

U.G. 2nd Semester Examination - 2020**MICROBIOLOGY****[HONOURS]****Course Code : MB-H-CC-L-03****Fundamental Cell Biology**

Full Marks : 40

Time : $2\frac{1}{2}$ 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.***Answer all the questions.**1. Answer any **five** of the following questions:

2×5=10

- i) What are teichoic acids? How do they differ from lipoteichoic acid?
- ii) Write the structural components of spindle fiber formed during cell division.
- iii) Write the difference between G-actin and F-actin.
- iv) What do you mean by membrane asymmetry?
- v) Write the structural component of chromatin.

- vi) Differentiate *cis*- and *trans*-Golgi.
- vii) During cell signaling which cell surface receptor leads to activation of adenylyl cyclase?
- viii) Differentiate totipotent and multipotent stem cells.

2. Answer any **two** of the following questions:

5×2=10

- i) Write the role of endoplasmic reticulum in protein folding, processing and quality control.
- ii) Briefly describe the different types of cell surface receptors involved in signal transduction.
- iii) How is program cell death regulated?
- iv) Briefly describe the structure of the outer membrane of a Gram negative bacterial cell.

3. Answer any **two** of the following questions:

10×2=20

- i) Write the differences between eukaryotic and prokaryotic flagella. Write the functions of pili. How does cytoplasmic protein enter the mitochondria? (3½+3+3½)
- ii) What is cell signaling? Differentiate paracrine, autocrine and endocrine cell signaling process.

[Turn Over]

Briefly describe the cyclic GMP signaling pathway. 2+3+5

iii) Briefly describe the different transport processes across the plasma membrane. What do you mean by gated channel? Elucidate on different types of gated channels. 5+1+4

iv) Write short note on the following: $2\frac{1}{2} \times 4 = 10$

a) Nucleosome

b) Divisome

c) Kinetosome

d) Liposome
