

U.G. 2nd Semester Examination - 2022**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.*1. Answer any **five** questions of the following:

2×5=10

- i) Write the difference between apoptosis and necrosis.
- ii) What is the significance of telophase and cytokinesis?
- iii) How insertion of proteins are done which span membrane multiple times?
- iv) What are the roles of Bip, chaperones in protein processing in ER?
- v) What is magnetosome?

- vi) What are O-linked and N-linked glycosylation?
- vii) How do actin filaments grow?
- viii) What are the key proteins of MAP kinase?

2. Answer any **two** questions: 5×2=10

- i) Discuss the components and functions of nuclear pore complex.
- ii) Describe the fluid mosaic model of plasma membrane.
- iii) What is metastasis? What is proto-oncogene? Name a tumorsupressor gene. 2+2+1
- iv) Describe chemical and architectural features of bacterial peptidoglycan layer.

3. Answer any **two** questions: 10×2=20

- i) How could bacterial endospores withstand various stresses? Discuss the ultrastructure of a bacterial endospore with a schematic illustration. 2+8
- ii) What is divisome? Mention the roles of various proteins play crucial role during bacterial transverse binary fission. What are functions of MreB protein and par-system? 2+5+3

[Turn Over]

iii) Briefly describe the types of cell surface receptors. Mention the major pathways of cell signalling. Outline the cAMP pathway.

2+2+6

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

- a) Totipotency
- b) Plasmid
- c) Carboxysome
- d) Interphase
