Seat No.: _____   Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B.Ph. - SEM–IV • EXAMINATION – SUMMER -2022

Subject Code: BP403TP   **Date: 18/07/2022**
Subject Name: Physical Pharmaceutics II
Time: 10:30AM TO 1:30PM   **Total Marks: 80**
Instructions:
1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Differentiate molecular dispersion and colloidal dispersion with example.	**06**
	(b)	Describe any two kinetic properties of colloids.	**05**
	(c)	Describe the Kawakita and Heckel equations with respect to powder compression.	**05**
Q.2	**(a)**	With the help of a diagram discuss the principle and working of a Searle type of cup and bob viscometer.	**06**
	(b)	Write a note on measurement of thixotropic coefficient.	**05**
	(c)	With respect to Rheology describe how aqueous hydroxy propyl methyl system would behave under stress.	**05**
Q.3	**(a)**	Briefly discuss the theory of sedimentation in settling of suspension.	**06**
	(b)	Give a brief account on theories of emulsification.	**05**
	(c)	Explain identification test for emulsion.	**05**
Q.4	**(a)**	Describe suitable method for particle volume measurement.	**06**
	(b)	What is specific surface. Calculate specific surface for a spherical particle.	**05**
	(c)	Discuss the derived properties of powder.	**05**
Q.5	**(a)**	What is meant by controlled flocculation? Discuss the various means by which controlled flocculation can be achieved?	**06**
	(b)	Explain accelerated stability testing in expiration dating of pharmaceutical dosage forms.	**05**
	(c)	Discuss any one method for determining true density and bulk density.	**05**
Q. 6	**(a)**	Explain zero order and pseudo zero order reaction with examples and suitable applications.	**06**
	(b)	A solution of a drug contained 500 units/ml when prepared. It was analyzed after 40 days and was found to contain 300 units/ml. Assuming it a first order reaction, find out half life and shelf life of the solution.	**05**
	(c)	Discuss the various means of stabilization of product which is sensitive to oxidation.	**05**
Q.7	**(a)**	A plastic material was found to have a yield value of 5200 dyne/cm^2. At shearing stresses above the yield value, shearing stress and rate of shear were linearly proportional. If rate of shear is 150 sec^{-1} when shearing stress was 8000dyne/cm^2, calculate the mobility of the system.	**06**

(b) Compute the sedimentation volume and degree of flocculation of a 5% w/v **05** suspension of magnesium carbonate in water. The initial volume is 100 ml and final volume of sediment in 30 ml, the deflocculated sedimentation volume is 0.23.

(c) A sample of powdered zinc oxide, density 5.60 g/cm^3, is allowed to settle under **05** the gravitational force, 981 cm/sec^2, at 25°C. The rate of settling is calculated to be 7.30×10^{-3} cm/sec; the density of the medium is 1.01 gm/cm^3 and viscosity is given an 0.01 poise. Calculate the appropriate diameter of zinc oxide powder.

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