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SET C



**INDIAN SCHOOL MUSCAT
FIRST PRE-BOARD EXAMINATION
BIOLOGY**

CLASS: XII

Sub.Code: 044

Time Allotted: 3 Hrs.

16.01.2020

Max.Marks: 70

General Instructions:

1. There are a total of 27 questions and five sections in the question paper. All questions are compulsory.
2. Section A contains question numbers 1 to 5, multiple choice questions of one mark each.
Section B contains question numbers 6 to 12, short answer type I questions of two marks each.
Section C contains question numbers 13 to 21, short answer type II questions of three marks each.
Section D contains question number 22 to 24, case-based short answer type questions of three marks each.
Section E contains question numbers 25 to 27, long answer type questions of five marks each.
3. There is no overall choice in the question paper. However, internal choices are provided in two questions of one mark, one question of two marks, two questions 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.
4. Make your Handwriting legible.

SECTION – A

1. The fluid from which foetal cells are extracted for chromosomal analysis is 1
A] Tissue Fluid B] Amniotic fluid C] Lymph D] Neural fluid
2. Because of smoking which kind of changes occurs in blood? 1
A] Proportion of CO₂ decreases & in Hb also CO₂ decreases
B] Proportion of O₂ decreases & in Hb proportion of O₂ increases
C] Proportion of O₂ increases & in Hb proportion of O₂ decreases.
D] Proportion of CO₂ increases & in Hb proportion of O₂ decreases.

OR

Anti-allergens : Ig E

Colostrum : _____

- A] Ig-G B] Ig M C] Ig-A D] Ig-D

3. Extra chromosomal small circular double stranded DNA molecule in a bacterial cell is 1
stranded DNA molecule in bacterial cell is
A] Plastid B] Plasmid C] Mitochondrion D] Chloroplast

OR

What was the amount of Alpha-lactalbumin in the milk of transgenic cow ?

- A] 4.2 grams per litre B] 2.4 grams per litre
C] 3.4 grams per litre D] 4.2 grams per litre
4. Transgenic plants are plants having: 1
A] No gene B] Genes in transposition
C] Genes with no function to perform D] Genes of another organism

5. Which is the correct option the Amazon rain forest ? 1

I. In this rain forest there might be at least two million insect species waiting to be discovered and named.

II. This forest is known as lungs of the planet.

III. In this forest digging of mine is performed by dynamine.

IV. This forest are destroyed for the cultivation of soyabeans.

V. This forest contains world famous Biodiversity

A] I, II, IV, V B] I, II, III, IV C] II, III, IV, V D] III, V, IV, I

SECTION B

6. Write the scientific name of the fruit-fly. Why did morgan prefer to work with fruit-flies 2
for his experiments? State any three reasons.
7. Name the two types of nutrient cycle existing in nature. Where is their reservoir present? State the 2
functions of reservoirs.
8. Why do clownfish and sea anemone pair up? What is this relationship called ? 2
9. What is palindrome in a DNA? Give an example. 2
10. Name two alcoholic drinks produced in each of the following ways. (i) by distillation and (ii) 2
without distillation.
11. i) From the statement given, name the species in human evolution. 2
a) They used hides to protect their bodies with the brain capacity of 1400 cc
b) They ate fruits and hunted animals with stones.
ii) Which two primates that lived on earth 15 mya.
12. A population of amoeba lives in a pond. On summer the pond dries up. How will the amoeba respond 2
to this change? What will happen to them if it rains in the next season?

OR

Classify the following into monoecious and dioecious plants.

Date palm, cucurbits, Papaya, Chara

SECTION C

13. A scientist wants to produce a genetically modifying organism. Suggest three basic steps in 3
genetically modifying organism.
14. Construct an ideal pyramid of energy when 1,000,000 joules of sunlight is available. Label all its 3
trophic levels.
15. Define biomagnification. Explain how DDT as a water pollutant undergoes biological 3
magnification.
16. Explain giving one example, how co-extinction is one of the causes of loss of biodiversity. List the 3
three other causes also (without description).
17. Gene therapy is a better alternative to the other measures taken for ADA deficiency. Why is it a 3
better alternative. What are the other methods used earlier? How can it be done?
18. In a certain mammal, erect ears are dominant over drooping ears. In a cross between the two types, 3
out of the four offspring produced in the F₂ generation, three had erect ears and one had drooping
ears. What were the genotypes of the parents? (You may represent the dominant gene as E)

OR

If you are given a tall pea plant, how would you find out its genotype? Explain.

19. Scientists have succeeded in recovering healthy sugarcane plants from a diseased one. 3
(a) Name the part of the plant used as explant by the scientists.
(b) Describe the procedure the scientists followed to recover the healthy plants.
(c) Name this technology used for crop improvement.
20. State Hardy- Weinberg equilibrium. And what are the factors disturbing this equilibrium. 3

OR

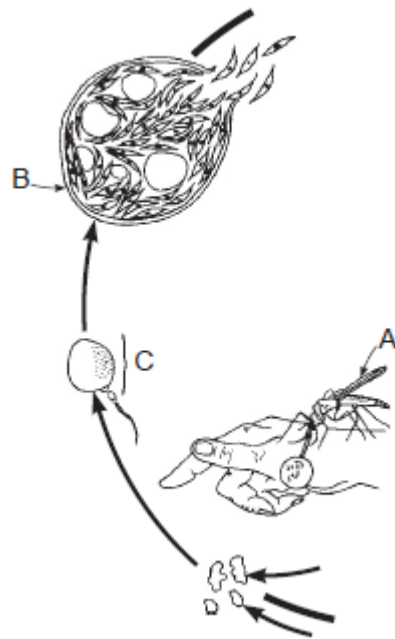
Write two salient features of *Tyrannosaurus* and mention why they were disappeared.

21. What is parturition? How is it induced? Which hormones are involved in induction of parturition? 3

SECTION D

22. Study a part of the life cycle of malarial parasite given below. Answer the questions that 3

follow:

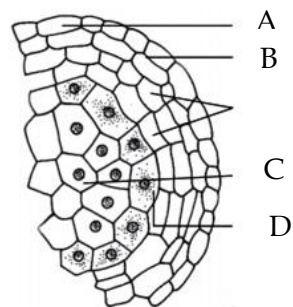


(a) Mention the roles of 'A' in the life cycle of the malarial parasite.

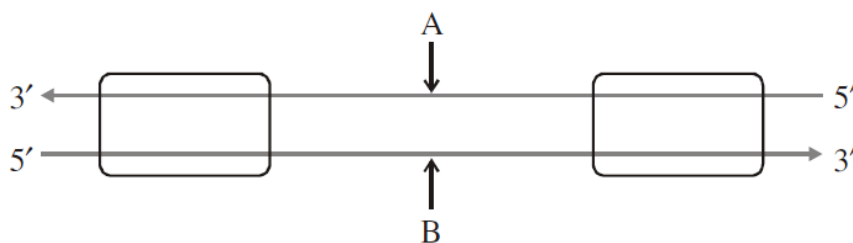
(b) Name the event 'C' and the organ where this event occurs.

(c) Identify the organ 'B' and name the cells being released from it.

23. Observe the diagram showing an enlarged portion of microsporangium and answer the following. 3



- Label the parts A to D.
- State the importance of C.
- What will happen if part 'D' does not function?



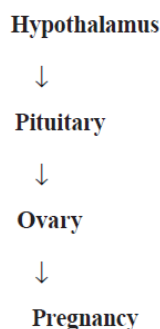
- (a) Identify strands 'A' and 'B' in the diagram of transcription unit given above
- (b) State the functions of Sigma factor and Rho factor in the transcription process in a bacterium.

SECTION E

25. How does the pollen mother cell develop into a mature pollen grain? Illustrate the stages with labelled diagrams. 5

OR

Study the flow chart given below. Name the hormones involved at each stage and explain their functions.



26. How did Hershey and Chase prove that DNA is the hereditary material? Explain their experiment with suitable diagrams. 5

OR

Describe Frederick Griffith's experiment on *Streptococcus pneumoniae*. Discuss the conclusion he arrived at.

27. Under Polio prevention programme, infants in India were given polio Vaccines on a large scale at regular intervals to eradicate polio from the country. 5

- (a) What is a vaccine? Explain how does it impart immunity to the child against the disease.
- (b) With the help of an example each, differentiate between active and passive immunity.

OR

What are biofertilizers ? Describe their role in agriculture. Why are they preferred to chemical fertilizers.

End of the Question Paper