CS/M.Pharm (Pharmaceutics)/SEM-2/MPT-206(II)/09
PHYSICAL PHARMACEUTICS (SEMESTER - 2)

1. .....
Signature of Invigilator

2. .....
Signature of the Officer-in-Charge

Reg. No. | | | | | | | | | | | | | | |

Roll No. of the Candidate | | | | | | | | | | | | | | |

CS/M.Pharm (Pharmaceutics)/SEM-2/MPT-206(II)/09
ENGINEERING & MANAGEMENT EXAMINATIONS, JULY – 2009
PHYSICAL PHARMACEUTICS (SEMESTER - 2)

Time : 3 Hours] [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Objective type. You have to write the answer in the space provided **marked 'Answer Sheet'**.
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

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Marks Obtained

	Group – A										Group – B			Group – C				
Question Number																	***Total Marks***	***Examiner's Signature***
Marks Obtained																		

.....
Head-Examiner/Co-Ordinator/Scrutineer

49004 (08/07)

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PHYSICAL PHARMACEUTICS

SEMESTER - 2

Time : 3 Hours] [Full Marks : 70

GROUP – A

(Objective Type Questions)

1. Answer any *ten* of the following : 10 × 1 = 10

i) Which is the major mechanism for drug absorption ?

a) Active transport b) Pore transport

c) Passive diffusion d) Facilitated diffusion.

ii) Which factor influences the solubility of salt form of drug ?

a) Size of particle b) Size of counter ion

c) Amount of salt d) pH value.

iii) Directly compressible tablet diluent is

a) $CaCO_3$

b) Microcrystalline Cellulose

c) Mannitol

d) Lactose.

iv) A hardness of ..... kg is minimum for uncoated tablet.

a) 5 b) 10

c) 20 d) 2.

v) The dissolution assembly is suspended in a liquid medium in a suitable vessel containing

a) 800 ml beaker b) 900 ml beaker.

c) 1000 ml beaker d) 1100 ml beaker.

vi) At the triple point, *O*, in case of ice-water-vapour phase system, the degree of freedom is ..... . (Fill in the blank)

vii) If a gel is highly hydrated, diffusion occurs through the ..... .
(Fill in the blank)

viii) The rheological properties of solid are determined by measuring

a) angle of repose b) carr index

c) disintegration time d) none of these.

ix) Heckel plot illustrates the relationship between the following :

a) Density and moisture content

b) Porosity and concentration of lubricating agent

c) Angle of repose and concentration of lubricating agent

d) None of these.

x) The equation, $J = D_f \cdot \frac{dc}{dx}$ is commonly known as

a) Fick's First Law of Diffusion

b) Voyes and Whitney equation (law)

c) Peppus equation

d) Higuchi's law.

xi) The temperature at which the solubility of the surfactant equals CMC is the ..... . (Fill in the blank)

xii) The particle diameter of individual particles can be measured by ..... apparatus. (Fill in the blank)

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Briefly discuss the factors affecting drug dissolution.

3. Write about the Physics of Tablet compression.

4. Distinguish 'micellization' from 'solubilization'.

5. Critical micellization concentration (CMC) is influenced by certain factors. Elaborate, in short with example.

6. Write the method of determination of particle size (any *one*) and also explain the significance of particle size on powder flow property.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. What are Hydrogels ? How do you prepare synthetic hydrogels ? 2 + 13

8. Discuss, in detail, about different stages involved in tablet compression.

9. a) Write an account on kinetic aspects of Swelling deriving relevant equations.

   b) The diffusion coefficient, D, of a drug in a swollen hydrogel were measured at several pH values corresponding to different hydration values, H :

pH's	1	3	5	7
H (dimensionless, hydration value)	0·352	0·337	0·630	0·880
$D \times 10^{8}$ cm^{2} /sec.	2·50	3·58	44·60	139·00

   Compute the diffusion coefficient, D_o in water and the constant, K_f , of the system using appropriate equation. $7\frac{1}{2} + 7\frac{1}{2}$

10. Write notes on any *three* of the following : 3 × 5

a) Uses of surfactants in increasing solubility of drugs

b) Kraft temperature and cloud point

c) Association colloids

d) Oral gels.

11. Discuss the role of surfactants in the contents of

a) percutaneous absorption

b) parenteral administration. $2 \times 7\frac{1}{2}$

END