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SET C



**INDIAN SCHOOL MUSCAT
FIRST PRELIMINARY EXAMINATION
BIOLOGY**

CLASS: XII

Sub. Code: 044

Time Allotted: 3 Hrs

17.01.2019

Max. Marks: 70

General Instructions:

1. All questions are compulsory.
2. The question paper consists of four sections A, B, C and D.
3. Internal choice is given in all the sections. A student has to attempt only one of the alternatives in such questions.
4. Section–A contains 5 questions of 1 mark each.
5. Section–B has 7 questions of 2 marks each.
6. Section–C is of 12 questions of 3 marks each
7. Section–D has 3 questions of 5 marks each.
8. Wherever necessary, the diagrams drawn should be neat and properly labeled.

SECTION A

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|---|---|---|
| 1 | A male honeybee has 16 chromosomes whereas its female has 32 chromosomes. Give one reason. | 1 |
| 2 | How can an alien piece of DNA made to multiply in a host cell? | 1 |
| 3 | If adenine constitutes 30% of an isolated DNA fragment, then what is the expected % of the base cytosine in it? | 1 |
| 4 | Name the vector of Chikungunya disease. | 1 |
| 5 | Jhum cultivation has been in practice from earlier days, but it's considered more problematic these days. Why? | 1 |

OR

How is competition avoided in Nature? Give example.

SECTION B

- | | | |
|---|--|---|
| 6 | Differentiate between inbreeding and out breeding in animals. | 2 |
| 7 | What is meant by germplasm Collection? Describe its significance in plant breeding programmes. | 2 |

OR

Name two alcoholic drinks produced in each of the following ways. (i) With distillation and (ii) without distillation.

- | | | |
|---|--|---|
| 8 | Categories the following pairs of examples as convergent or divergent evolutions:
(a) Eyes of octopus and mammals. (b) Wings of butterfly and birds. (c) Tuber of sweet potatoes and potato. (d) Thorns in bougainvillea and tendrils in cucurbits. | 2 |
|---|--|---|

- 9 How does geitonogamy differ from xenogamy in plants? 2
- 10 Mention two applications of biotechnology in medicine with examples. 2
- 11 Monocistronic structural genes in eukaryotes have interrupted coding sequences, Explain. How are they different in prokaryotes? 2
- 12 Name two types of animals based on their temperature tolerance. 2

SECTION C

- 13 a) Taking one example each of habitat loss and fragmentation, explain how the two are responsible for biodiversity loss. b) Explain two different ways of biodiversity conservation. 3
- 14 How is *Agrobacterium tumefaciens* used in rDNA technology? Explain what and how are other pathogens are used for the purpose ?State two other methods by which host organism can be transformed? 3
- 15 How did Darwin theory of natural selection explain the appearance of new forms on the earth? 3
- 16 How do mycorrhizae function as biofertilisers? Explain with example. Name one cyanobacteria that can be used as a biofertiliser. 3
- 17 Explain the role of S and P in the experiments conducted by Hershey and chase? 3

OR

Explain the mechanism of sex determination in honeybees.

- 18 Explain different phases of spermatogenesis with schematic representation. 3

OR

Mention any three differences between spermatogenesis and oogenesis.

- 19 Describe the three different practices under natural methods of birth control. 3
- 20 After a rainy day Shruti found many dragonflies flying over stagnant water. She thinks these flies come to drink water. i) Is Shruti's explanation correct? Give your views 3
ii) Write the significance of your view in organic farming.

OR

What is biochemical oxygen demand (BOD) test? At what stage of Sewage treatment this test is performed? BOD level of three samples of water labeled as A, B and C are 30 mg/ L, 10mg/L and 500 mg/L respectively. Which sample of water is most polluted?

- 21 How is Biotechnology used to produce Bt cotton? Explain. 3

- 22 You have observed that fruit juice in bottles bought from the market is clearer as compared to those made at home. Give reason. Suggest a similar application in the field of detergent industry. 3
- 23 What are the producers in grass land and oceans .How is GPP different from NPP? Why is the productivity in oceans lesser than on land? 3
- 24 What will be the genotype and phenotype of the offspring if a colour blind man marries a carrier woman? Show the cross. 3

OR

How do histones acquire positive charge?

SECTION D

- 25 With a flow chart explain the process of decomposition .What factors affect this process? 5

OR

In Arcata, the town's people have created an integrated waste water treatment process within a natural system. A citizen group called FOAM helps in upkeep of this project. (a) What are the main steps in waste water management done in this way? (b) .Ecosan. in Kerala and Sri Lanka is also an initiative for water conservation. How?

- 26 Explain the various phases of menstrual cycle with reference to changes in ovary and uterus and hormonal cycle. 5

OR

Continued self-pollination result in inbreeding depression. What are the out breeding devices developed in flowering plants to discourage self-pollination? Which type of pollination seen in Papaya?

- 27 What is a point mutation? Illustrate using the example of Sickle cell anaemia. Give the genotypes of a carrier and a sickle celled person. 5

OR

Explain the role of RNA polymerase in transcription in bacteria.

End of the Question Paper