# C 127

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Third Semester

Biotechnology

BT 1204 — MICROBIOLOGY

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Discuss the place of microorganisms in Whitakker's five kingdom classification scheme.

2. Compare the appearance of microorganisms as seen by dark field microscope and a phase contrast microscope.

3. During the log phase growth of a bacterial culture, a sample is taken at 8:00 a.m. and was found to have 1000 cells per ml. A second sample was taken at 5:54 p.m. and the population was found to be 1000000 cells per ml. What is the generation time in hours?

4. Give an example to illustrate the expenditure of energy in the biosynthesis of an amino acid.

5. What are the major differences between rickettsias and chylmydias?

6. What is multiple fission? Cite an example of its example in prokaryotes.

7. What is a viriod? Why is it unique?

8. How can potency of an unknown sample of pencillin be determined?

9. Why is Escherichia coli considered to be an indicator of pollution?

10. What is meant by food yeast and baker's yeast?

PART B — (5 × 16 = 80 marks)

11. (i) Explain the distribution and occurence of natural flora. (10)

(ii) Describe the fractional sterilization (Tyndallization). (6)

12. (a) Explain the history of microbiology.

Or

(b) Explain the various classifications of living organism.

13. (a) Explain the various chemicals anti–microbial agents.

Or

(b) What are the different physical agents used in control of microorganisms? Explain.

14. (a) Describe the significance, characteristics, morphology and structure and replication of bacteriophage.

Or

(b) (i) Describe the life history of chlamydomonas. (12)

(ii) What are diatomaceous earth? Why is it useful commercially? (4)

15. (a) (i) Describe the sulfur cycle. (11)

(ii) Describe the carbon cycle. (5)

Or

(b) (i) Under what circumstances will you add silica gel as a solidfying agent for cell culture? (6)

(ii) Explain the bacterial growth curve. (10)

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