

INTERNATIONAL INDIAN SCHOOL, DAMMAM
SECOND TERMINAL EXAMINATION, NOVEMBER 2017

CLASS: XII

SET.B

MARKS:70

SUBJECT: BIOLOGY

TIME: 3Hrs

GENERAL INSTRUCTIONS :

1. There are total 26 questions and five sections in the question paper. All questions are compulsory.
2. Section- A contain question number 1 to 5 ,very short answer type questions of 1 mark each.
3. Section-B contains question number 6 to 10 , short answer type questions of 2 marks each.
4. Section-C contains question number 11 to 22 short answer type II questions of three marks each
5. Section-D contains question number 23 value based question of 4marks
6. Section E- contains question number 24 to 26 ,Long answer type questions of 5 marks each.
7. There is no overall choice in the question paper. However , an internal choice has been provided in one question of 2 marks, one question of 3 marks, and all the 3 questions of 5 marks. Attempt only one of the choices in such questions.
- 8 .Wherever necessary draw neat and labeled diagrams.

SECTION.A

1. Rearrange the following to depict the correct sequence of the evolutionary record of man: 1

Homohabilis, Ramapithecus, Homosapiens, Australopithecus, Homoerectus, Dryopithecus .
2. An anther with malfunctioning tapetum often fails to produce viable male gametophyte. Give reason. 1
3. How can retroviruses be used efficiently in biotechnology experiments inspite of them being disease causing? 1
4. In a barn there were 30 rats ,5more rats enter the barn and 6 out of the total rats were eaten by the cats .If 8 rats were born during the time period under consideration and 7 rats left the barn .Find out the resultant population at time (t+1) 1

5. How does the application of the fungal genus, *Glomus*, to the agricultural farm increase the farm output? 1

SECTION.B

6. What is a bioreactor? Draw a labeled diagram of sparged stirred-tank bioreactor. 2
7. Identify **A,B,C,D** in the table given below: 2

Crop	Variety	Insect pests
Rapeseed mustard(A)	Aphids
.....(B)	Pusa Sem 2, Pusa Sem 3	Jassids, aphids and fruit borer
Okra (Bhindi)	Pusa A-4,(C)(D)

8. Explain the steps involved in a polypeptide synthesis .How are the aminoacids activated during polypeptide synthesis? 2
9. Name the type of interaction seen in each of the following examples: 2
- (a) Mycorrhizae living on the roots of higher plants.
 (b) Ticks live on the skin of dogs.
 (c) Cuckoo laying its eggs in crow's nest.
 (d) Orchid grows on a mango tree .
10. Give reason for each of the following: 2
- (i) Anthers of angiosperm flowers are described as dithecous .
 (ii) Hybrids seeds have to be produced year after year.

SECTION.C

11. Who proposed that DNA replication is semi conservative? Who proved it experimentally and how? Explain. 3
12. a) A normal couple gave birth to one haemophilic son and two normal daughters. Work out the cross to show the genotypes of the parents. 3
 b) Give the possible genotypes of the parents and their progeny.

13. Trace the events that occur in human body to cause immunodeficiency, when HIV gains entry into the body. 3
14. Describe the process of amplification of gene of interest for rDNA technology experiments. 3
15. a) Give a schematic representation of spermatogenesis in humans. 3
b) Name the organs where gametogenesis get completed in human female and male .
16. a) How does activated sludge get produced during sewage treatment? 3
b) Explain how this sludge is used in biogas production?
17. In MOET technology, two 'mothers' are needed to produce one calf .Explain the process and justify the statement. 3
18. a) Describe in sequence the process of megasporogenesis in angiosperms. 3
b) Draw the seven celled structure formed and label all the different cells.
19. a)Name the two growth models that represent population growth and draw respective growth curves they represent. 3
b) State the basis for the difference in the shape of these curves.
c) Which one of the curves represent the human population growth at present ?Do you think such a curve is sustainable ? Give reason in support of your answer.
20. (a)Name and explain the principle, the given equation represents: 3
 $p^2+2pq+q^2 = 1$
(b)List any three factors that can disturb the genetic equilibrium.
21. a)What is transcription?
b) How is transcription a more complex process in eukaryotic cells?Explain.

OR

- a)What are transgenic animals? Give 2 examples
b) How have transgenic animals proved to be beneficial in :
(i) production of biological products
(ii)chemical safety testing

22. A functional mammary gland is characteristic feature in all females. Briefly describe the internal organization of mammary gland. 3

SECTION.D

23. Mohan is a second year student of engineering and Raghu is his best friend and classmate too. But in recent days ,Mohan feels Raghu is not behaving the same way with him and has not done well in his assessment tests; he suspects Raghu to have taken the drugs. 4
- a) Enumerate the symptoms which must have made Mohan think so.
 - b) Enumerate the possible reasons that must have made Raghu take to drugs .
 - c) How can Mohan help his friend to give up drugs and come back to norml life?
 - d) What values are promoted by Mohan?

SECTION.E

24. Give reason for the following : 5
- a) Bottled fruit juices appear clearer than the home made one.
 - b) Small amount of curd added to set the milk into curd.
 - c) Biogas plants are more common in the rural areas than urban areas.
 - d) Large holes are found in the Swiss cheese.
 - e) Patients who have undergone myocardial infarction are given streptokinase.

OR

- a) List any four beneficial effects of GM plants.
 - b) How is Bt cotton plant created as a GM plant? How is it protected against boll -worm infection
 - c)How do Kangaroo rats and desert plants adapt themselves to survive in their extreme habitat ?Explain
25. a) What is plant breeding ?List the steps the classical plant breeding involves. 5
- b) How has mutation breeding helped in improving crop varieties? Give one example where this technique has helped ?
 - c) How has breeding programme helped in improving the public nutritional health? State two examples in support of your answer.

OR

- a) How do the observations made during moth collection in pre- and post-industrialized area in England support evolution by natural selection?
- b) Explain the phenomenon that is well represented by Darwin's finches other than natural selection.

26. Inheritance pattern of flower colour in garden pea plant and Snapdragon plant differs. Why is this difference observed? Explain showing the crosses upto F₂ generation. 5

OR

- a) What is an operon?
- b) Explain how a polycistronic structural gene is regulated by a common promoter and a combination of regulatory genes in a lac operon
