Registration Number:

Date & session:6-12-22

**ST. JOSEPH’S UNIVERSITY, BENGALURU -27**

**M.Sc (MICROBIOLOGY) – I SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination conducted in December 2022)**

**MB 7221: CELL BIOLOGY**

**Time: 2 hours Max Marks: 50**

**This question paper contains 1 printed page and four parts**

**I. Answer any Five of the following 5X3=15**

1. What is the role of GTP in the assembly of microtubules?

2. List the major classes of receptors that have evolved to mediate signal transduction.

3. What is the role of G proteins in a signaling pathway?

4. Give the stages of the cell cycle.

5. What are the different types of coated vesicles involved in vesicular transport?

6. Name the various organelles of the endomembrane system.

7. List a few functions of the SER.

1. **Answer any Two of the following 2X5=10**

8. Illustrate the extrinsic pathway of apoptosis.

9. Differentiate between endocytosis and exocytosis.

10. Explain pathogenicity islands.

**III. Answer any Two of the following 2X10=20**

11. Explain quorum sensing. Elaborate on the mechanism of quorum sensing in gram-negative bacteria.

12 a. Discuss the steps of glycosylation in the Golgi complex. **5**

b. Explain the role of nitric oxide as an intercellular messenger. **5**

13. Discuss the type 1 prokaryotic secretion system. How does it differ from types 2 and 3?

1. **Answer the following 1X5=5**

14. Suppose you found that molecule X, which had a molecular mass of 1000 daltons, was

able to penetrate the channels of a gap junction, but molecule Y, whose molecular mass

was only 500 daltons, was unable to diffuse between the same cells. How might these

molecules be different so as to explain these results?