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Reg. No. : .....

Name : .....

Ph.D. ENTRANCE EXAMINATION 2023

FACULTY OF APPLIED SCIENCES AND TECHNOLOGY

BIOTECHNOLOGY

Time : 3 Hours Max. Marks : 100

Instructions **:**

1) *Answer **any ten** questions each from* Section ***A*** *and* Section ***B.***
2) *Each question carries **5** marks.*
3) *No additional Answer sheets will be provided.*
4) *Candidates should clearly indicate the section, Question number in the answer booklet.*

Section – A

Research Methodology

I. Answer any **ten** questions. Each question carries 5 marks.

1. How would you check a growth medium has been sterilized or not?

2. How a bacterial growth curve may be constructed?

3. How you may show an enzyme denatured and then renatured?

4. How you may make a graph showing muscle movement?

5. How bacterial plasmids may be extracted?

6. How nucleic acid could be purified?

7. What is HPLC?

8. Describe SAS PAGE

9. What is FISH technique?

10. What are the applications of FISH technique?

11. Briefly describe the demonstration of the function of an enzyme inhibitor

12. How ultrastructure of a cell may be studied?

13. Briefly describe the technique of Western blotting

14. Describe the basic technique of phylogenetic tree construction

15. Distinguish arithmetic progression and Geometrical progression

(10 × 5 = 50 Marks)

Section – B

Biotechnology

II. Answer any **ten** questions. Each question carries 5 marks.

1. Briefly describe the protein data bank (PDB) and the information therein.

2. What are the issues related to patenting of life forms?

3. Discuss the ethical concerns of cloning of human tissues.

4. Discuss autophagy. Distinguish it from necrosis and apoptosis.

5. Discuss to distinguish arithmetic progression from geometrical progression.

6. Discuss briefly any two Statistical Methods used in Biology Research.

7. What is eugenics? Describe briefly.

8. What are xenobiotics? How they are degraded?

9. Describe the mechanisms of Control of microbes by physical agents.

10. Describe the Nitrogen cycle with help of a diagram.

11. Explain the significance of food borne infection.

12. What is Anaerobic respiration?

13. Explain Photosystem I. distinguish it with Photosystem II.

14. Describe helix-coil transition in the context of protein denaturation.

15. Briefly compare and contrast prokaryotic and eukaryotic transcriptions.

(10 $\times$ 5 = 50 Marks)

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