

2017

M.Sc.

1st Semester Examination

MICROBIOLOGY

PAPER—MCB-101

Subject Code—31

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Use separate Answer-scripts for Group-A & Group-B

Group—A

[20 Marks]

Answer any *two* questions.

1. (a) How did Pastur and Tyndall finally settle the spontaneous generation controversy ? 3

- (b) Briefly describe the eight-kingdom classification and give the major characteristics. 3
- (c) Discuss the nature, structure and possible functions of the mesosome. 2
- (d) What do you mean by polyphasic taxonomy? 2
2. (a) What kinds of inclusion bodies do prokaryotes have? What are their functions? 2+1
- (b) Describe the structure and function of porin proteins. 2
- (c) Write the functions of glycocalyxes. 2
- (d) Define chemotaxis, run and tumble or twiddle. 2
- (e) Write down the utility of synchronous culture. 1
3. (a) A bacterial culture is grown using pentachlorophenol (C_6HOCl_5) as the sole source of carbon and energy. The cell yield value is determined by dry weight analysis to be 0.05. What percentage of the substrate carbon will be found as cell mass and as CO_2 ? 4+2
- (b) Write the mode of action of microbial killing by ionizing and nonionizing radiation.

- (c) Write the principle of phenol coefficient test and its importance.
- (d) Write in brief about the characteristics of Archea.

Group—B

[20 Marks]

Answer any two questions.

1. (a) What do you mean by viral classification? Give example.
- (b) What is the satisfaction of ICTV classification?
- (c) Give example of Rhabdoviridae with the importance in viral pathogenesis. 2+4+4
2. (a) Elucidate the effect of early genes and late genes in viral infection.
- (b) Name any two phages which infect *E. Coli*.
- (c) What do you mean by lysogenic conversion. 4+2+4
3. Write short notes on (any four) : 4×2½
- (a) Picornaviridae ;

- (b) Viral Attachment & entry ;
- (c) Origin of virus ;
- (d) Priors ;
- (e) Viroid.