PURUS-III: APRIL/ MAY- 2014 (Sem Pattern)
SUBJECT: PHYSICAL PHARMACY-II

Day: Friday
Date: 02-05-2014

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 attempt any **TWO** questions from each section.
2) Both the sections should be written in **SEPARATE** answer books.
3) Figures to the **RIGHT** indicate full marks.

SECTION-I

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

a) Describe the effect of temperature on the surface tension of liquids.
b) Difference between plastic and pseudoplastic flow.
c) Define the terms shear stress and rate of shear and give its relationship.
d) What are protective colloids and give its importance.
e) What is HLB value?
f) Define colloids and classify colloids with examples.

Q.2 **a)** Explain the methods to determine surface tension. **(08)**
b) Define Nerst and Zeta potential. Add a note on electrical double layer. **(07)**

Q.3 **a)** Classify the different types of viscometers. Explain the principle and working of any one viscometer. **(08)**
b) Explain DLVO theory and give its significance in stabilization of colloids. **(07)**

Q.4 Write notes on **ANY TWO** of the following: **(15)**

a) Non-Newtonian fluids with examples
b) Optical properties of colloids
c) Thixotropy and antithixotropy

SECTION-II

Q.5 Answer the following (**ANY FIVE**): **(10)**

a) Define Emulsion and give the identification test for Emulsion.
b) Define polymorphism.
c) Enlist the methods to determine particle size.
d) Differentiate between flocculated and deflocculated suspension.
e) Define Bulk density. How is it determined?
f) Give any two methods to improve the flow properties of powder.

Q.6 **a)** Describe the methods to determine weight distribution in a powder sample. **(08)**
b) Explain any one method to determine the surface area of powder sample. **(07)**

Q.7 **a)** Derive Bragg's equation. Give its application in pharmacy. **(08)**
b) Write a note on physical instability of emulsion. **(07)**

Q.8 Write notes on (**ANY TWO**): **(15)**

a) Controlled flocculation
b) Sedimentation parameters
c) Coulter counter method

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SUBJECT : DOSAGE FORM DESIGN - I

Day : Saturday
Date : 03-05-2014

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) Answers to both the sections should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.

SECTION - I

Q.1 Answer **ANY FIVE** of the following: **[10]**

a) Explain crystallinity of solid as preformulation parameter.
b) What do you mean by surface tension and interfacial tension?
c) What are the general rules for solubility of inorganic molecules?
d) Explain basic concepts of Pharmaceutical suspensions.
e) Mention different relative terms of solubility as per USP.
f) What is surface free energy?

Q.2 Discuss in detail physiochemical, cosmetic and aesthetic criteria of formulation design. **[15]**

Q.3 **a)** Discuss in process quality control (IPQC) for monophasic liquids. **[08]**
b) Discuss co-solvency and complexation for enhancement of solubility. **[07]**

Q.4 Write notes on **ANY THREE** of the following: **[15]**

a) Structured vehicle
b) Antimicrobial preservatives
c) Flavouring agents in liquids
d) DLVO theory

SECTION - II

Q.5 Answer **ANY FIVE** of the following: **[10]**

a) Enlist the parameters for evaluation of dry syrups.
b) What is phase invesion?
c) Enlist formulation approaches for protein stabilization.
d) Differentiate between multiple and microemulsions.
e) What are advantages and disadvantages of suppositories?
f) Which are the tests for identification of type of emulsion?

Q.6 Discuss the formulation aspects of emulsion. Describe the processing and quality control for emulsions. **[15]**

Q.7 **a)** Explain the formulation approaches to protein stabilization. **[08]**
b) Discuss the physiological considerations for suppositories. **[07]**

Q.8 Write notes on **ANY THREE** of the following: **[15]**

a) Multiple emulsions
b) Equipments for emulsion manufacturing
c) Additives for dry syrups
d) Evaluation of suppositories

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PURUS - IV: (2011 COURSE): APRIL / MAY - 2014
SUBJECT: PHARMACEUTICAL CHEMISTRY - VI (ORGANIC)

Day: Friday
Date: 25-04-2014

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 attempt any **TWO** questions from each section.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION-I

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

a) How glucose and fructose give same osazone on treatment with phenylhydrazine. ?
b) What happens when glucose is treated with HI in the presence of red phosphorus?
c) Why do both glucose and fructose give positive Tollen's or Fehling's test?
d) What products are obtained when maltose is treated with bromine water?
e) Comment on configuration of free radicals giving a suitable example.
f) Give free radical mechanism for chlorination of methane.
g) Give one example (via free radical) of polymerization of olefins.

Q.2 **a)** Describe giving equations the sequence of methylation and hydrolysis as applied to (+) sucrose. **(05)**

b) Describe cyclic structure of (-) fructose. **(05)**
c) Discuss methods of generation of free radicals. **(05)**

Q.3 **a)** Describe reactions of cyclic structure of glucose. Why cyclic structure of glucose is favoured to open chain structure? **(10)**

b) Write a note on autoxidation. **(05)**

Q.4 Answer any **THREE** of the following:

a) Structure of lactose. **(05)**
b) Free radical halogenations. **(05)**
c) Addition reactions of free radicals. **(05)**
d) Mutarotation. **(05)**

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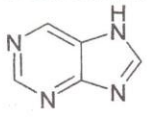
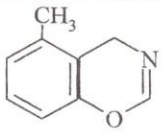
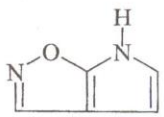
SECTION-II

Q.5 Answer any **FIVE** of the following: **(10)**

a) Pyridine undergoes electrophilic substitutions at C_3 position. Exp n.
b) Why imidazole resists electrophilic substitution.
c) What is Reissert synthesis?
d) Give systematic names of any two of the following:

i) 

ii) 

iii) 

e) Why amino acids behave as if they are non- volatile substances?
f) What are essential and non-essentail amino acids?
g) What is principle of Van Slyke method for the determination of free-NH_2 groups in amino acids.

Q.6 Give three methods of synthesis three reactions and medicinal used of any **Two** of the following: **(15)**
i) Furan ii) Indole iii) Thialole

Q.7 **a)** Describe any **Two** methods of synthesis of amino acids. **(10)**

b) Write a note on End group analysis of peptides. **(05)**

Q.8 Answer any **THREE** of the following: **(15)**

a) An isoelectric point.
b) Skranp quinoline synthesis.
c) Hinsberg thiophene synthesis.
d) Chichibabin reaction.

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PURUS – IV (2011 COURSE): APRIL/MAY – 2014

SUBJECT: PHARMACOLOGY - I

Day: Thursday
Date: 08-05-2014

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

N.B.:

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

SECTION – I

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

a) Define Pharmacokinetics.
b) Define Generic name.
c) Define Ointment.
d) Define hypodermic tablets.
e) Define volume of distribution.
f) Define tolerance.
g) Define drug abuse.

Q.2 a) Enlist various routes of drug administration. Explain in detail parenteral route of drug administration. **(08)**

b) Enlist sources of drugs. Add a note on nature of active ingredients. **(07)**

Q.3 a) Define drug interaction. Explain in detail pharmacokinetic drug interactions. **(08)**

b) Enlist the mechanisms of drug action. Explain in detail the receptor theory of drug action. **(07)**

Q.4 Write short notes on **ANY THREE** of the following: **(15)**

a) Half life
b) Clinical evaluation
c) Placental barrier and its importance
d) Dose response relationship

SECTION – II

Q.5 Answer **ANY FIVE** of the followings: **(10)**

a) Write the tissue distribution of muscarinic cholinergic receptors.
b) Explain the terms glaucoma and cycloplegia.
c) Discuss the mechanism of action of neuromuscular junction blockers.
d) Write the therapeutic classification of sympathomimetic drugs.
e) Write the biosynthesis pathway of adrenaline.
f) Write the therapeutic uses of dopamine.
g) Write the neuro transmitters of autonomic nervous system.

Q.6 a) Classify parasympatholytics. Discuss the pharmacological actions, and therapeutic uses of atropine. **(08)**

b) Discuss the pharmacological actions, adverse reactions, and therapeutic uses of Ephedrine. **(07)**

Q.7 a) Classify cholinesterase inhibitors. Discuss mechanism of action, pharmacological actions, adverse reactions, and therapeutic uses of neostigmine. **(08)**

b) Classify β receptor blockers. Discuss the pharmacological actions, adverse reactions, and therapeutic uses of propranolol. **(07)**

Q.8 Write short notes on **ANY THREE** of the following; **(15)**

a) Belladonna poisoning
b) Oximes
c) Metabolism and uptake mechanism catecholamines
d) Dale's vasomotor reversal

PURUS- IV (2011 COURSE): APRIL/ MAY- 2014
SUBJECT: PHARMACEUTICAL ANALYSIS-II

Day: Monday
Date: 28.04.2014

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 solve any **TWO** from Section-I and Section-II each.
2) Both the sections should be written in the **SEPARATE** answer books.
3) Draw neat and well labeled diagrams **WHEREVER** necessary.

SECTION-I

Q.1 Attempt **ANY FIVE** of the following: **(10)**

a) Write the advantages and disadvantages of instrumental methods.

b) How is calibration of pH meter done?

c) Write the Ilkovic equation and its role.

d) How is the potential selected in Amperometric titrations?

e) Define indicator electrode. Give its examples.

f) What is half wave potential? What is the role of half wave potential in Polarography?

Q.2 **a)** Explain different types of Potentiometer titrations in detail. **(08)**

b) Explain in detail principle and applications of Polarography. **(07)**

Q.3 **a)** Explain the principle, instrumentation and working of Amperometry with a neat diagram. **(08)**

b) Discuss in detail applications of Potentiometry. **(07)**

Q.4 Write note on **ANY THREE** of the following: **(15)**

a) Glass electrode and their functions
b) Titration curves in Amperometry
c) DME
d) Advantages of Polarography

SECTION-II

Q.5 Attempt **ANY FIVE** of the following: **(10)**

a) Define: Optically active substance and its significance.

b) Define: Molar conductance.

c) Explain Snell's Law.

d) Enlist steps involved in Gravimetric analysis

e) Give applications of Conductometry

Q.6 a) What is cell constant of a Conductmeter? Explain Specific Conductance and Equivalent Conductance. Discuss effect of dilution on them. **(08)**

b) What is gravimetric analysis? Write a note on filtration medias. **(07)**

Q.7 a) Name different parts of a Polarimeter and state function of each. Give applications of Polarimetry. **(08)**

b) Write about measurement of angle of refraction. Explain specific and molar refraction. **(07)**

Q.8 Write note on **ANY THREE** of the following: **(15)**

a) Molecular and Specific rotation

b) Conductometric titration of weak acid and strong base

c) Discuss precipitation from homogenous solution

d) Different types of Refractometer

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PURUS-IV (2011 COURSE): APRIL/MAY- 2014
SUBJECT: PHARMACEUTICAL MICROBIOLOGY(INCLUDING IMMUNOLOGY)-II

Day : Tuesday
Date : 06-05-2014

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** from each section.
2) Answers to both the sections should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.
4) Draw neat, labeled diagrams **wherever** necessary.

SECTION-I

Q.1 **a)** Answer **ANY THREE** of the following : **(06)**

i) Write Microbial limits of Lactose and Pure water.

ii) List various Strain Improvement methods.

iii) Draw a neat, labeled diagram of 'Tray Fermentor'.

iv) What is a 'Challenge Test'?

b) Which test micro-organism is used in the Microbiological assay of : **(04)**

i) Streptomycin

ii) Vitamin B_{12}

iii) Erythromycin

iv) Riboflavin

Q.2 **a)** Explain microbial assay of vitamins by titrimetric method. **(08)**

b) Which factors affect microbial spoilage of pharmaceuticals? **(07)**

Q.3 Discuss Fermentation with respect to type, design, media, process variables and significance. **(15)**

Q.4 Write short notes on : **(ANY THREE)** **(15)**

a) MPN

b) Probiotics

c) Cup-plate Assay method

d) MIC

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SECTION-II

Q.5 Answer the following : **(ANY FIVE)** **(10)**

a) Define 'Adjuvents' and Virulence'.

b) Justify Prausnitz-Kustner (PK) reaction.

c) Elaborate on 'Widal Test'.

d) What advantages Monoclonal antibodies offer?

e) Which tests are used in the diagnosis of HIV infection?

f) Classify vaccines.

Q.6 Answer the following : **(15)**

a) Discuss various properties of the immunoglobulin classes.

b) How quality of vaccines is maintained?

c) Describe cell-Mediated Hypersensitivity.

Q.7 Explain in detail various host-specific and non-specific defense mechanisms. **(15)**

Q.8 Write short notes on : **(ANY THREE)** **(15)**

a) Hybridoma Technology

b) Triple vaccine

c) Immunofluoroscence

d) Diphtheria antitoxins

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