Registration Number:

Date & session:

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

**M.Sc. MICROBIOLOGY – I SEMESTER**

**END SEMESTER EXAMINATION: OCTOBER 2023**

**(Examination conducted in November/December 2023)**

**MB 7221: CELL BIOLOGY**

**(For current batch students only)**

**Time- 2 hours Max Marks-50**

**This question paper contains 2 printed pages and 4 parts**

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

1. Write in brief on pathogenicity islands.
2. What did Rudolf Virchow contribute to cell biology? Name the nucleotides used for polymerization of microtubules and microfilaments.
3. How do biofilms undergo maturation? Write the components of biofilm matrix.
4. Write in brief on nuclear organization.
5. List the proteins present in the sarcomere.
6. Give roles of the following proteins in one sentence- **i.** FtsZ , **ii.** Histidine kinase,  **iii.** LuxI.
7. Write names three of GTP binding proteins involved in signalling.
8. **Answer any Two of the following 2X5=10**
9. Explain active and passive transport with appropriate examples.
10. Write a note on inhibition of quorum sensing in bacteria.
11. Elaborate the role of Ca2+ in opening and closing of stomata.

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

1. A. Write a brief note on anterograde vesicular trafficking within a cell. (6)

B. Diagrammatically represent bacterial ageing. (4)

1. How do cells regulate the cell cycle and avoid entering cancerous growth? Give a detailed account.
2. Elaborate on GPCR mediated signaling pathway.

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

1. The graph given below depicts concentrations of acyl homoserine lactone produced by and the cell growth of *Pseudomonas aeruginosa* in a certain experiment. Study the graph and determine what kind of test has been performed which resulted into the following graph and explain the results.

