

**RAN-2303080602040003****M. Sc. (Sem. - II) Examination September - 2025****Microbiology (Paper - Elective - 1 - MB-2004) Advances in Pharmaceutical Microbiology****Time: 3 Hours ]****[ Total Marks: 70****સૂચના : / Instructions**

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.  
Fill up strictly the above details on your answer book
- (2) Figures to the right indicate full marks of the question.
- (3) Draw neat and labelled diagrams whenever necessary.

Seat No.:

     

Student's Signature

**Q. 1. Answer any two of the following:****(18)**

- Explain why microorganisms and medicine are considered crucial components of the pharmaceutical industry.
- Explain the mode of action of growth-inhibiting substances with suitable examples.
- Describe the theory of zone formation in detail.

**Q. 2. Answer any two of the following:****(18)**

- What are the core principles and key requirements of Good Manufacturing Practice in the pharmaceutical industry?
- Describe conventional quality monitoring methods with two specific examples.
- Rapid methods have wide applications in pharmaceutical quality monitoring: justify with suitable example.

**Q. 3. Answer any two of the following:****(18)**

- Provide a detailed discussion of sterilization control methods, including their principles, applications, and limitations.
- Differentiate between quality assurance and quality control in pharmaceutical manufacturing, detailing their respective roles.
- Discuss factors influencing microbial spoilage and preservation in pharmaceuticals

**Q. 4. Answer any two of the following:****(16)**

- Explain the processes of production, fermentation and blending involved in vaccine manufacturing.
- Detail the various methodologies employed in *in vivo* diagnostics, discussing their advantages, limitations.
- Write a note on immune sera and monoclonal antibodies as sterile pharmaceutical products.