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**S – 6855**

**Reg. No. :** .....

**Name :** .....

**Third Semester M.Sc. Degree Examination, February 2024**

**Zoology**

**ZO 231 : MICROBIOLOGY AND BIOTECHNOLOGY**

**(2013 Admission Onwards)**

Time : 3 Hours

Max. Marks : 75

I. Answer **any ten** of the following. Each question carries **2** marks.

1. Numerical taxonomy
2. Extremophiles
3. Flagella
4. Plasmids
5. Microinjection
6. Fed Batch culture
7. Koch' s postulates
8. Cytoplasmic inclusion
9. Solid state fermentation
10. Generation time
11. Baffles
12. Botulism
13. Nitrogen fixing bacteria
14. Pathogenecity
15. NDM.

**(10 × 2 = 20 Marks)**

P.T.O.



II. Answer **any six** of the following. Each question carries **4** marks.

16. Describe the Bergy's manual
17. Explain shot gun cloning
18. Food preservation methods
19. Classification of viruses
20. Explain multiple drug resistance.
21. Explain industrial production of organic acids.
22. Mention factors that control the fermentation process.
23. Differentiate between gram negative and gram positive bacteria.
24. Discuss the waste water treatment methods.
25. Discuss the classification of fungi.

**(6 × 4 = 24 Marks)**

III. Answer **any three** of the following. Each question carries **7** marks.

26. Explain bioremediation.
27. Mention environmental factors that affect the growth of microbes.
28. Mention applications of genetic engineering in agriculture.
29. Mention types of culture media.
30. Discuss the methods for measurement of cell growth.

**(3 × 7 = 21 Marks)**

IV. Answer **any one** of the following. Each question carries **10** marks.

31. Explain the biogeochemical cycles with relevance to role of microbes in the cycling of nutrients.
32. Discuss the common techniques in biotechnology.

**(1 × 10 = 10 Marks)**

