2017

MICROBIOLOGY

[Honours]

(CBCS)

[First Semester]

PAPER – C2T

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

1. Answer any *five* questions from the following : 2×5

   (*a*) What are the essential ingradients of a bacteriological medium ? 2

   (*b*) What do you mean by pleomorphic organism ? Give an example. 1 + 1

   (*c*) How does Hfr cell differ from a F^+ cell ? 2

(*d*) What is L-forms ? How does it differ from mycoplasma ? 1 + 1

(*e*) Distinguish between a disinfectant and an antiseptic. 2

(*f*) Mention the basic difference between eubacteria and archaebacteria. 2

(*g*) Why bacterial endospore are heat resistant ? 2

(*h*) What is the importance of numerical taxonomy ? 2

2. Answer any *four* questions from the following : 5 × 4

(*a*) Name two major groups of chemicals used to control microorganisms with their mode of action. 2 + 3

(*b*) (*i*) Describe how you would dilute bacterial culture by 10^{-8}.

(*ii*) Comment on the importance of different growth stages in batch culture. 2 + 3

(*c*) (*i*) How do the aerobic organisms protect themselves against toxic derivatives of oxygen ?

(*ii*) How do the cells of Halobacterium can resist themselves from high NaCl concentration ? 3 + 2

(*d*) What is acid fastness ? State the mechanism of acid-fast staining. What is negative staining ? 1 + 3 + 1

(*e*) (*i*) What is the function of oil when used with oil immersion objective ?

(*ii*) State the difference between SEM and TEM. 2 + 3

(*f*) (*i*) In which ways do cyanobacteria differ from other phototrophic bacteria ?

(*ii*) State the composition of outer membrane of Gram-negative bacteria. 2 + 3

3. Answer *one* question from the following : 10 × 1

(*a*) (*i*) What is the source of electrons for autotrophic CO_2 fixation in oxygenic phototrophs ?

(*ii*) Why do bacterial cell enter stationary phase ?

(*iii*) How can chemostat regulate growth rate and cell numbers independently ?

2 + (3 + 2) + 3

(*b*) (*i*) Describe the structure and function of a bacterial flagellum.

(*ii*) Describe the composition of bacterial endospore.

(*iii*) Why is moist heat more effective than dry heat for sterilization ?

(*iv*) Write down the steps of cultivation of anaerobic culture. (3 + 1) + 2 + 1 + 3
