



Name :

Roll No. :

Invigilator's Signature :

CS/M.Pharm/SEM-2/MPT-206(2)/2013

2013

PHYSICAL PHARMACEUTICS

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

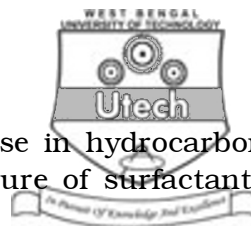
1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

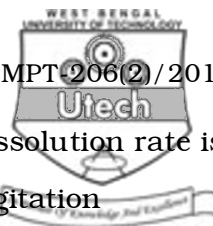
- i) Which of the following ingredients retards the dissolution of a hydrophilic drug ?
 - a) Lactose
 - b) Starch
 - c) Ethyl cellulose
 - d) PVP.

- ii) Reversible gel-sol-gel transformation is due to a property known as
 - a) Rheopexy
 - b) Rheology
 - c) Thixotropy
 - d) none of these.

- iii) The intra-particle porosity of sulfadiazine granules having a granule density of 1.12 gm/cm^3 and true density of 1.50 gm/cm^3 is
 - a) 50%
 - b) 25%
 - c) 30%
 - d) 75%.



- iv) At a constant temperature an increase in hydrocarbon chain length in the molecular structure of surfactants causes
- proportional decrease in CMC
 - logarithmic decrease in CMC
 - logarithmic increase in CMC
 - proportional increase in CMC.
- v) A value of angle of repose that describes excellent flow properties of powder is
- $< 25^\circ$
 - $25-30^\circ$
 - $> 40^\circ$
 - $30-40^\circ$.
- vi) In Coulter counter, as particle travels through the orifice the event that occurs is
- conductance between electrodes increases
 - transmittance between electrodes decreases
 - transmittance between electrodes increases
 - conductance between electrodes decreases.
- vii) The distance between inside bottom of the vessel and the basket/paddle blade of USP dissolution rate test apparatus is maintained at
- 20 ± 2 mm
 - 25 ± 2 mm
 - 25 ± 5 mm
 - 20 ± 5 mm.
- viii) In the manufacturing of pharmaceutical tablets, sodium starch glycolate is used as
- diluent
 - superdisintegrant
 - glidant
 - binder.
- ix) In case of granular fragmentation during compression, when the compression force is increased the dissolution rate is
- increased
 - decreased
 - unaltered.



- x) For Interfacial Barrier Mode (IBM) the dissolution rate is
- Increased with increase in rate of agitation
 - Decreased with increase in rate of agitation
 - Not dependent of rate of agitation.
- xi) Buffered aspirin tablet is prepared to
- Enhance the solubility of drug
 - Reduce the solubility of drug
 - Reduce gastric irritation.
- xii) The viscosities of water and chloroform at 25°C are 0.8904 cps and 0.563 cps respectively. What is the relative viscosity of chloroform ?
- 0.6323
 - 0.3236
 - 0.5632
 - 0.3732.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

- Distinguish among the terms compaction, compression and consolidation.
- Write a note on porosity and its application in pharmacy.
- Explain the liquid displacement method for the determination of true density of solid materials.
- Discuss flow-through cell apparatus (USP-4) for the *in vitro* dissolution testing of pharmaceutical dosage form.
- What do you mean by lubricant ? Discuss lubricant sensitivity measurement.



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Write about the preparation of synthetic hydrogels. Explain the diffusion properties of swollen hydrogels. How do swollen hydrogels modify release kinetics ? $5 + 5 + 5$
8. Describe wet granulation technique for the production of granules in tableting operations. With a neat sketch, describe the operating principles of fluidized bed granulators. $10 + 5$
9. Discuss the factors affecting the CMC of surfactants. Illustrate the thermodynamic aspects of micelle formation and its structure. What are the biological implications of surface active agents ? $3 + 6 + 6$
10. Write short notes on any *three* of the following : 3×5
- a) Freeze granulation technology
 - b) Hydrotrophy in pharmaceuticals
 - c) Force distribution during compression
 - d) Phase behavior of surfactants in binary and ternary systems.
11. a) Briefly discuss the parameters used to express particle size and shape.
- b) Discuss the various advanced tablet coating technologies being implemented in contemporary pharmaceutical industry. $5 + 10$

