U.G. 2nd Semester Examination - 2021

MICROBIOLOGY

[HONOURS]

Course Code : MB-H-CC-L-03

(Fundamental Cell Biology)

Full Marks : 20 Time : 1 Hour

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: 1×5=5

   i) What is the advantage of small size of bacterial cells?

   ii) If there is no cell wall what is the default shape of bacteria?

   iii) Give the example of a bacterium having peritrichous flagella.

   iv) Define basement membrane in tissue.

   v) Nuclear lamina is composed of which type of filaments?

   vi) Which type of rRNAs are present in eukaryotic ribosome?

   vii) What are O-linked and N-linked glycosylation?

   viii) Mention two main functions of smooth-ER?

2. Answer any **one** question : 5×1=5

   i) How do actin filaments grow?

   ii) Discuss the components and functions of nuclear pore complex.

   iii) Differentiate pleuripotent and totipotent stem cells.

3. Answer any **one** question : 10×1=10

   i) Mention the components of extracellular matrix. Compare the functions of elastins, in contrast to collagens. Discuss the location, structure and function of focal adhesion sites. 3+3+4=10

   ii) What are the key proteins of MAP kinase pathway? How any signalling pathway does initiated even in absence of its ligand? Discuss the four key phases of carcinogenesis? 3+2+5=10

   iii) Discuss the molecular steps for insertion process of proteins in the ER. Discuss the structure and function of Nucleolus. 5+5=10

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