D 1946 **(Pages 2)** **Name.....**

Reg. No.....

FIRST SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2009

General Biotechnology

GBT 103—MICROBIOLOGY

Time : Three Hours Maximum : 80 Marks

Section A

Answer any **two** *questions.*
Each question carries 10 *marks.*

1. Explain the ultrastructure of a typical bacterium with suitable diagrams.
2. What are the mechanisms with which plants and microbes interact ? Explain the major roles of Plant Growth promoting Rhizobacteria.
3. Describe the various stages in the process of waste water treatment.

(2 x 10 = 20 marks)

Section B

Write briefly any **ten** *of the following.*
Each question carries 5 *marks.*

4. Write any *five* major contributions made in the field of microbiology in twentieth century.
5. Distinguish between aerobic and anaerobic respiration in bacteria.
6. Write about the physiology of symbiotic biological nitrogen fixation.
7. What are the steps involved in glycolysis ?
8. Write an account on the external morphology of viruses.
9. Explain the role of microbes in nitrogen cycle.
10. What are the methods of presentation of milk products ?
11. Explain the structure of a typical mycoplasma in the suitable diagram.
12. What are the common air microflora seen in trophosphere ?
13. How nutrients are taken up by microbes ?
14. Explain the significance of chlorinating water.
15. Give an account of any *two* viral diseases in humans.

(10 x 5 = 50 marks)

Turn over

Section C

Answer **all** *questions.*
Each question carries **2** *marks.*

16. What is the theory of spontaneous generation ?

17. Write any *two* plate speaking patterns for pure culturing of microbes.

18. Write any *two* differences between prokaryotic and eukaryotic microbes.

19. What is passive diffusion ?

20. How many ATP will be generated from a single glucose molecule during aerobic respiration ?

(5 x 2 = 10 marks)