



**INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION
BIOLOGY**

CLASS: XII

Sub. Code: 044

Time Allotted: 3 Hrs

26.09.2019

Max. Marks: 70

General Instructions:

- (i) *There are total 27 questions and four sections in the question paper. All questions are compulsory.*
- (ii) *Section A contains questions 1 to 5, very short answer type questions of one mark each.*
- (iii) *Section B contains questions 6 to 12, short answer type-I questions of two marks each.*
- (iv) *Section C contains questions 13 to 24, short answer type-II questions of three marks each.*
- (v) *Section D contains question 25 to 27, long answer type questions of five marks each.*
- (vi) *There is no overall choice in the question paper, however, an internal choice is provided in two questions of one mark, two questions of two marks, four questions of three marks and all the three questions of five marks. In these questions, an examinee is to attempt any one of the two given alternatives.*
- (vii) *Wherever necessary, the diagram drawn should be neat and properly labelled.*

SECTION - A

- 1 Sperms have enzymes in their acrosome. Support this statement by giving suitable reason. 1
 - 2 Nutrients are required by plants. Whereas presence of large amount of nutrients in water can create environmental disturbances. Evaluate this statement. 1
 - 3 Identify the vegetative propagule of Eichornia. 1
- OR**
- 4 In Artificial Insemination, sperm may be collected from a donor. Suggest a solution in ART if a female is not able to produce a gamete. 1
 - 5 Give the technical term for the type of pollination which ensures genetic recombination. 1

OR

Identify the cells present in the seminiferous tubules that provide nutrition to the sperms.

SECTION - B

- 6 Who proposed the 'Chromosomal theory of inheritance'? List any two ways in which the genes and chromosomes show similarity in their behavior. 2
- 7 Infer the characteristics of a stable community. (any two points) 2
- 8 What would happen if bacteriophage grown in radioactive sulphur or radioactive phosphorus are allowed to infect the bacteria? 2

- 9 a) How many eggs do you think were released by the ovary of a female dog which gave birth to 6 puppies? 2
b) How many eggs had been released if a mother gave birth to identical or monozygotic twins?

10 Many fresh water animals cannot survive in marine environment. Explain by giving two reasons. 2

OR

- a) Exponential growth is not realistic. Give reason.
b) What does 'r' indicate in a population equation?

11

p	i	P	O	z	y	a
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 2

- (a) Identify the region where the repressor protein will attach normally.
(b) Under which condition repressor is unable to attach at this site?

12 Draw a labeled diagram of a mature ovule of an angiosperm. 2

OR

Draw a labeled diagram of sectional view of a seminiferous tubule. (Enlarged)

SECTION - C

13 Explain convergent and divergent evolution with help of one example of each. 3

OR

What do the forelimbs of whales, bats and cheetah with respect to evolution signify? Provide one such example in plants. Define adaptive radiation.

- 14 a) Arrange the following terms in the correct developmental sequence. 3
Pollen grain, sporogenous tissue, microspore tetrad, pollen mother cell, male gametes.
b) How many male gametes will be produced in a single angiosperm pollengrain?

15 List any three parasitic adaptations in plants. 3

OR

List any three adaptations in parasites to live within the host.

16 A flower of Brinjal plant following the process of sexual reproduction produces 360 viable seeds. Answer the following questions giving reasons. 3

- a) How many ovules are minimally involved?
b) How many megaspore mother cells are involved?
c) How many male gametes are involved in the above case?

- 17 a) If there were 30 fowls in a poultry farm, 10 more fowls were brought in and 5 of them died. If 8 new chicks were hatched during the time period under consideration and 6 fowls were removed, find out the resultant number of fowls. 3
b) If a new habitat is just being colonized, out of the four factors affecting population growth which factor contributes the most?

18 In a mixed population, those that can better adapt, survive and increase in population size, no variant is completely wiped out. Illustrate this statement with the help of an example. 3

- 19 What would happen if biodiversity loss happens in an area? 3
OR
In a food chain consisting of grass, frog, hawk, snakes, grasshopper and insects, where will be the concentration of harmful chemicals be maximum? What is the effect of DDT magnification on bird population and why?
- 20 Explain endosperm formation during the post fertilization events. 3
OR
Explain the placenta formation in human beings.
- 21 a) State the rule that depicts the adaptation of animals to live in a particular habit. 3
b) Draw and discuss the expanding and declining age pyramids.
- 22 A colourblind man marries a woman with normal vision, whose father was colour blind. Workout a cross to show the genotype of the new couple and their prospective sons. 3
- 23 Explain what is happening in the ovary of a female during the follicular phase, ovulatory phase and leuteal phase of menstrual cycle. 3
- 24 How would you apply your knowledge about the working of catalytic converter to justify its role in reducing the air pollution in Delhi? Unleaded petrol should be used for vehicles with catalytic converter. Give reason. 3

SECTION - D

- 25 a) What is an ecological pyramid? Compare the pyramids of energy, biomass and numbers. 5
b) Write any two limitations of ecological pyramids.
OR
a) Explain any three remedial measures to overcome acute air pollution in our cities.
b) Write three ways in which noise pollution affects human beings. Suggest one measure to reduce noise pollution.
- 26 a) Explain two ways in which apomictic seeds can be produced. 5
b) List one advantage and one disadvantage of apomictic crop.
c) Why do farmers find production of hybrid seeds costly?
OR
a) Explain one application of each of the following:
(i) Amniocentesis
(ii) Lactational amenorrhea
(iii) ZIFT
b) Express the process of pollination in Vallisnaria.
- 27 Differentiate between incomplete dominance and co dominance. Substantiate your answer with one example of each. 5
OR
a) Write the contribution of the following scientists in deciphering the genetic code.
George Gamow, Hargobind Khorana, Marshall Nirenberg, Severo Ochoa
b) State the importance of genetic code in protein biosynthesis.

End of the Question Paper