



## BRAINWARE UNIVERSITY

Term End Examination 2023-2024

Programme – B.Pharm-2020/B.Pharm-2021/B.Pharm-2022

Course Name – Physical Pharmaceutics II

Course Code - BP403T

( Semester IV )

Full Marks : 75

Time : 3:0 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A

(Multiple Choice Type Question)

1 x 20=20

1. Choose the correct alternative from the following :

- (i) Select the following is a colloid.
- |                |                   |
|----------------|-------------------|
| a) Vinegar     | b) Paint          |
| c) Muddy Water | d) Sugar solution |
- (ii) Select one of the following properties is extensively applied for determining the molecular weight of polymers.
- |                                 |                               |
|---------------------------------|-------------------------------|
| a) Depression of freezing point | b) Elevation of boiling point |
| c) Lowering of vapour pressure  | d) Osmotic pressure           |
- (iii) Select the dispersed phase and dispersion medium in foams are respectively:
- |                   |                  |
|-------------------|------------------|
| a) Gas and liquid | b) Gas and solid |
| c) Liquid and gas | d) Solid and gas |
- (iv) Select the correct one, aerosol is the reverse of:
- |             |                |
|-------------|----------------|
| a) Emulsion | b) Liquid foam |
| c) Smoke    | d) Solid foam  |
- (v) Addition of alcohol to a hydrophilic colloid states that:
- |                    |                  |
|--------------------|------------------|
| a) Crystallization | b) Hydration     |
| c) Precipitation   | d) Stabilization |
- (vi) Surfactant solutions are named as association colloids when their concentrations are:
- |  |  |
|--|--|
| a) Insufficient to saturate the bulk phase | b) Less than critical micellar concentration (CMC) |
| c) More than CMC                           | d) Less than CMC                                   |
- (vii) From the following options select the protective action if the gold number is less:
- |         |         |
|---------|---------|
| a) more | b) Less |
| c) Half | d) Zero |
- (viii) When distance between the particles are large the particles experience less attractive force and aggregates are formed. This phenomenon is defined as:
- |                    |                      |
|--------------------|----------------------|
| a) Primary minimum | b) Potential barrier |
|--------------------|----------------------|

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- c) Secondary minimum  
d) Interparticle distance
- (ix) In general, Newtonian fluids are explained in terms of viscosity and a corresponding expression in non-Newtonian fluids is.
- a) apparent  
b) dynamic  
c) intrinsic  
d) kinematic
- (x) Identify the correct one, the dilatant flow is a reverse phenomenon of \_\_\_\_.
- a) newtonian flow  
b) plastic flow  
c) pseudoplastic flow  
d) rheopexy
- (xi) At equilibrium, the thixotropic behavior of a pseudoplastic system relates to the state of.
- a) gel  
b) paste  
c) sol  
d) wax
- (xii) Select which one of the following is not a rheological property of a semisolid dosage form.
- a) body and slip  
b) spreadability  
c) surface tension  
d) viscosity
- (xiii) Select the option that is not related to intermolecular attractions.
- a) dipole-dipole moment  
b) hydrogen bonding  
c) ion-ion interactions  
d) molecular dispersion
- (xiv) Identify the type of viscosity specified in I.P. (Ostwald viscometer) is.
- a) absolute viscosity  
b) dynamic viscosity  
c) kinematic viscosity  
d) viscosity coefficient
- (xv) The density of the dispersed phase is more than that of the dispersion medium. According to the Stokes' equation, the creaming is, Choose the correct one
- a) at the center of the emulsion  
b) in both the directions  
c) in downward direction  
d) in upward direction
- (xvi) The HLB range of an emulsifier employed in the preparation of water-in-oil emulsion is
- a) 3 to 6  
b) 7 to 12  
c) 13 to 15  
d) more than 15
- (xvii) Emulsions are defined as thermodynamically unstable systems. Choose the events that follow sequentially towards instability are
- a) coalescence, breaking, creaming and flocculation  
b) coalescence, flocculation, creaming and breaking  
c) flocculation, creaming, breaking and coalescence  
d) flocculation, creaming, coalescence and breaking
- (xviii) The main function of an emulsifier in the preparation of an emulsion is to
- a) develop a condensed membrane layer film  
b) increase the repulsions between globules coming together  
c) increase the surface free energy  
d) reduce the interfacial tension
- (xix) Judge the Microemulsion is NOT considered to be a true emulsion, because
- a) appearance is transparent  
b) emulsifier is not used  
c) immiscible phase is absent  
d) internal phase is not spherical
- (xx) Auxiliary emulsifying agents are used to stabilize the emulsion. They act on the principle
- a) adjusting the HLB value  
b) strengthening the nonpolar tails of the emulsifier  
c) strengthening the polar heads of the emulsifier  
d) thickening the continuous phase

### Group-B

(Short Answer Type Questions)

5 x 7=35

2. Define hydrophobic colloids and describe its preparation methods. (5)
3. State the causes for instability of emulsions. (5)
4. Describe association colloids mention with mechanism of formation of micelles. (5)
5. Develop the methods of improvement of flow property of granules & powders. (5)
6. Explain the potential energy curve of suspensions. (5)

7. Explain the preventive measures for chemical degradation due to oxidation. (5)

**OR**

- Explain rate equation, half- life, shelf life of zero-order reaction. (5)
8. Explain the graphical and half life method for determination of order of reaction. (5)

**OR**

Explain the factors influencing the rate of a reaction. (5)

**Group-C**

(Long Answer Type Questions)

10 x 2=20

9. Explain in brief the emulsification technique. (10)
10. Explain in brief on first order reaction and determine its rate constant, half life and shelf life (10) with suitable examples.

**OR**

Illustrate the procedure for accelerated stability testing and prediction of shelf life of a drug (10) product.

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Pharmacy  
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