III. Short Answer (Answer any seven questions) (5x7=35)

1. Write a note on plastic flow. (5)
2. What is viscosity? What are single-point and multi-point viscometers. (1+4=5)
3. Discuss the optical properties of colloids. (5)
4. Discuss about powder flow evaluation in micromeritics. (5)
5. Write a note on sedimentation parameters. (5)
6. Explain the different approaches to achieve controlled flocculation of suspensions. (5)
7. What is micromeritics? Discuss the methods for determining particle surface area. (5)
8. Define plastic and elastic deformations. Explain the reasons for pseudoplastic flow. (2+3=5)
9. Write a note on the structured vehicle for preparing stable emulsions. (5)

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B.Pharm Even Semester Examination, May, 2025

PHARMACEUTICAL SCIENCES

(4th Semester)

Course No: BP-403T

(Physical Pharmaceutics-II)

FM: 75

Time: 3 Hours

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

I. A. Multiple Choice Questions: (10x1=10)

1. In normal distribution, _____ % of the population lies within ±1σ (standard deviation) from the mean.

   (a) 68% (b) 84%

   (c) 95.5% (d) 99%

2. In cases where no sedimentation takes place in a suspension, then sedimentation volume, F is ____

   (a) $F<1$ (b) $F>1$

   (c) $F=1$ (d) $F=0$

3. Particle size of dispersed phase in molecular dispersion is _____

   (a) more than 0.5µm (b) less than 1nm

   (c) more than 5µm (d) 1µm

4. An instrument for determining particle surface area that works on the principle of air permeability is _________.

   (a) Quantasorb QS16

   (b) Beckman Coulter

   (c) Zeta sizer

   (d) Fisher sub-sieve sizer

5. Materials that exhibit ________ flow are also called as Bingham bodies.

   (a) pseudoplastic (b) dilatant

   (c) plastic (d) thixotropic

6. The movement of charged particles through a liquid under the influence of an applied potential difference is called ________.

   (a) electrophoresis (b) electro-osmosis

   (c) streaming potential (d) zeta potential

7. The ratio of the void volume to bulk volume of the powder packing is known as _________

   (a) bulk density (b) Carr's index

   (c) Hausner ratio (d) porosity

8. '*The precipitating power of an electrolyte increases rapidly with the valence or charge of the coagulating ions*' is the statement of _____________.

   (a) Bancroft rule (b) Schulze-Hardy rule

   (c) DLVO theory (d) Hofmeister theory

9. Gold number for acacia is _____.

   (a) 0.005 to 0.01 (b) 1 to 5

   (c) 0.1 to 0.2 (d) 2

10. The force required to initiate a plastic deformation is known as _____

   (a) tensilstrain (b) shear strain

   (c) plastic modulus (d) yield stress

I. B. Objective Type Questions: (2x5=10)

1. Define gold number. (2)

2. Provide Edmundson's equation. What is it used for? (2)

3. Define kinematic viscosity and relative viscosity. (2)

4. What is Hofmeister series? (2)

5. What are the characteristics of colloidal dispersions? Briefly explain. (2)

II. Long answers (Answer any two questions) (10x2=20)

1. What are molecular dispersions? Provide detailed classification of colloidal dispersions. (1+9=10)

2. What are the applications of micromeritics in pharmacy?Discuss microscopic method of particle size determination. (5+5=10)

3. Give two examples each of Newtonian and non-Newtonian systems.Discuss Newton's law of flow in brief. With a neat diagram, explain dilatant systems of non-Newtonian flow. (2+3+5=10)