

WINTER - 2014
PURUS - IV (2011 COURSE) :
SUBJECT: PHARMACEUTICAL ANALYSIS - II

Day: Thursday
Date: 13-11-2014

Time: 2:00 P.M. TO 5:00 P.M.
Max Marks. 80

N.B.

- 1) Q. No. 1 & Q. No. 5 are **COMPULSORY**. Out of the remaining solve any **TWO** questions from Section - I and Section - II each.
- 2) Answers to the two sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION - I

- Q1.** Attempt Any **FIVE** of the following **(10)**
- a) Types of buffers and composition used for calibration of potentiometer.
 - b) State and explain terms in Ilkovic equation.
 - c) Define Linearly polarized light and Elliptically polarized light.
 - d) Organic applications of polarography.
 - e) Enlist drugs assayed by potentiometric titrations.
 - f) Write general components in Instrumental analysis.
- Q2** a) Name different parts of polarimeter. State functions of each. Discuss applications of polarimetry in detail. **(08)**
- b) Explain methods to detect end point potentiometrically. Discuss potentiometric titrations. **(07)**
- Q3** a) Explain an ideal polarogram. Write in detail factors affecting diffusion current. **(08)**
- b) Explain polarographic apparatus with its working. **(07)**
- Q4** Write short notes on Any **THREE** **(15)**
- a) Classification and advantages of instrumental methods of analysis.
 - b) Glass electrode.
 - c) Applications of Polarography.
 - d) Saccharimeter.

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SECTION - II

- Q5.** Attempt Any **FIVE** of the following (10)
- a) Define equivalent conductance and molar conductance.
 - b) Define solubility product and enlist factors affecting it.
 - c) Explain specific and molar refraction.
 - d) Write advantages of rotating platinum electrode over dropping mercury electrode.
 - e) Classify amperometric titrations.
 - f) Define fractional precipitation and co-precipitation.
- Q.6** a) Discuss conductometric titration curves in detail. (08)
- b) Explain principle of gravimetric analysis and add a note on apparatus needed for amperometric titration. (07)
- Q.7** a) Explain unit operations in gravimetric analysis. (08)
- b) Classify types of refractometers. Explain instrumentation of any two refractometers. (07)
- Q.8** Write short notes on **ANY THREE** (15)
- a) Applications of conductometry.
 - b) Amperometric titrations.
 - c) Applications of gravimetric analysis in Pharmaceuticals.
 - d) Applications of refractometry.

WINTER - 2014

PURUS - IV (2011 COURSE):

SUBJECT : PHARMACEUTICAL MICROBIOLOGY (INCLUDING IMMUNOLOGY) - II

Day : Thursday
Date : 20-11-2014

Time : 2:00 P.M. TO 5:00 P.M.
Max. Marks : 80

N.B.:

- 1) Q.No.1 and Q.No.5 are **COMPULSORY**. Out of remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Draw neat and labeled diagrams **WHEREVER** necessary.
- 4) Figures to the right indicate **FULL** marks.

SECTION - I

- Q.1** Attempt **ANY FIVE** of the following: [10]
a) Enlist sources of microbial spoilage.
b) Define MIC. How it is determined?
c) How screening of microbial species is performed?
d) Which tests detect *Salmonella* contamination?
e) Give significance of microbial assays.
f) Draw a well labeled diagram of Tray Fermenter.
- Q.2** Attempt the following: [15]
a) Discuss Preservative Efficacy Tests.
b) Correlate MIC and Microbial Assays.
c) Discuss Microbial Assay of Vitamins.
- Q.3** a) Draw and discuss Fluidized Bed Bioreactor. [08]
b) How penicillin is produced by fermentation? [07]
- Q.4** Write short notes on **ANY THREE** of the following: [15]
a) Microbial Assay of Streptomycin
b) Probiotics
c) Microbial Limit Tests
d) Air-Lift Fermenters

SECTION - II

- Q.5** Attempt **ANY FIVE** of the following: [10]
a) Compare immediate and delayed hypersensitivity.
b) Define and explain Adjuvants.
c) Classify immunological products.
d) Enlist Type I hypersensitivity reactions.
e) What is Humoral Immune Response?
f) How is 'Virulence' determined?
- Q.6** Attempt the following: [15]
a) Discuss Quality Control of vaccines.
b) Explain Radioimmunoassay in detail.
c) Describe the risk of Rh-incompatibility in newborns.
- Q.7** a) Give an exhaustive account of precipitation reactions. [08]
b) Write in detail about Immunoglobulins. [07]
- Q.8** Write short notes on **ANY THREE** of the following: [15]
a) Phagocytosis
b) Monoclonal Antibodies
c) Schick Test

WINTER - 2014
PURUS -IV (2011 COURSE):
SUBJECT: PHYSICAL PHARMACY-II

Day: Saturday
Date: 15-11-2014

Time: 2:00 P.M. To 5:00 P.M.
Max. Marks: 80

N.B.:

- 1) Q.No.1 and Q.No.5 are **COMPULSORY**. Out of remaining attempt **ANY TWO** questions from each Section.
- 2) Answer to both the sections should be written in **SEPARATE** answer books.
- 3) Figure to the right indicates **FULL** marks.

SECTION-I

- Q.1** Answer **ANY FIVE** of the following: [10]
- a) What is micellar solubilization?
 - b) Differentiate between flocculated and deflocculated suspension.
 - c) Write name and formula for equation governing settling of particles.
 - d) What is significance of zeta potential? Explain the effect of electrolytes on zeta potential.
 - e) Write formula for Freundlich adsorption isotherm.
 - f) What are sedimentation parameters?
- Q.2** a) Classify different types of colloids and discuss their distinguishing features and properties. [07]
b) What are surfactants? Explain in detail their applications in pharmacy. [08]
- Q.3** a) Explain in detail factors influencing settling of particles in pharmaceutical suspensions. [07]
b) Derive an equation for spreading co-efficient. Give its significance. [08]
- Q.4** Answer **ANY THREE** of the following: [15]
- a) Methods for measurement of surface tension.
 - b) Electric Double layer.
 - c) Physical stability of emulsions.
 - d) Kinetic properties of colloids.

SECTION-II

- Q.5** Answer **ANY FIVE** of the following: [10]
- a) What is crystal habit?
 - b) Define: i) Angle of repose ii) Carr's consolidation index
 - c) Classify various interparticulate bonds observed in a tablet.
 - d) Enlist methods used for measurement of particle surface area.
 - e) Explain dilatant flow behaviour.
 - f) Explain different types of packing arrangements in powder.
- Q.6** a) Define Thixotropy and explain the mechanism of the same. [07]
b) Add a brief note on mechanisms of compression of particles and methods to evaluate the same. [08]
- Q.7** a) Write a note different types of viscometers used to measure viscosity of sample. [07]
b) Explain in detail methods used to determine particle size. [08]
- Q.8** Answer **ANY THREE** of the following: [15]
- a) Phenomenon of compression.
 - b) Viscoelasticity.
 - c) Measurement of diffraction angle.

PURUS - IV (2011 COURSE): WINTER - 2014
SUBJECT: PHARMACOLOGY - I

Day : Saturday
Date : 22-11-2014

Time : 2:00 P.M. TO 5:00 P.M.
Max. Marks : 80

N.B.:

- 1) Q.No.1 and Q.No.5 are **COMPULSORY**. Out of remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION - I

- Q.1** Attempt **ANY FIVE** of the following: [10]
- a) Pharmacotherapeutics
 - b) Placebo
 - c) Spansules
 - d) Bioequivalence
 - e) Clearance
 - f) Volume of distribution
- Q.2** a) Enlist the routes of drug administration. Explain oral route in detail. Add a note on first pass effect. [08]
b) Explain the phases of drug metabolism. What are the factors affecting drug metabolism? [07]
- Q.3** a) Define drug-drug interaction. Explain pharmacodynamic drug interaction in detail. [08]
b) Explain the factors which affect drug action. [07]
- Q.4** Write short notes on **ANY THREE** of the following: [15]
- a) Nature of drugs
 - b) Blood Brain Barrier
 - c) Therapeutic Window and its importance
 - d) Tolerance

SECTION - II

- Q.5** Attempt **ANY FIVE** of the following: [10]
- a) Classify cholinergic receptors. Name their agonist and antagonist.
 - b) Classify neuromuscular blockers.
 - c) Define cycloplegia and photophobia.
 - d) Enlist the therapeutic uses of anticholinesterases.
 - e) Name the drugs used treatment of glaucoma.
 - f) What are the contra-indications of phenylephrine as nasal decongestants?
- Q.6** a) Classify adrenergic drugs. Explain the pharmacological actions of adrenaline. [08]
b) Classify β blockers. Discuss the pharmacology, uses and adverse effects of Propranolol. [07]
- Q.7** a) Explain in detail the mechanism of action, pharmacology and adverse effects of anticholinesterases. [08]
b) Differentiate between non-depolarizing and polarizing neuromuscular blockers. [07]
- Q.8** Write short notes on **ANY THREE** of the following: [15]
- a) Atropine
 - b) Anorectics
 - c) β agonist as smooth muscle relaxants
 - d) Dale's vasomotor reversal.

WINTER - 2014
PURUS - IV (2011 COURSE) :
SUBJECT: PHARMACEUTICAL CHEMISTRY - VI (ORGANIC)

Day: Tuesday
Date: 11-11-2014

Time: 2.00 P.M. To 5.00 P.M.
Max Marks. 80

N.B.

- 1) Q. No. 1 and Q. No 5 are **COMPULSORY**. Out of the remaining questions attempt any **TWO** from each section
- 2) Figures to the right indicate **FULL** marks.
- 3) Both the section should be written in **SEPARATE** answer books.

SECTION - I

Q.1 Answer any **FIVE** of the following: (10)

- a) Unlike benzene pyrrole nitration is performed with acetylnitrate and not with mixture of conc H_2SO_4 and cone HNO_3 . Explain.
- b) Write the structure of following heterocyclic
 - i) benzo [g] quinoline
 - ii) furo [3, 2, b] pyridine
 - iii) 3 - methoxy - 7H - azepine
- c) What will happen when pyrrole is treated with $C_2H_5O^- N_4^-$ (Chloroform and sodium ethoxide)
- d) What will happen when propene is treated with HBr in the presence of peroxide? Justify your answer.
- e) Explain how free radical iodination is difficult to perform.
- f) Pyridine 1 - oxide undergoes electrophilic substitutions at C_2 and C_4 position. Explain.
- g) Name medicinally important compounds of indole

Q.2 Answer any **THREE** of the following: (15)

- a) Give two methods of synthesis of isoquinoline
- b) Compare and contrast chemical properties of pyrrole and imidazole with respect to electrophilic substitutions.
- c) Describe generation of free radicals.
- d) Discuss autoxidation.

Q.3 Give methods of synthesis and reactions of any **TWO** of the following heterocycles. (15)

- a) Furan b) Indole c) Thiazole

P.T.O.

- Q.4** Write short notes on any **THREE** of the following (15)
- a) Skraup synthesis
 - b) Friedlander Synthesis
 - c) Free radical Polymerization
 - d) Paal Knorr Synthesis

SECTION II

- Q.5** Answer any **FIVE** of the following: (10)
- a) What will happen when glucose is treated with 12% HCl
 - b) What are glycosides?
 - c) Glucose and fructose produce same osazone when treated with phenylhydrazine. Explain .
 - d) What are reducing sugars?
 - e) Why starch gives violet colour when treated with iodine?
 - f) Why amino acids have high melting points?
 - g) Give classification of carbohydrates.
- Q.6** Discuss how cyclic structure of glucose is favoured to open chain structure. (15)
- Q.7**
- a) Describe Sanger or Per-Edman methods used to its find sequence of amino acids in peptides. (05)
 - b) Give methods of synthesis of amino acids. (10)
- Q.8** Write short notes on any **THREE** of the following (15)
- a) Mutarotation
 - b) Structure of sucrose
 - c) Isoelectric point
 - d) Protein structure

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