Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF PHARMACY

B. Pharm. Summer 2022 - 23 Examination

Semester: 4 **Date: 17/04/2023**
Subject Code: BP403T **Time: 10:00am to 1:00pm**
Subject Name: Physical Pharmaceutics II **Total Marks: 75**

Instructions:
1. Figures to the right indicate maximum marks.
2. Make suitable assumptions wherever necessary.

Q.1 Multiple Choice Questions (MCQs) (1 Mark Each) **(20)**

1. What is the term used to describe the scattering of light by coarse and colloidal dispersed systems?
   a) Brownian movement b) Stokes effect
   c) Refractive effect d) Tyndall effect
2. Which property of colloidal dispersions involves the scattering and absorption of light?
   a) Kinetic properties b) Optical properties
   c) Electrical properties d) Magnetic properties
3. What is NOT the test for emulsions?
   a) Dye solubility test b) Membrane filtration test
   c) Conductivity test d) Dilution test
4. An example of colloidal system is:
   a) Paracetamol suspension b) Liquid Paraffin emulsion
   c) Solutions of soap and proteins d) None of the above
5. What is/are the difference(s) between a flocculated and deflocculated suspension?
   a) The size of the particles b) The stability of the suspension
   c) The degree of aggregation of the particles d) All of the above
6. Which type of deformation results in a permanent change in shape of the material?
   a) Plastic deformation b) Elastic deformation
   c) Viscoelastic deformation d) None of the above
7. Yield value is observed in following type of flow.
   a) Dilatant flow b) Pseudoplastic flow
   c) Plastic flow d) Newtonian flow
8. What is the Heckel equation used for in pharmaceutical sciences?
   a) Determination of elastic modulus of tablets b) Determination of yield strength of tablets
   c) Determination of plastic deformation of tablets d) All of the above
9. Which type of system shows a decrease in viscosity as shear rate increases?
   a) Pseudoplastic b) Plastic
   c) Dilatant d) Newtonian
10. Which type of viscometer is based on the movement of a sphere through a liquid?
    a) Capillary viscometer b) Rotational viscometer
    c) Oscillatory viscometer d) Falling sphere viscometer
11. Tapped density is always:
    a) Equal or higher than bulk density b) Equal or lower than bulk density
    c) Lower than bulk density d) None of the above

12. Porosity is defined as:

    a) Bulk volume/Void volume b) Void volume/Bulk volume

    c) Void volume/True volume d) True volume/Bulk volume

13. In which particle size determination method, stage micrometer is the component?

    a) Sieving method b) Sedimentation method

    c) Optical microscopy d) All of the above

14. If angle of repose is less than 25°, which type of flow is this?

    a) Good b) Poor

    c) Passable d) Excellent

15. Which range of Carr's index represent "Good Flow"?

    a) 5-12 b) 12-16

    c) 18-21 d) 23-35

16. Following agent is used as anti-oxidant.

    a) Acacia b) Propylene Glycol

    c) Ortho-cresol d) Ascorbic acid

17. Which type of reaction kinetics involves a constant rate of degradation over time?

    a) Zero order b) First order

    c) Second order d) Third order

18. Which type of degradation reaction involves the breakdown of a molecule in the presence of oxygen?

    a) Reduction b) Isomerization

    c) Oxidation d) Racemization

19. Creaming stability problem is observed in

    a) Tablet b) Syrup

    c) Suspensions d) Emulsions

20. Half-life $t_{1/2}$ = 0.693/k is for following type of reaction.

    a) Zero b) First

    c) Second d) Third

Q.2 Long Answers (any 2 out of 3) (10 Mark Each) **(20)**

1. Explain evaluation tests for emulsions and stability problems occurred in emulsions.
2. Explain in detail different types of flows.
3. a) Explain in brief sedimentation method to determine particle size.
   b) Explain in brief first order kinetics.

Q.3 Short Answers (any 7 out of 9) (5 Mark Each) **(35)**

1. Classify colloidal systems with their properties.
2. Differentiate flocculated and de-flocculated suspensions.
3. Explain in detail plastic and elastic deformation.
4. Explain in detail U-tube viscometer.
5. Explain in detail angle of repose and importance of flow property in pharmaceutical production.
6. Explain sieving method for particle size determination.
7. Explain chemical factors influencing degradation of pharmaceutical product.
8. Explain in detail any one method to determine shelf life of product.
9. Explain in detail cone and plate viscometer.