M.Pharm Even Semester Examination, May, 2025

PHARMACEUTICAL SCIENCES

(2nd Semester)

Course No: MPH-201T

(Molecular Pharmaceutics)

FM: 75

Time: 3 Hours

The figures in the right margin indicate full marks for the question

I. Objective type (Answer the following in brief) 2x10=20

1. What is double targeting?
2. What are stealth liposomes? Mention their significance.
3. Write the formula to calculate drug encapsulation efficiency and drug loading.
4. Define polydispersity index and zeta potential.
5. What is an epitope and HAT medium?
6. Give the advantages (*any four*) of phytosomes.
7. Write the pathways for drug absorption in the nasal route.
8. Explain the Flame projection test for aerosol.
9. What is gene therapy? Mention its significance.
10. What are aptamers? Give one example.

II. Long answers (Answer two out of three questions) 10x2=20

1. Classify types of drug targeting. Explain passive and active targeting. Add a note on Pinocytosis. (2+6+2)

2. What is the significance of particle morphology study? Explain the principles of *any four* microscopic methods with labelled diagram. (2+8)

3. Explain in detail*any five* methods of preparation of microcapsules. (10)

III. Short answers (Answer seven out of nine questions) 5x7=35

1. Mention the tumour targeting approaches. Explain the tumour targeting with prodrug therapy. (1+4)

2. Write the composition of liposomes. Classify and describe liposomes based on composition and application. (1+4)

3. Mention the barriers in brain-targeted drug delivery. Discuss brain-targeted drug delivery approaches. (1+4)

4. What is extravasation? Write the process of extravasation with a suitable diagram. (1+4)

5. Discuss the official (IP) leakage test for metered dose aerosol with acceptance criteria. (5)

6. Write the concept of self-assembly. Elaborate on the preparation of Aquasomes. (2+3)

7. Mention different techniques used for particle size determination and explain *any four* of them. (2+3)

8. Write the advantages and disadvantages of the nasal route of drug delivery. Give a note on the formulation of the nasal spray. (5)

9. Write a note on Gene expression systems. (5)

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