

02/07/19

Total No. of printed pages = 4

PY 132401

Assistant Librarian
Bina Chowdhury Central Library
(GIMT & GIPS)
Guwahati - 781017

Roll No. of candidate

--	--	--	--	--	--	--	--	--	--

2019

B.Pharm. 4th Semester End-Term Examination

PHARMACEUTICS – III
(PHYSICAL PHARMACY – II)

(Old Regulation)

Full Marks – 100

Time – Three hours

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

Question No. 1 and any *six* from the rest.

1. Tick the correct answer of MCQs : (10 × 1 = 10)

- (i) Particle size range of colloidal dispersion is
(a) 1 mm to 1 cm (b) 1 nm to 1 μ m
(c) 1 nm to 1 mm
- (ii) In first order reaction half life ($t_{1/2}$) is equal to
(a) 0.693/k (b) 0.1052/k
(c) 0.963/k
- (iii) Unit of viscosity is
(a) dyne.cm⁻² (b) dyne.sec.cm
(c) dyne. Sec.cm⁻²

[Turn over

- (iv) Gelatin solution exhibits
(a) plastic flow
(b) pseudo plastic flow
(c) dilatant flow
- (v) Homogenization is a method of preparation of
(a) suspension
(b) emulsion
(c) colloidal dispersion
- (vi) Dialysis is a process of purification of
(a) solution (b) emulsion
(c) colloidal dispersion
- (vii) Gold number of gum acacia is
(a) 0.01 (b) 0.1
(c) 0.2
- (viii) Self life of a drug means degraded amount is
(a) 10% (b) 90%
(c) 50%
- (ix) BHA/BHT is a/an
(a) Buffering agent (b) Antioxidant
(c) Chelating agent
- (x) Example of an antioxidant is
(a) Vitamin B (b) Vitamin C
(c) Vitamin D

2. Explain the following briefly (any five): (5 × 3 = 15)

- (a) Solubility of drug,
(b) Protective colloids,
(c) Hydrotrophy,
(d) Order of reaction,
(e) Critical micelle concentration,
(f) Carr's index percentage.

3. (a) Define diffusion and dissolution of drugs. Give the Noyes-Whitney equation, explaining the significance of each term.
- (b) Define complexation? Give the importance of complexation phenomenon in pharmacy.
- (c) Briefly describe the theories of emulsification.

$$(2 \times 2 + 3) + (2 + 3) + 3 = 15$$

4. (a) Briefly describe what measures you will take to improve the flow property of a tablet granulation.
- (b) Explain porosity and particle number and give their significance.
- (c) Describe the techniques for the assessment of flow properties of powders.
- (d) The true density of aspirin is 1.3 gm/c.c and the granule density is 1.33 gm/c.c. What is the porosity within the granules? (4+4+4+3=15)

5. (a) Mention the importance of drug stability and different causes of drug's instability.
- (b) Derive the expression to calculate rate constant, half-life and self life for first order reaction.
- (c) The initial concentration of a drug is 94 units/ml. which decomposes according to first order kinetics. The specific decomposition rate K obtained from an Arrhenius plot is $2.09 \times 10^{-5} \text{ hr}^{-1}$ at room temperature (25°C). Previous experiments have shown that below 45 units/ml. the drug is not fit for use. What expiry date should be assigned to the product?

$$(2 \times 3) + (2 + 3) + 4 = 15$$

6. Write short notes on the following (any five):

(5×3=15)

- (a) Qualities of good suspensions,
- (b) Purification of colloids,
- (c) Determination of self life of drugs,
- (d) Viscometers,
- (e) First Fick's law of diffusion,
- (f) Chelation.

7. (a) Explain the Newton's law of flow and kinematic viscosity. Mention the flow characteristics of Non-Newtonian materials.

(b) What do you understand by viscoelasticity? Describe mechanical models to illustrate the same.

(c) Discuss the applications of rheology in pharmacy. (2×2+3)+(2+3)+3=15

8. Differentiate between the following (any five):

(a) Glidants and lubricants (5 × 3 = 15)

(b) True density and bulk density

(c) Plastic and pseudo plastic flow

(d) Lyophilic and lyophobic colloids

(e) Suspension and emulsion

(f) Adsorption and absorption.

9. (a) Write notes on (i) Electrical properties of colloids, (ii) Evaluation of emulsions, (iii) C.M.C and Kraft point.

(b) Give the examples of the followings - emulgent, chelating agent, flocculating agent and nonionic surfactant. (4+4+3+(4×1)=15)