

M.Sc. (Microbiology) (NEP Pattern) Semester-II  
**02MSCMB02 Paper-II : Membrane Structure and Signal Transduction**

P. Pages : 1

Time : Three Hours



**GUG/S/25/15407**

Max. Marks : 80

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1. Discuss about different techniques for study of membrane structure in detail. 16

**OR**

- a) Discuss in detail about structure and function of mitochondria. 8
- b) Write a detailed note on Endoplasmic reticulum. 8

2. Describe in details about Active and passive transport mechanisms. 16

**OR**

- a) Write a detailed note on ATP powered pumps. 8
- b) Discuss in detail about transepithelial transport. 8

3. Discuss about working mechanism of G-protein coupled receptors and their effectors in detail. 16

**OR**

- a) Write a detailed note on RTK and MAP kinases. 8
- b) Discuss in details about mechanism of JAK-STAT pathway. 8

4. Discuss in detail about bacterial signal transduction mechanism by taking sporulation as a model. 16

**OR**

- a) Write a detailed note on Histidine kinase pathway. 8
- b) Describe about basic two component system in detail. 8

5. Write a short note on:

- a) Gap junctions. 4
- b) Non-gated Ion channels. 4
- c) Concept of cell signaling. 4
- d) Heat shock proteins. 4

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