Total No. of printed pages = 4

BP 403T

01/06/24

Roll No. of candidate | | | | | | | | | | |

2024

B.Pharm. 4th Semester (Regular) End-Term Examination

PHYSICAL PHARMACEUTICS – II

Full Marks – 75 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Multiple choice questions (MCQ) (Answer all questions) : (20 × 1 = 20)

(i) Coarse dispersion of gold appears _____ while colloidal gold has a red color

(a) Red (b) Blue

(c) Green (d) Yellow

(ii) Which of the following methods is used to measure the particle size distribution in micromeritics?

(a) Spectrophotometry

(b) HPLC analysis

(c) Sieve analysis

(d) Refractive index measurement

(iii) Helium Pycnometer is used to determine

(a) Size (b) True density

(c) Sedimentation rate (d) Surface area

(iv) What is the purpose of using a surfactant in emulsions?

(a) To reduce particle size

(b) To enhance stability

(c) To enhance stability

(d) To increase viscosity

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(v) Sedimentation rate can be decreased by _____ particle size

(a) increase (b) decrease

(c) unchanged (d) none of the above

(vi) The time required for the complete degradation of a drug in solution is a finite value. The order of that reaction is

(a) zero (b) pseudo first

(c) first (d) second

(vii) Climatic zone II is

(a) Moderate climate

(b) Hot/dry climate

(c) Hot/humid climate

(d) Subtropical and Mediterranean

(viii) _____ reaction do not depend on temperature

(a) photochemical (b) exothermic

(c) endothermic (d) none of these

(ix) The unit of 'k' for 'zero order' reaction is

(a) moles (b) moles/litre/second

(c) moles/second (d) moles/litre

(x) On a product, the label states 'protect from light'. What type of decomposition does the product undergo?

(a) carboxylation

(b) Decarboxylation

(c) oxidation

(d) hydrolysis

(xi) _____ is not the fundamental property of powder

(a) particle shape (b) bulk density

(c) particle volume (d) particle number

(xii) Each micelle may contain _____ monomer

(a) 20 (b) 30

(c) 40 (d) 50

(xiii) The reactions is called as _____ if only one type of molecule undergoes a change to yield the product

(a) unimolecular (b) Trimolecular

(c) Bimolecular (d) Tetramolecular

(xiv) The viscosity of a fluid is directly proportional to

(a) Temperature (b) Pressure

(c) Shear rate (d) Shear stress

(xv) The phenomenon of thixotropy is often observed in

(a) Newtonian fluid (b) Gases

(c) Plastics (d) Suspensions

(xvi) The Heckel equation is used to

(a) Determine the yield point of material

(b) Calculate the elastic modules of a material

(c) Model plastic deformation in materials

(d) Predict the behaviour of non–Newtonian fluids

(xvii) Span80 have HLB value of

(a) 4.0 (b) 4.3

(c) 3.7 (d) 4.6

(xviii) The system that undergoes gel–sol–gel transformation is known as

(a) Elastic

(b) Permanent deformation

(c) Shear thickening

(d) Shear Thinning

(xix) The units, stokes are used for one of the following

(a) Dynamic viscosity (b) Fluidity

(c) Kinematic viscosity (d) Reduced viscosity

(xx) Which property measures the resistance of a liquid to flow?

(a) Density (b) Solubility

(c) Viscosity (d) Volume

2. Short answers (Answer Seven) $(7 \times 5 = 35)$

(a) Describe various ways of quantifying the now of powders.

(b) Derive rate equation, half–life and shelf–life of first order reactions.

(c) Write short notes on ICH stability guidelines.

(d) Explain about the various evaluation parameters for suspension formulation.

(e) What are the mechanism of crystal growth? How it can be prevented?

(f) Differentiate between Newtonian and non–Newtonian systems with suitable examples.

(g) Classify different types of colloids giving their salient features and examples.

(h) Write Stokes' equation. What are its applications in evaluation of dosage forms?

(i) Write the principle and working of Ostwald viscometer.

3. Long answers (Answer any two) (2 × 10 = 20)

(a) Describe the various degradation pathways of drug products and methods of preventing the same. (6+4)

(b) What are the factors affecting the physical stability of emulsion? Emulsions are thermodynamically unstable – Explain. (5+5)

(c) Define thixotropy. Draw different types of thixotropic curves and explain the mechanisms of their behaviour with suitable examples. (2+8)