

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**  
**End Semester Examination – Summer 2022**

**Course** : B. Pharmacy (Second Year) **Sem.** : IV  
**Subject Name** : Physical Pharmaceutics-II **Subject Code** : BP403T  
**Max Marks** : 75 **Date:**30/08/2022 **Duration** : 3.45 Hr

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**Instructions –**

1. All questions are compulsory
  2. Answers to MCQs should be written in full sentences
  3. Draw diagrams / figures wherever necessary
  4. Figures to right indicate full marks
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**Q.No.1. Attempt the following Multiple choice questions. (MCQs) (20X 1= 20 Marks)**  
(All the questions are compulsory)

- i. **Gold number is defined as number of milligram of protective colloid required in 10 mL of red gold sol to prevent the change in colour from red to violet on addition of 1 mL of..... Solution.**
  - a. 10 % NaCl
  - b. 0.1 % NaCl
  - c. 10 % KCl
  - d. 0.1 % KCl
- ii. **Sedimentation velocity of spherical particles is governed by.....**
  - a. Charle's Law
  - b. Stoke's Law
  - c. Osmotic Pressure
  - d. None of the above
- iii. **..... is the difference in the potential between the shear plane & the electroneutral region in the dispersion**
  - a. Peptization
  - b. Nernst potential
  - c. Electrokinetic Potential
  - d. Steady State
- iv. **For an ideal suspension, the sedimentation volume should be...**
  - a. Zero
  - b. Less than 1
  - c. More than 1
  - d. Equal to 1
- v. **.....is the process of formation of light, fluffy aggregates held together by physical forces.**
  - a. Flocculation
  - b. Deflocculation
  - c. Coalescence
  - d. All of these
- vi.  **$\eta_{sp}/c$  is used for viscosity determination by using.....viscometer**
  - a. Capillary
  - b. Falling Sphere
  - c. Cup & Bob
  - d. Cone & Plate

- vii. **Shear thickening system is also known as.....flow**
- Plastic
  - Pseudoplastic
  - Dilatant
  - Spurs
- viii.  $\mu = \frac{\text{Lateral Strain}}{\text{Linear Strain}}$
- Elastic modulus
  - Hookes law
  - Heckel equation
  - Poisson's ratio
- ix. **The reciprocal of viscosity is known as.....**
- Fluidity
  - Mobility
  - Ductility
  - Plug flow
- x. **The change in velocity between two planes of liquid which is separated by distance is .....**
- Shearing stress
  - Rate of shear
  - Strain
  - Yield value
- xi. **The unit of specific reaction rate constant for Second order reaction is**
- Litre Moles<sup>-1</sup> Second<sup>-2</sup>
  - Litre Moles<sup>-1</sup> Second<sup>-1</sup>
  - Second<sup>-1</sup>
  - Moles Litre<sup>-1</sup> Second<sup>-1</sup>
- xii. **Wet gum method is also known as**
- Continental Method
  - Forbe's method
  - English method
  - Bottle method
- xiii. **A drug suspension decomposes by zero-order kinetics with a rate constant of 2 mg mL<sup>-1</sup> month<sup>-1</sup>. If the initial concentration is 100 mg mL<sup>-1</sup>, what is the shelf life?**
- 2 months
  - 3 months
  - 4 months
  - 5 months
- xiv. **'-----' is the ability of a pharmaceutical product to retain the physical, chemical, microbiological and biopharmaceutical properties**
- Drug stability
  - Chemical kinetics
  - Order of reaction
  - Micromeritics
- xv. **Hausner ratio is**
- Tapped Density/Bulk density
  - Bulk density/ Tapped Density
  - Bulk Density/ Void volume
  - Void volume/ Bulk Density
- xvi. **Which of the following is the identification test for emulsion**
- Dilution Test
  - Cobalt Chloride test
  - Conductivity Test
  - All of the Above

- xvii. **The density of the dispersed phase is more than that of the dispersion medium.**  
**According to Stoke's equation, the creaming is:**
- At the center of emulsion
  - In both the directions
  - In upward direction
  - In downward direction
- xviii. **The rate equation for a chemical reaction is reported as  $(-dc/dt)=kc$ .**  
**The order of reaction is....**
- Zero order
  - Pseudo Zero order
  - Pseudo first order
  - First order
- xix. **The Carr's compressibility index value 26 - 31 indicate that the flow will be...**
- Excellent
  - Passable
  - Good
  - Poor
- xx. **In coulter-counter method, as the particles travelled through the orifice the event that occurs is...**
- Conductance between the electrodes increases
  - Electronic scanners produces photographs for volume measurement
  - Resistance between the electrodes increase
  - Sedimentation increase

**Q.No.2 Solve any TWO from following questions (Long Answers) (2 X 10 = 20 Marks)**

- What is rheology and elaborate different types of flows in liquids.
- What are the properties of colloids? Explain electrical properties in detail.
- What is Molecularity & Order of Reaction? Explain the different methods used for determination of 'order of reaction'.

**Q.No.3 Solve any SEVEN from following questions (Short Answers) (7 X 5 = 35 Marks)**

- Define following terms:  
 a. Angle of repose b. Porosity, c. True density d. Electrophoresis e. Stability testing
- Explain the Van't Hoff equation.
- Describe different types of Particle diameters.
- Differentiate between Plastic & Elastic deformation. Add a note on Heckel equation.
- Elaborate the concept of Thixotropy.
- Derive the derivation of Zero order reaction rate constant.
- Explain the importance of Micrometrics in pharmacy with the help of suitable examples.
- Explain the concept of Controlled Flocculation.
- Write a detail note on Accelerated stability testing for pharmaceutical products.