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SET A



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. Which theory does explain the origin of universe? 1
OR
Name the phenomenon explained by Australian marsupials and placental mammals in evolution.
2. Give the scientific name of the source organism from which the first antibiotic was produced. 1
3. Write the function of a Bioreactor. 1
4. Very small animals are rarely found in polar regions. Give two reasons. 1
5. What is stratification in an ecosystem? 1

OR

Define Standing Crop

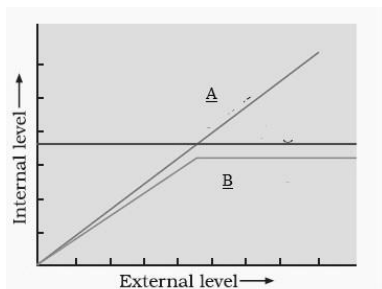
SECTION - B

6. Fed up of a large family, a couple wanted to adopt a terminal method of contraception Describe the process conducted by the doctor in either of the cases (male / female partner) 2
OR
A mother of a one year old daughter wanted to space her second child Her doctor suggested CuT Explain its contraceptive actions.
7. State the Mendelian principle which can be derived from a dihybrid cross and not from monohybrid cross. 2
8. A farmer while working on his farm was bitten by a poisonous snake. The workers in the farm immediately rushed him to the nearby health centre. The doctor right away gave him an injection to save his life. What did the doctor inject and why? 2

9. Explain the role played by predators in a community. 2

OR

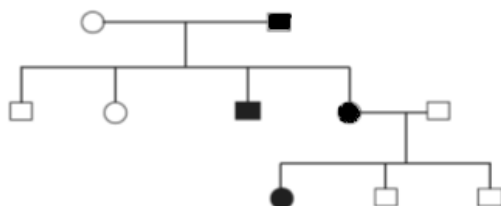
Given below is a graph depicting organismic response to changing external conditions. According to their response the organisms are grouped into two types. Name the type which will show (i) pattern A and (ii) pattern B



10. Describe the effects of human activities in influencing natural ecosystem cycles with special reference to carbon cycle. 2
11. 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
12. Compare the grazing food chain and detritus food chain in the aspect of their (a) origin and (b) energy status. 2

SECTION - C

13. State three reasons for increase in number of people in reproductive age in India. 3
14. 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?

15. Explain the mechanism of 'sex determination' in birds. How does it differ from that of human beings? 3
16. (a) Expand VNTR and describe its role in DNA fingerprinting. 3
- (b) List any two applications of DNA fingerprinting technique.

OR

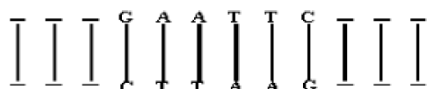
Name the three RNA polymerases found in eukaryotic cells and mention their functions.

17. State in what ways Stanley Miller simulated the conditions of : 3
- (i) Primitive atmosphere on earth.

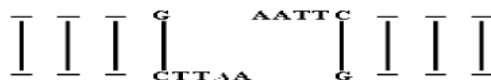
- (ii) Energy source at the time of origin of life, and
 (iii) Formation of organic molecules of life to prove the theory of chemical evolution.
18. How can crop varieties be made disease resistant to overcome food crisis in India ? Explain. Name one disease resistant variety in India of: 3
- (a) Wheat to leaf and stripe rust
 (b) Brassica to white rust

OR

- Explain out-breeding, out-crossing and cross-breeding practices in animal husbandry.
19. 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
20. What is biofortification ? Mention the contribution of Indian Agricultural Research Institute towards it with the help of any two examples. 3
21. An interesting property of restriction enzymes is molecular cutting and pasting. Restriction enzymes typically recognize a symmetrical sequence of DNA. 3



Notice that the top strand is the same as the bottom strand, but reads backward. When the enzyme cuts the strand between G and A, it leaves overhanging chains:



- A. What is this symmetrical sequence of DNA known as?
 B. What is the significance of these overhanging chains?
 C. Name the restriction enzyme that cuts the strand between G and A
22. Explain three steps involved in polymerase chain reaction. 3
23. What are “flocs”? State their role in effluent treatment and their ultimate fate in sewage treatment tank. 3
24. How has the use of *Agrobacterium* as vectors helped in controlling *Meloidogyne incognita* infestation in tobacco plants? Explain in correct sequence. 3

SECTION - D

25. (a) Why does DNA replication occur in small replication forks and not in its entire length? 5
 (b) Why is DNA replication continuous and discontinuous in a replication fork?
 (c) State the importance of origin of replication in a replication fork.

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. (a) Name the technology that has helped the scientists to propagate on large scale the desired crops in short duration. List the steps carried out to propagate the crops by the said 5

technique.

(b) How are somatic hybrids obtained?

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?

27. (a) Following are the responses of different animals to various abiotic factors.

5

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

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

End of the Question Paper