four marks and Section E is of 3 questions of five marks each.
- iii) There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks weightage. A student has three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.
- iv) Wherever necessary, the diagrams drawn should be neat and properly labelled.

**SECTION - A**

1. Why do corn cobs have long tassels?
2. How does an alien DNA gain entry into a plant cell by 'BIOLISTIC' method?
3. Pollinating species of wasps show mutualism with specific fig plants. Mention the benefits the female wasps derive from the fig trees from such an interaction.
4. Mention the uses of cloning vectors in Biotechnology.
5. List two advantages of the use of unleaded petrol in automobiles as fuel.

**SECTION - B**

6. Placenta acts as an endocrine tissue. Justify.
7. Explain the mechanism of sex determination in insects like Drosophila and Grasshopper.
8. List the two main propositions of Oparin and Haldane.  
(OR)  
Show the various steps of decomposition of detritus by a ray diagram only.
9. Explain why very small animals are rarely found in polar region.
10. Why is the pyramid of energy always upright? Explain.

**SECTION - C**

11. a) Mention the first event that occurs in the secondary oocyte when a sperms enters it.  
b) Not all copulations lead to pregnancy in humans, Justify the statement.  
c) Name the cell division that occurs during the formation of
  - i) Secondary Spermatocytes
  - ii) Spermatids
12. Both Hemophilia and Thalassemia are blood related disorders in humans. Write their causes and the difference between the two. Name the category of genetic disorder they both come under.
13. Draw a labelled diagram of ovule and label six parts of it.  
(OR)  
Draw the diagram of a human sperm and label any six parts of it.
14. Describe the process of formation of the replication fork during DNA Replication. Diagram is essential.
15. Branching descent and natural selection are the two key concepts of Darwinian Theory of evolution. Explain each concept with the help of suitable examples.
16. Write the sources and the effects on the human body of the following drugs:
  - i) Morphine
  - ii) Cocaine
  - iii) Marijuana

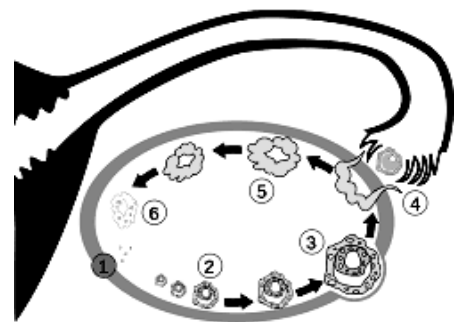
17. Trace the life cycle of malarial parasite in human body when bitten by an infected female anopheles.
18. Mention the cause and effect of inbreeding depression in cattle. How can it be overcome? Explain.
19. a) Write the Palindromic nucleotide sequence for the following DNA segments:-5'-GAATTC-3'  
b) Name the restriction endonuclease that recognizes this sequence.  
c) How are sticky ends produced?
20. Mention the steps undertaken during gene therapy to treat an ADA deficiency patient.
21. Mention the three evil quarter of Biodiversity.
22. How is ozone formed in the stratosphere? Why is it called 'good ozone'?  
What is the contribution of CFCs in creating an ozone hole?

**SECTION - D**

23. A few months ago the people of Ramgarh started a bad practice of disposing their waste in the pond of village which was earlier source of drinking water. It resulted in deterioration of quality of water and fish mortality.
- a) What changes do you think have taken place in pond? Name such condition.  
b) What measure will you take to stop villagers for such practices as well as to improve the condition?

**SECTION - E**

24. i) Identify the figure 4 and mention the stage of oogenesis it represents.  
ii) Name the ovarian hormone and the pituitary hormone that have caused the above mentioned event.  
iii) Explain the changes that occur in the uterus simultaneously in anticipation.  
iv) Write down the difference between 3 and 5.  
v) Draw the structure of human ovum prior to fertilization.



(OR)

How is a zygote of a flowering plant changes into a dicot embryo. Give the details description with all the diagrams.

25. i) Why do the wings of a butterfly and of a bat called as Analogous organs?  
ii) Mention the type of evolution that has brought the similarity as seen in potato tuber and sweet potato.  
iii) Draw a labelled diagram of t-RNA.  
iv) What are Exons and Introns?  
v) In a dihybrid cross when would the proportion of parental gene combination be much higher than non-parental types, as experimentally shown by Morgan and his group.

(OR)

Describe the experiment conducted by Hershey and Chase and write the conclusion they arrived at, after the experiment.

26. Explain the process of sewage water treatment before it can be discharged into the natural water bodies? Why is the treatment essential?

(OR)

Depict the process of replication of a retrovirus after it gains entry into the human body?

-X-X-X-X-X-