

**Biology**  
**Sample Question Paper**  
**Class XII**

**Class:12**  
**Time 3hrs**

**Max Mks:70**  
**No of pages:4**

**General Instructions:**

- All questions are compulsory.
- 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.
- Section C is of 12 questions of three marks each.
- Section D is of 1 questions of four marks each and Section E is of 3 questions of five marks each.
- 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 to attempt only one of the alternatives in such questions.
- Wherever necessary, the diagrams drawn should be neat and properly labelled.

**SECTION A**

1. Name the type of chemical bond formed between two nucleotide units of a DNA molecule?
2. Why is a transplanted tissue rejected by the patient's body?
3. Name the indicator species in polluted ganga water.
4. Is it syngamy or triple fusion that leads to formation of zygote in an angiosperm?  
Mention their ploidy.
5. How a Water Hyacinth plant becomes so very harmful to the pond ecosystem?

## SECTION B

6. Write the antigens and antibodies present in the blood of persons belonging to A, B, AB and O blood groups?
7. Write examples of any two albuminous and non albuminous seeds.
8. Draw diagram of the adapter molecule involved in protein synthesis machinery.
9. Why colostrum is so important to an infant?
10. Why is colour blindness trait more common with the males? Also explain conditions when a female will suffer from colour blindness trait.

## SECTION C

11. a) Which hormones are responsible for parturition?  
b) Draw labeled diagram of a blastocyst.  
c) Mention the site of fertilization, describe how zygote develops and when it attaches to uterus?
12. Describe why values of GPP and NPP are different from each other? Suggest an ecologist the better area to explore higher biodiversity also give reason for the suggestion made.
13. How biome and ecological niche terms differ from each other? Give examples of each.
14. a) Why do scientists prefer to perform experiments with fruit flies and bacteria?  
b) What is the need of pedigree analysis for human beings?
15. Describe the process of biogas production.
16. a) On what grounds is CNG a better fuel than diesel and petrol?  
b) Why should vehicles fitted with catalytic converter use only unleaded petrol?

17. T.H. Morgan through his experiments on *Drosophila* described the concept of linkage. How linkage effects the inheritance pattern of genes? It is also an exception to one of the Mendel's law, mention that law.
18. Write the sources and roles of following:
- a) cyclosporin A
  - b) statins
  - c) SCPs
19. Through a single example explain the concepts of multiple allelism and co dominance.
20. a) What is heterosis?  
b) Explain biofortification and mutation breeding methods of plant breeding to improve quality and quantity of yield.
21. In 1938 the Coelocanth was caught in South Africa. Why are they so important for the evolutionary studies?
22. Mention the features that should be present in a cloning vector. Draw a sketch of *E.coli* cloning vector pBR322.

#### **SECTION D**

23. a) Tubectomy and Vasectomy cannot be considered as methods of contraception. Give reason.  
b) How techniques like GIFT, ZIFT, AI are different from each other? Describe each one of them.  
c) Under which conditions will a couple need surrogate mother's help?

## SECTION E

24. a) Describe in detail the events taking place during oogenesis.

b) When does meiotic division complete in the ovum?

OR

a) Define central dogma. How retroviruses are an exception to the unidirectional information flow?

b) Describe the steps involved in life cycle of the AIDS virus.

25. a) Describe how FSH and LH affect the process of spermatogenesis.

b) Diagrammatically represent steps occurring in the seminiferous tubules till spermatids form.

OR

a) Explain the hormonal regulation of events occurring in the male reproductive system.

b) Name the process through which spermatids convert into spermatozoa.

26. Describe the detailed structure of a eukaryotic chromosome with reference to packaging of DNA within that chromosome. How is the packaging different from a prokaryote?

OR

Why is the genetic code a triplet? What are non sense codons in genetic code? Explain features of genetic code like degenerate, unambiguous, universal with suitable examples.