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SET C



INDIAN SCHOOL MUSCAT FINAL TERM EXAMINATION BIOLOGY [THEORY]

CLASS: XII

Sub. Code: 044

Time Allotted: 3 Hrs

13.11.2018

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 labelled.

SECTION - A

1. Gause's competitive exclusion principle, where does this apply? 1
2. Give the scientific name of the source organism from which the first antibiotic was produced. 1
3. Which theory does explain the origin of universe? 1

OR

Name the phenomenon explained by Australian marsupials and placental mammals in evolution.

4. Who was the first to construct an rDNA? 1
5. Why is secondary succession faster than primary succession? 1

OR

What is the importance of humus?

SECTION - B

6. Compare the grazing food chain and detritus food chain in the aspect of their (a) origin and (b) energy status. 2
7. Describe the effects of human activities in influencing natural ecosystem cycles with special reference to carbon cycle. 2
8. Explain the adaptations that parasites have evolved. 2

OR

What is the importance of light for organisms? How do deep sea organisms get their energy?

9. Explain with the help of two examples how certain plants have evolved morphological and chemical defenses against primary consumers such as cows and goats. 2

10. What are the measures one has to take to prevent from contracting STDs? 2
- OR
- Explain the technique amniocentesis .How is this technique misused?
11. What is pedigree analysis, how is it useful? 2
12. What is the role of histamine in inflammatory response? Name few drugs which reduce the symptoms of allergy. 2

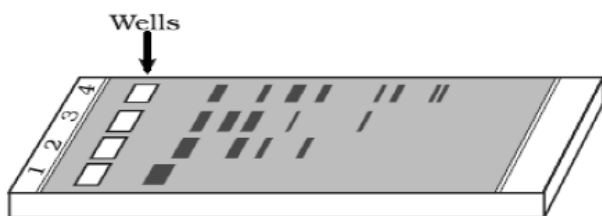
SECTION - C

13. (a) Expand VNTR and describe its role in DNA fingerprinting. 3
(b) List any two applications of DNA fingerprinting technique.

OR

Name the three RNA polymerases found in eukaryotic cells and mention their functions.

14. A 17-year old boy is suffering from high fever with profuse sweating and chills. Choose the correct option from the following diseases which explains these symptoms and rule out the rest with adequate reasons. 3
(a) Typhoid (b) Viral Fever(c) Malaria
15. a) How do DNA fragments migrate and resolve in a Gel electrophoresis? 3
b) How lane one is different from lane 2, 3 and 4 in the Gel electrophoresis set up?
c) How pure DNA fragments are made observable in the visible light?



16. Explain the mechanism of 'sex determination' in birds. How does it differ from that of human beings? 3
17. Gene therapy is a better alternative to the other measures taken for ADA deficiency. Why is it a better alternative . What are the other methods used earlier? How can it be done? 3
18. How can crop varieties be made disease resistant to overcome food crisis in India ? Explain. Name one disease resistant variety in India of: 3
(a) Wheat to leaf and stripe rust
(b) Brassica to white rust

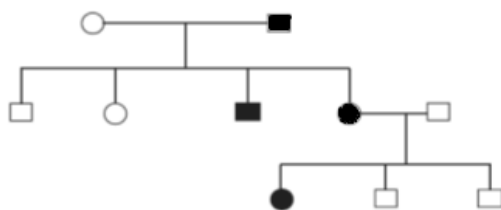
OR

Explain out-breeding, out-crossing and cross-breeding practices in animal husbandry.

19. State in what ways Stanley Miller simulated the conditions of : 3
(i) Primitive atmosphere on earth.
(ii) Energy source at the time of origin of life, and
(iii) Formation of organic molecules of life to prove the theory of chemical evolution.
20. State three reasons for increase in number of people in reproductive age in India. 3

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

3



- (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.

OR

How are dominance, codominance and incomplete dominance patterns of inheritance different from each other?

- 22. What is a bioreactor used for? Name a commonly used bioreactor and any two of its components. 3
- 23. What is mutational breeding? Name a crop developed by this. How *Parbhani Kranti* have been developed? 3
- 24. Which Ministry of Govt. of India had initiated Ganga Action Plan and Yamuna Action Plan? What are the objectives of these plans? 3

SECTION - D

- 25. (a) Following are the responses of different animals to various abiotic factors. Describe each one with the help of an example.
 - (i) Regulate
 - (ii) Conform
 - (iii) Migrate
 - (iv) Suspend

(b) If 8 individuals in a population of 80 butterflies die in a week, calculate the death rate of population of butterflies during that period.

OR

- (a) Write the scientific name of the organism Thomas Hunt Morgan and his colleagues worked with for their experiments. Explain the correlation between linkage and recombination with respect to genes as studied by them.
- (b) How did Sturtevant explain gene mapping while working with Morgan ?

- 26. What is an operon? Explain the functioning of lac operon when in an open state. 5

OR

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

- 27. With advancement in genetics, molecular biology and tissue culture, new traits have been incorporated into crop plants. Explain the main steps in breeding a new genetic variety of crop.

OR

- i) The three microbes are listed below. Name the product produced by each one of them and mention their use.
- (a) *Aspergillus niger*
 - (b) *Trichoderma polysporum*
 - (c) *Monascus purpureus*
- ii) How is 'Roquefort cheese' ripened? How is it different from the other variety?

End of the Question Paper