

## Sample Question Paper

Class XII

Biology

Time allowed: 3hrs

Maximum Marks: 70

### General Instructions:

1. There are a total of 26 questions and five sections in the question paper. All questions are compulsory.
2. Section A contains question number 1 to 5, Very Short Answer type questions of one mark each.
3. Section B contains question number 6 to 10, Short Answer type I questions of two marks each.
4. Section C contains question number 11 to 22, Short Answer type II questions of three marks each.
5. Section D contains question number 23, Value Based Question of four marks.
6. Section E contains question number 24 to 26, Long Answer type questions of five marks each.
7. There is no overall choice in the question paper, however, an internal choice is provided in one question of two marks, one question of three marks and all three questions of five marks. An examinee is to attempt any one of the questions out of the two given in the question paper with the same question number.

### Section - A

1. Which property of DNA double helix led Watson and Crick to hypothesize semiconservative mode of DNA replication? 1
2. Name two microbes from which cyclosporine A and Statins are obtained. 1
3. What is doubling time with reference to population growth? 1
4. While doing a PCR, a denaturation step is missed. What will be its consequences on the process? 1
5. How a Water Hyacinth plant becomes so very harmful to the pond ecosystem? 1

### Section - B

6. State the difference between the first trophic levels of detritus food chain and grazing food chain. 2
7. If a father and son both have defective color vision, how likely it is that the son has inherited the trait from his father? 2

8. Describe the cause of algal blooms in a water body. What will be its effect on other organisms living in the same area? 2

OR

Success rate of artificial insemination in cattle is fairly low. Identify any other mean to improve the successful production of hybrids. State the advantages of this technique. 2

9.

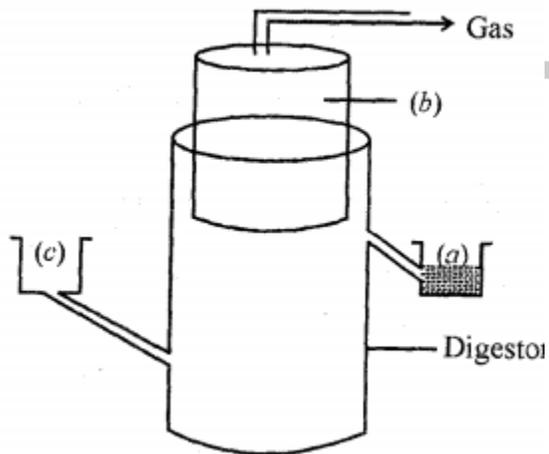
Nihal had banana plantation in his field. Quality of the fruit was excellent but the yield suffered due to infection of the plants by a virus. Suggest a fast and efficient method to get healthy and a large number of plants in the next generation without compromising on the existing quality. Justify the selection of your method.

10. Why both the strands of DNA are not copied during transcription? 2

### Section - C

11. Construct an ideal pyramid of energy when 1,000,000 joules of sunlight is available. Label all its trophic levels. 3

12.



The diagram above is that of a typical biogas plant. Explain the sequence of events occurring in a biogas plant. Identify a, b and c. 3

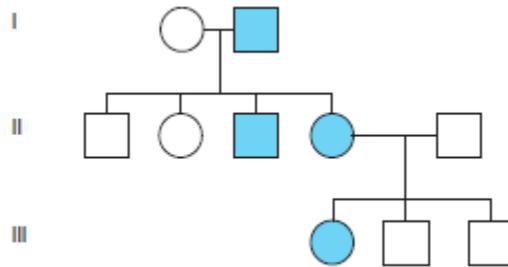
13. How do parasites and predators resemble and differ? 3

14. Study the given pedigree chart and answer the questions that follow:

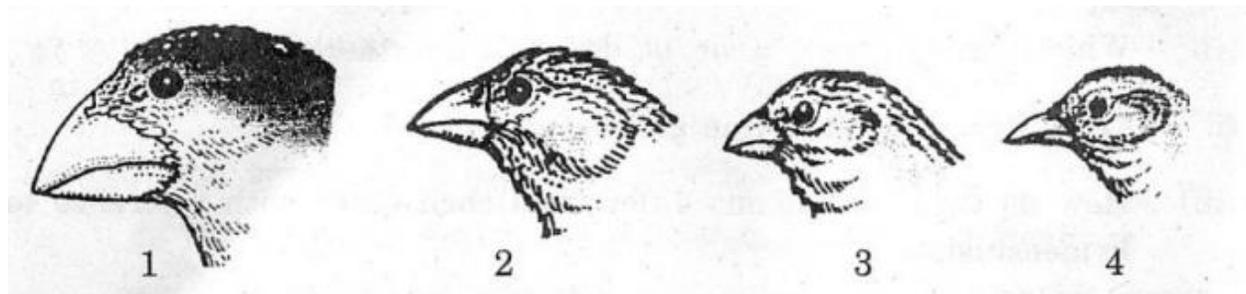
(a) Is the trait recessive or dominant?

(b) Is the trait sex-linked or autosomal?

(c) Give the genotypes of the parents shown in generation I and their third child shown in generation II and the first grandchild shown in generation III? 1+1+1



15. Refer to the figure given below and answer the questions that follow:



a) Write your observations 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?  $1\frac{1}{2} + 1\frac{1}{2}$

16. Your classmate complains of headache and cough to the doctor. The doctor confirms that he is suffering from Pneumonia and not just common cold. How the doctor must have reached to such conclusion? Mention any two precautions to be followed to prevent the spread of this disease. 3

17. What are radioactive wastes? Describe the harmful effects of nuclear radiations. 3

18. Elaborate the asexual mode of reproduction in eth following: 1+1+1

(a) *Chlamydomonas*

(b) *Hydra*

(c) Yeast

19. When someone buys packets of cigarettes, cannot miss the statutory warning that is present on the packing which warns against smoking and says how it is injurious to health. Yet, smoking is very prevalent in our society, both among young and old. Advise the adolescents about the importance of avoiding smoking. (Mention any six points.) 3

20. Study the mRNA segment given above which is complete to translated into a polypeptide chain.



- (a) Write the codons a and b.
- (b) What do they code for?
- (c) How is peptide bond formed between two amino acids in the ribosome? 1+1+1

**OR**

*CryIAb* is introduced in a plant to control infestation by corn borer.

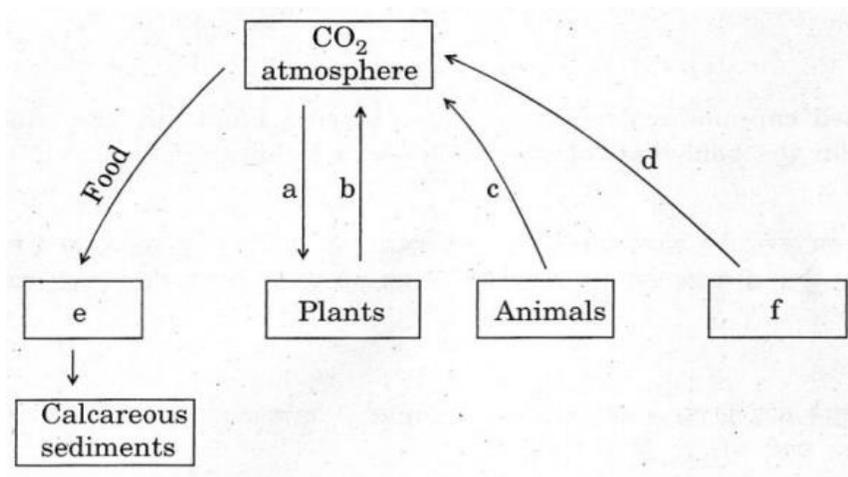
- a) Name the resultant plant after successful insertion of the gene desired.
- b) Summarize the action of the gene introduced. ½ +2½

21.

- (a) What are hotspots of biodiversity?
- (b) List four main criteria for determining a particular place as a hotspot.
- (c) Among the hotspots of the world, list two which are located in India. 1+1+1

22. Draw and complete the following model of carbon cycle filling a, b, c, d, e and f.

½ +½ +½ +½ +½ +½



**Section - D**

23. On a Sunday morning, Amit insisted that his parents should take him to visit the city museum. Amit's parents were happy to see that their young son was expressing interest in history. They asked him to get ready quickly that they catch an early metro to avoid rush. However, Amit insisted that they should go in their car and not in the crowded metro. Amit's parents tried to make him understand the value of using public transport. Amit realized and happily went to see the museum on the metro.

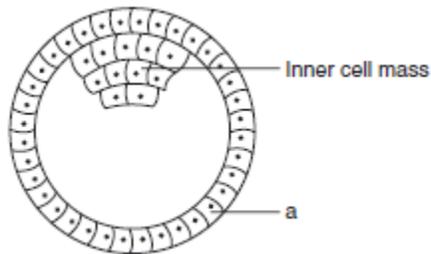
(a) Why should one avoid using a private vehicle when public transport is available?

(b) What values did Amit's parents exhibit?

2 + 2

### Section - E

24. Study the figure given below and answer the questions that follow:



(a) Name the stage of human embryo the figure represents.

(b) Identify 'a' in the figure and mention its function.

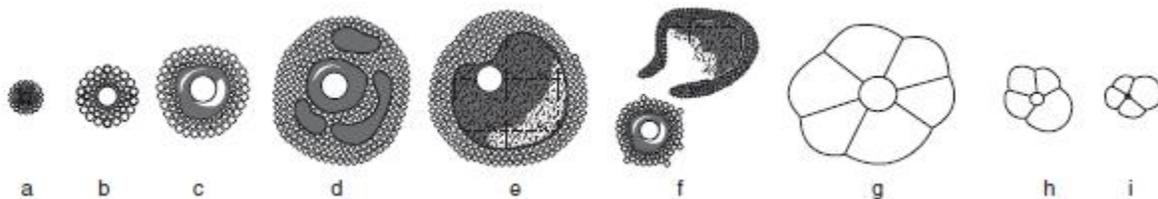
(c) Mention the fate of the inner cell mass after implantation in the uterus.

(d) Where are the stem cells located in this embryo?

1+1+2+1

OR

The following is the illustration of the sequence of ovarian events "a" to "i" in a human female:



(a) Identify the figure that illustrates corpus luteum and name the pituitary hormone that influences its formation.

(b) Specify the endocrine function of corpus luteum. How does it influence the uterus? Why is it essential?

(c) What is the difference between “d” and “e”?

(d) Draw a neat labeled sketch of Graafian follicle.

1+1+1+2

**25.** What are biopiracy and biopatenting? How are they interrelated? Give any example of biopiracy. How biopiracy can be harmful to the host country? 5

**OR**

Transcription in eukaryotes is more complex process than in prokaryotes. Justify and compare the initiation, elongation and termination in bacterial cells with eukaryotes. 5

**26.** Two blood samples A and B picked up from the crime scene were handed over to the forensic department for genetic engineering. Describe how the technique of genetic engineering is carried out. How will it be confirmed whether the samples belonged to the same individual or two different individuals? 5

**OR**

a) Name the primates that lived about 15 million years ago. List their characteristic features.

b) (i) Where was the first man-like animal found?

(ii) Write the order in which Neanderthals, *Homo habilis* and *Homo erectus* appeared on earth. State the brain capacity if each one of them.

(iii) When did modern *Homo sapiens* appear on this planet?

2+1+1+1