Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2023

Course: B.Pharmacy **Semester: 4th**
Program: Physical Pharmaceutics **Duration: 03 Hours**
Course Code: BP403T **Max. Marks: 75**

Instructions:

SECTION A
(20Qx1M=20 Marks)

S. No.		Marks	Cos
Q 1	**Statement of question**		
1.	**Particle size is……to free energy:** a. Inversely proportional b. Directly proportional c. Not related. d. None of the above	**1**	**CO4**
2.	**Rate of sedimentation of flocculated suspension is…….** a. High b. Medium c. Low d. None of the above	**1**	**CO3**
3.	**The movement of colloidal particles through a liquid under the influence of electric field is called** a. Electrophoresis b. Electro-osmosis c. Electro chemical reaction d. Electrodialysis	**1**	**CO1**
4.	**According to the Newton's law of viscosity, "The shear stress in flowing fluid is to the rate of shear."** a. Inversely proportional b. directly proportional c. Square root d. Perpendicular	**1**	**CO2**
5.	**Structured vehicle is included in the formulation of a suspension, in order to:** a. decrease the interfacial tension b. prevent the caking of the sediment c. prevent the sedimentation of particles d. reduce the size by chemical means	**1**	**CO3**
6.	**Which of the following viscometer is based on the principle of Stokes' Law.** a. Cup and Bob viscometer b. Falling Sphere Viscometer c. Cone and plate viscometer d. Rotational viscometer	**1**	**CO2**
7.	Differentiate between flocculated and deflocculated suspensions.	**1**	**CO3**
8.	**The density of the dispersed phase is less than that of the dispersion medium. According to the Stokes' equation, the creaming is:** A. at the center of the emulsion B. in both the directions C. in downward direction D. in upward direction	**1**	**CO3**
9.	**The HLB system is used classify** A. Flavours B. Colours C. Surfactants D. Perfumes	**1**	**CO2**

10.	**In coulter-counter, as the particles travel through the orifice, the event that occurs is:** a. conductance between the electrodes increases b. electronic scanners produce photographs for volume measurement c. resistance between the electrodes increases d. sedimentation increases	**1**	**CO4**
11.	**What is compressibility index?**	**1**	**CO4**
12.	**Hausner Ratio is** a. Tapped density / Bulk density b. Bulk density / Tapped density c. bulk volume / void volume d. void volume / bulk volume	**1**	**CO4**
13.	**Which of the following is the half life of first order reaction** a. t1/2 = A0/2k b. t1/2 = 0.693/2k c. t1/2 = 2k d. t1/2 = 0.693/k	**1**	**CO5**
14.	**Which one of these methods is the MOST effective in preventing the rate of hydrolysis?** A. buffer B. complexation C. removal of water D. suppression of solubility	**1**	**CO5**
15.	**Climatic zone II is** a. Moderate climate b. Subtropical and Mediterranean climate c. Hot/dry climate d. Hot/humid climate	**1**	**CO5**
16.	**In high concentrations, electrolytes destabilize a lyophilic sol by a process termed as:** a. coagulation b. dilution c. salting out d. solvation	**1**	**CO1**
17.	Which one of the following physical Property is NOT a rheological property? a. body and slip b. spreadability c. surface tension d. viscosity	**1**	**CO2**
18.	**The unit of Strain is** a. N b. Nm^{-2} c. Nm^2 d. Dimensionless	**1**	**CO1**
19.	Define first order reaction with suitable example.	**1**	**CO5**
20.	Define expiry date.	**1**	**CO5**
SECTION B (20 Marks) **(2Qx10M=20 Marks)** **Attempt 2 Question out of 3**			
Q 1	**Statement of question**		
1.	Discuss electrical and optical properties of colloids.	**10**	**CO1**
2.	How is surface area estimated by air permeability method. Explain Kozeny-carman equation.	**10**	**CO4**
3.	Discuss in detail the theories of emulsion.	**10**	**CO3**
SECTION-C (35 Marks) **(7Qx5M=35 Marks)** **Attempt 7 Question out of 9**			
Q 1	**Statement of question**		
1.	Define order of reaction. Explain the differential method for determination of order of reaction.	**5**	**CO5**
2.	Discuss the electrical and optical properties of colloids.	**5**	**CO1**

3.	Explain the principle of cup & bob viscometer.	**5**	**CO2**
4.	Explain the formulation of emulsion by HLB method.	**5**	**CO3**
5.	Define the mechanism of thixotropy and give its applications in pharmacy.	**5**	**CO2**
6.	Enumerate methods to determine the particle size. Explain sieving and sedimentation method to determine the particle size.	**5**	**CO4**
7.	Explain chemical degradation of pharmaceutical compounds due to hydrolysis. Explain its preventive measures.	**5**	**CO5**
8.	State and explain Stokes Law. How one can use this law to increase physical stability of suspensions.	**5**	**CO3**
9.	Discuss plastic and pseudoplastic system of flow.	**5**	**CO2**