CBSE
Class XII Biology
Sample Paper - 7

Time: 3 hrs **Total Marks: 70**

General Instructions:

1. All questions are compulsory.
2. This question paper consists of four sections A, B, C and D. Section **A** contains **5** questions of **one** mark each, Section **B** is of **7** questions of **two** marks each, Section **C** is of **12** questions of **three** marks each and Section **D** is of **3** questions of **five** marks each.
3. 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.
4. Wherever necessary, the diagrams drawn should be neat and properly labelled.

Section A

1. An anther with malfunctioning tapetum often fails to produce viable male gametophytes. Give any one reason. [1]

2. Why are plasmids largely used as vectors? [1]

3. How is golden rice genetically different from normal rice? [1]

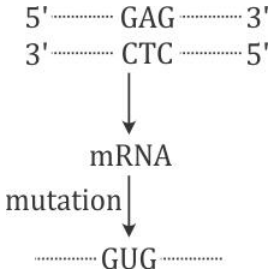
4. Arrange the following in their hierarchy of levels:
Community, population, ecosystem, organ system, biosphere [1]

5. Name two species which have become extinct due to the overexploitation by humans. [1]

Section B

6. If one sperm is sufficient to fertilise the ovum, then why does human ejaculate carry a number of sperms? [2]

7. From the following diagram of molecular mechanism of mutations, identify the type of mutation. [2]



Which disease is represented by such a mutation?

8. What is a test cross? How does it differ from a reciprocal cross? [2]

9. Expand PCR. List its two uses. [2]

10. How is diapause different from hibernation? [2]

OR

Differentiate between a grazing food chain and a detritus food chain.

11. What is polyblend? Why did plastic manufacturers think of producing polyblend? Write its usefulness. [2]

12. Name a microbe used for statin production. How do statins lower blood cholesterol level? [2]

Section C

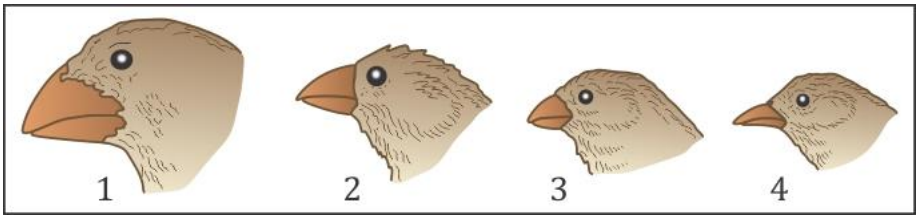
13. Why cross-pollination is considered superior to self-pollination? [3]

14. Name the hormones involved in regulation of spermatogenesis. [3]

15. A length of DNA helix is far greater than the dimension of a typical nucleus. How is long DNA polymer packaged in a cell? [3]

16. Snapdragon shows incomplete dominance for flower colour. Work out the progeny from a cross between plants with pink flowers and state their phenotype. [3]

17.



(a) Write your observation on the variations seen in the Darwin's finches shown above.

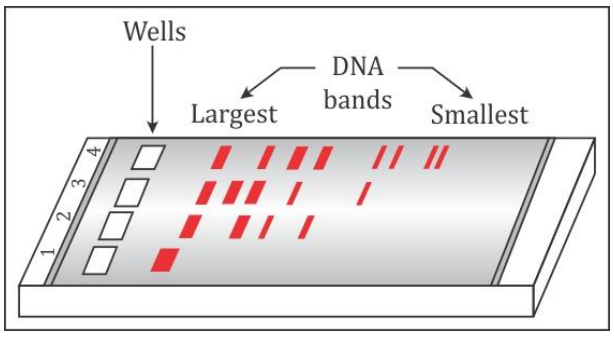
(b) How did Darwin explain the existence of different varieties of finches on Galapagos Islands? [3]

18. How does moderate fever help a person in combating infections? What is to be done to bring down high body temperature? [3]

19. What are the new methods used for increasing fish production? [3]

20. Briefly describe the three critical research areas of biotechnology. [3]

21.



(a) What does this diagram depict?

(b) What is meant by 'Largest' and 'Smallest' in the picture?

(c) Name the compound used to visualise them.

(d) Define elution. [3]

22. When does the population growth curve assume the 'J' and sigmoid 'S' shapes? [3]

23. Give an account of factors affecting the rate of decomposition. [3]

OR

List three important characteristics of a population and explain.

24. [3]

(a) Why do farmers prefer biofertilisers to chemical fertilisers these days? Explain.

(b) How does *Anabaena* and mycorrhiza act as biofertilisers?

Section D

25.

(a) Describe the events of spermatogenesis with the help of a schematic representation.

(b) Write two differences between spermatogenesis and oogenesis.

[5]

OR

Name the various types of foetal membranes and briefly explain each of them.

26. What will happen: [5]

(i) When complete sets of chromosomes are added to a diploid genome?

(ii) When individual chromosomes are added to or deleted from the diploid genome?

(iii) When a part of the chromosome is lost?

(iv) When a part of the chromosome breaks and attaches to another non-homologous chromosome?

(v) When a part of the chromosome breaks and attaches to its homologue?

OR

(a) How does a chromosomal disorder differ from a Mendelian disorder?

(b) Name any two chromosomal aberration-associated disorders.

(c) List the characteristics of the disorders mentioned above which help in their diagnosis.

27.

(a) State the objectives of animal breeding.

(b) List the importance and limitations of inbreeding. How can the limitations be overcome?

(c) Give an example of a new breed each of cattle and poultry. [5]

OR

Explain the process of replication of a retrovirus after it gains entry into the human body.