

INTERNATIONAL INDIAN SCHOOL-DAMMAM

I TERMINAL EXAMINATION- 2013-2014

XII- BIOLOGY

Time- 3 Hours

Max. Marks-70

SET-B

General Instructions:

- I. All questions are compulsory.
- II. The question paper consists of four sections A,B,C,&D. Section A contains 8 questions of 1 mark each, Section B is of 10 questions of 2 marks each, Section C has 9 questions of 3 marks each whereas Section D is of 3 questions of 5 marks each.
- III. There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks, and all the three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.
- IV. Wherever necessary, the diagrams drawn should be neat and properly labeled.

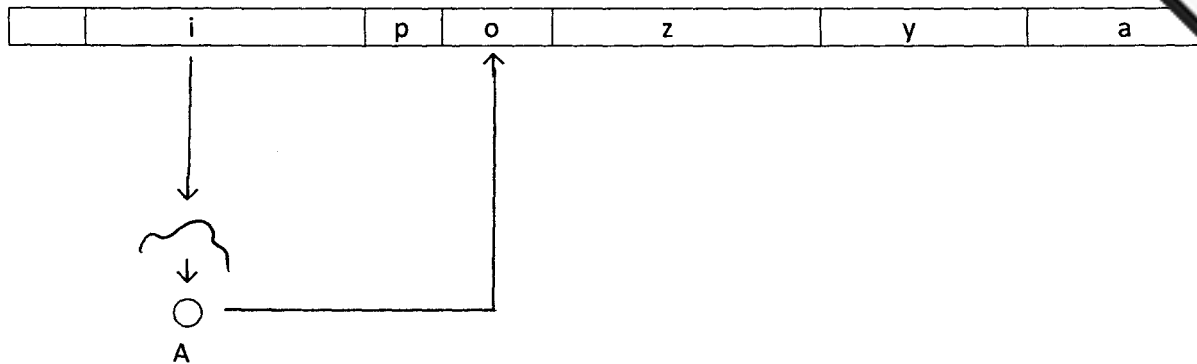
SECTION-A

1. What is Autogamy? Why it is not preferred in nature? 1
2. What is polygenic inheritance? 1
3. Are the Sweet potato and Potato homologous or analogous? What type of evolution has brought such a similarity in them? 1
4. In human reproduction how is polyspermy prevented during fertilization? 1
5. Coconut and Cucurbits are monoecious plants? What does it means? 1
6. State any one reason why the DNA-viruses do not mutate and do not evolve faster than the RNA-viruses? 1
7. How many numbers of chromosomes are there in primary oocytes and in secondary oocytes in the human female ovary? 1
8. The gene I that controls the ABO blood grouping in human beings has three alleles I^A , I^B , and i . Write the different genotypes likely to present in human population. 1

SECTION-B

9. Mention any four adaptations that affect wind-pollination in grasses. 2
10. Draw a neat and labeled diagram showing the structure of a mature pollen grain. 2
11. What is adaptive radiation? Explain it with the example of Darwin's finches. 2

12. Observe the given illustration.



- a) Name the molecule A that binds with the operator. 2
- b) What will prevent the binding of A with the operator gene? 2
13. When a red flowered Antirrhinum plant was crossed with a white flowered Antirrhinum plant, the F_1 offspring had pink flowers. Mention (a) the genotype of F_1 plants and (b) the reason why it did not bear the parental red or white flower colors? 2
14. What is parturition? Mention the role of oxytocin in parturition and during lactation. 2
15. Describe the Hugo d'Vries concept of evolution. 2
16. Banana and Sugar cane lost the ability to produce seeds, then how they are cultivated by the farmers? 2
17. Draw the schematic representation of a replication fork showing the polarity of DNA strands with continuous and discontinuous DNA synthesis. Why not the DNA synthesis in both the strands continuous? 2
18. Describe the surgical methods of contraception for the human male and the female. 2

OR

Name the oral contraceptive developed by CDRI, Lucknow. How it is different from the conventional OC's? 2

SECTION-C

19. What are the six salient features of genetic code? 3
20. What is infertility? Describe intra cytoplasmic sperm injection and artificial insemination. 3
21. Hospital bug is the name given to certain bacteria resistant to a number of antibiotics. Explain antibiotic resistance observed in certain bacteria in the light of Darwin's theory of evolution. 3
22. Draw the diagram to show the sectional view of the human female reproductive system. 3
23. What is aneuploidy? What causes aneuploidy? Mention the ploidy of a person with Turner's syndrome. 3

OR

- What is point mutation? Explain it by taking the example of Sickle cell anaemia. 3
24. Draw a neat and labeled diagram of a typical monocot embryo. 3
25. Describe the hormonal regulation of spermatogenesis in human males. 3
26. Describe the principle and procedure of Hershey and Chase experiment that confirmed the DNA is a genetic material. 3

27. Amniocentesis and karyotyping of Mrs. Esther was carried out in a nursing home. Her mother-in-law bribed the doctor and knows that her daughter-in-law carries a female fetus. On reaching home she starts cursing her daughter-in-law and forced her to go for MTP. Mr. Clement, her son, when comes to know that he is going to father a girl child, he becomes very happy and somehow convinced his mother to be happy and not to force them for MTP.
- What values have been exhibited by Mr. Clement?
 - What is meant by Amniocentesis and MTP?

3

SECTION-D

28. A particular garden pea plant produced only violet flowers. It may or may not be homozygous dominant for the trait. How would you ensure its genotype? Explain with genetic diagrams.

OR

Explain the steps of DNA finger printing that will help in processing of two blood samples BS1 and BS2 picked up from the crime scene.

5

29. (a) Give the schematic representation of a transcription unit.
(b) In what ways the transcription in eukaryotic cells different from that of prokaryotic cells.

OR

Explain Hardy-Weinberg principle of genetic equilibrium. How do the gene migration, genetic drift, mutation, genetic recombination and natural selection affects Hardy-Weinberg equilibrium.

5

30. In a typical dicot plant after double fertilization the primary endosperm nucleus and the zygote are formed. Explain what post fertilization changes occurred in them till the ovule becomes a seed.

OR

What is menstrual cycle? Describe the various events and their hormonal control that occur during a menstrual cycle in human females.

5