

INTERNATIONAL INDIAN SCHOOL – DAMMAM
MODEL EXAMINATION – 2014-2015
CLASS: XI - BIOTECHNOLOGY

Time allowed: 3 hrs

Total Marks: 70

General Instructions:

- (1) All questions are compulsory.
- (2) There is no overall choice. However internal choice has been provided in one question of two marks and two questions of five marks. You have to attempt only one of the choices in such questions. Question paper contains four sections.
- (3) Question numbers 1 to 6 are very short answer questions, carrying 1 mark each.
- (4) Question numbers 7 to 14 are short answer questions, carrying 2 marks each.
- (5) Question numbers 15 to 25 are also short answer questions, but carrying 3 marks each.
- (6) Question numbers 26 to 28 are long answer questions, carrying 5 marks each.
- (7) Use of calculators is not permitted. However, you may use log tables if necessary

Section – A (1 Mark)

1. What is a nucleotide?
2. Specify the start and non-sense codons.
3. What do you understand by quality control?
4. State the function of glycogen.
5. What is resolving power of a microscope?
6. What do you mean by myelinated sheath?

Section – B (2 Marks)

7. Draw and label the structure of tRNA.
8. Explain 2 strategies evolved by the nitrogen fixing organisms to cope up with the aerobic situation.

OR

Write any 4 differences between lagging and leading strand.

9. Differentiate between phase contrast and dark field microscope.
10. (a) Define arm ratio. (b) List the uses of karyotyping.
11. (a) What is meant by triple fusion? (b) List the function of endosperm.

12. Why is meiosis so important for the production of gametes? How would the offspring of sexual reproduction be affected if sex cells underwent mitosis instead of meiosis?
13. Give the reaction to show how tRNA gets charged.
14. Write any 4 differences between Glycolysis and TCA cycle.

Section – C (3 Marks)

15. Explain Meselson and Stahl experiment.
16. Write a short note on 3 methods by which genetic recombination occurs in bacteria.
17. With the help of a diagram explain nitrogen cycle.
18. Define the terms (a) Patent (b) Baffles (c) Lag phase.
19. What is karyotyping? Which stages of chromosomes are used in this process? How are cells obtained for karyotyping?
20. What is partition chromatography? Explain the 2 types of it.
21. Show a dihybrid cross between homozygous round, yellow seeds and wrinkle, green seeds in pea plants and mention the Mendel's law it follows.
22. Describe the Ninhydrin test.
23. Write a short note on the three different forms of RNA present in a cell.
24. State three Mendel's laws.
25. (a) Explain feedback inhibition. (b) With the help of an example explain the use of enzymes in the field of biotechnology.

Section – D (5 Marks)

26. (a) Enlist the differences between RNA and DNA.
(b) Explain Watson and Crick model of DNA.
27. Explain the process of transcription.

OR

With the help of a diagram describe the check points in cell cycle and explain cell cycle regulation.

28. Give an account of the phases involved in the first meiotic phase.

OR

Define the following (a) Osmotic pressure (b) Hydrophobic interaction (c) X rays (d) Isoelectric focusing (e) Ultracentrifuge