

ASTU

M. Ph.  
1st Sem.

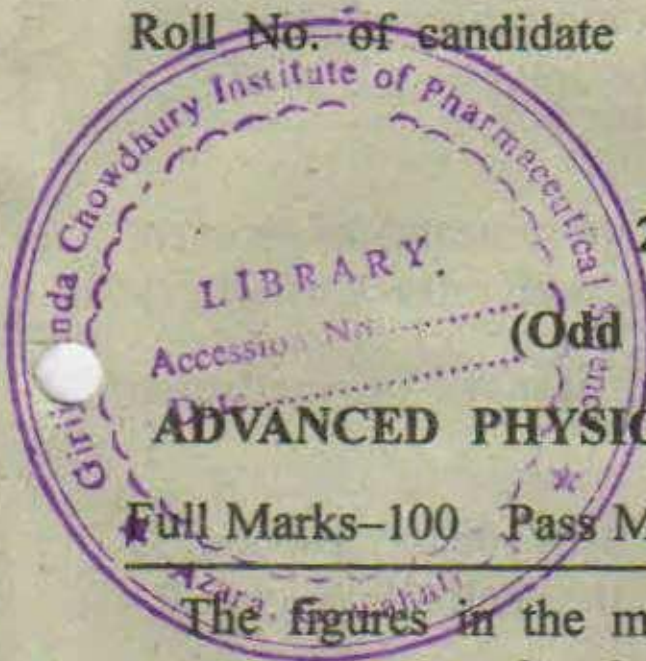
6/12/13 (Reg)

Total No. of printed pages = 5

PY134106

Roll No. of candidate

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2013

(Odd Semester)

**ADVANCED PHYSICAL PHARMACEUTICS**

Full Marks-100 Pass Marks-35 Time-Three hours

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

Answer *eight* questions taking *three* from each section. Question Nos. 1 and 6 are compulsory.

**SECTION - A**

1. (a) How different polymorphic form of a solid differ each other ? 2
- (b) Enlist the parameters help to characterize the permeation behaviour of a drug. 2
- (c) How intrinsic dissolution differ from particulate dissolution ? 2
- (d) How radial tensile strength of tablet is determined ? 1

[Turn over



- (e) Define molecularity and order of reaction with examples. 1
- (f) The solid state decomposition of aspirin in presence of moisture follows the order —. 1
- (g) How does dielectric constant of solvent influence on the reaction rates ? 1
- (h) What is the significance of activated complex ? 1
- (i) The half life of a first order reaction is 4 years. What will be the shelf-life in years ? 1
- (j) How does the rate constant of a reaction vary with temperature ? Explain with the help of Arrhenius equation. 1
- (k) How does re-test date differs from re-test period in stability evaluation of pharmaceutical products ? 1
2. Discuss physics of tablet compression. Explain the properties of tablet influenced by compression with proper figure. 6+6=12
3. Discuss the timing and objectives of preformulation study. Discuss solid-state stability testing as a part of preformulation study in designing a solid dosage form. 4+8=12



4. Explain the stability guidelines of FPP'S as per ICH. What is Bracketing and Matrixing design of stability studies ? Enlist the stability testing attributes of tablets, soft gelatin capsules, inhalations, LVP's and emulsions. 5+4+3=12
5. How drugs are stabilized against oxidation and hydrolysis ? Discuss the mechanism with examples. Explain pseudo first order mechanism with examples and equations. Deduce the final integral equations when  $a \neq b$ . 5+3+4=12

#### SCTION - B

6. (a) How to obtain poly (phosphoesters) from urethranes. Give the physical properties of phosphoesters. 1
- (b) Write a note on mechanical properties of polymer. 2
- (c) Write a note on emulsion polymerization. 2
- (d) How polymers are used for distribution control of drug in the body ? 2
- (e) What are the major limitations for the prodrug approach of enhancement of solubility ? 1



- (f) Arrange in increasing order of solubility-  
metastable, stable, amorphous. 1
- (g) Name two penetration enhancers which are  
very quickly and strongly acting but cause  
reversible damage to membrane. 1
- (h) Which are the BCS class V drugs? 1
- (i) Give two limitations of solid dispersion  
method. 1
- (j) Define micellar solubilisation. 1
- (k) What are Inclusion complexes? Give its  
application in enhancement of solubility. 1
7. Write a note on molecular weight and molecular  
weight distribution of polymers. How polymer  
molecular weight can be determined by measur-  
ing osmotic pressure and viscosity. 6+6=12
8. Write a detailed note on biodegradable polymers.  
What are the advantages offered by biodegrad-  
able polymers? Discuss the erosion and drug  
release from biodegradable polymers.  
3+3+6=12



9. Describe in detail the various methods for enhancement of Bioavailability with suitable examples. 12

10. Write short notes on the following :  $6 \times 2 = 12$

(a) Prodrug approach for enhancement of drug bioavailability.

(b) Methods for enhancement of Dissolution of drugs.