PURUS – IV (2011 COURSE): SUMMER – 2016
SUBJECT : PHARMACEUTICAL CHEMISTRY – VI (ORGANIC)

Day : Saturday
Date : 23-04-2016

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** questions from each section.
2) Answer to both the sections should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.

SECTION – I

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

a) What are annomers?
b) Draw structure of cellulose.
c) Why free radical iodination is difficult?
d) What is polysaccharide?
e) Why F_2 is not practical for radical reaction?
f) What is disproportionation reaction?
g) Draw structure of amylopectin.

Q.2 Explain the chemistry of Glucose in detail. **[15]**

Q.3 a) What is mutarotation? Explain in detail. **[08]**
b) What is mean by reducing sugar? Explain with example. **[07]**

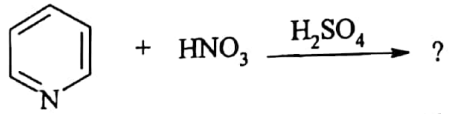
Q.4 Write short notes on **ANY THREE** of the following: **[15]**

a) Radical chain reaction
b) Generation of free radical
c) Why disaccharides not give Tollen's reagent test?
d) Ruff degradation

SECTION – II

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

a) Draw structure and give numbering to following heterocycles
   i) Pyrazole ii) Pyridine
b) Give corresponding drugs for following heterocylces
   i) Quinoline ii) Purine
c) Draw structure of naturally occurring amino acids given below
   i) Valine ii) Tyrosine
d) Predict the product:



e) What is iso-electric point of amino acids?
f) What is α-helix structure of protein?
g) Give outline for synthesis of pyrrole using 1,4-dicarbonyl compound.

Q.6 Explain any five methods of preparation of amino acids with example. **[15]**

Q.7 a) Give two methods of preparation and four chemical reactions of quinoline. **[08]**
b) Give two methods of preparation and three chemical reactions of indole. **[07]**

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

a) Biologically important peptides
b) Hantzsch synthesis
c) Secondary structure of protein
d) Paal – Knorr synthesis

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PURUS-IV (2011 COURSE) : SUMMER 2016
SUBJECT : PHARMACEUTICAL ANALYSIS-II

Day : Friday
Date : 29-04-2016

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 Section-I and Section-II.
2) Answers to the both the sections should be written in **SEPARATE** answer books.
3) Figures to the **RIGHT** indicate full marks.
4) Draw neat and labeled diagrams **WHEREVER** necessary.

SECTION-I

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

a) Define – Optical rotation and specific rotation.
b) Write factors affecting refractive index.
c) How do you calibrate pH meters?
d) State Ilkovic equation.
e) Write compositions of buffers.
f) What is supporting electrolyte? Why it is used?

Q.2 **a)** Classify electrodes. Discuss reference electrodes. **(08)**
b) Describe polarographic apparatus with merits and demerits of Dropping Mercury Electrode. **(07)**

Q.3 **a)** Write instrumentation of potentiometer with an exhaustive note on methods to detect end point potentiometrically. **(08)**
b) Explain instrumentation of Polarimeter with functioning of each part. **(07)**

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

a) Classify electroanalytical techniques.
b) Optical Rotatory Dispersion and Circular Dichroism.
c) Potentiometric titrations.
d) Saccharimeter.

SECTION-II

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

a) Define cell constant, state its significance.
b) Define Digestion and Filtration.
c) State fundamental law of refraction.
d) What is fractional precipitation?
e) Why nitrogen is bubbled in Amperometric apparatus?
f) Define equivalent and molar conductance.

Q.6 **a)** Classify types of Refractometers. Explain Abbe's and Pulfrich Refractometer. **(08)**
b) Write the unit operations in Gravimetry. **(07)**

Q.7 **a)** Write about Amperometric apparatus with amperometric titrations. **(08)**
b) Discuss conductance measurement and the cells. Write applications of conductometry. **(07)**

Q.8 Write short notes on any **THREE** of the following: **(15)**

a) Titration curves in conductometry
b) Image displacement refractometer
c) Applications of Refractometry
d) Gravimetric applications

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SY - B. Pharm - Sem. - IV - 2016.

PURUS – IV (2011 COURSE) : SUMMER – 2016
SUBJECT : PHYSICAL PHARMACY – II

Day : Monday
Date : 02-05-2016

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

N.B.

1) Q.1 and Q.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) What is Schulze Hardy rule?
b) Why suspensions are thermodynamically unstable?
c) What are methods to differentiate o/w and w/o emulsions?
d) Write name and formula for equation governing osmotic pressure.
e) What is spreading co-efficient? Give its significance.
f) Classify colloidal systems.

Q.2 a) Explain in detail theories of emulsification. **(08)**
b) Give an account of different types of adsorption isotherms. **(07)**

Q.3 a) Give an account of different kinetic methods to determine molecular weight of colloids. **(08)**
b) Explain the phenomenon of solubilization. **(07)**

Q.4 Answer any **THREE** of the following: **(15)**

a) Applications of surfactants
b) Methods of preparation of lyophobic colloids
c) DLVO theory
d) Electric double layer

SECTION – II

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

a) What is crystal habit?
b) Give applications of micromeritics in pharmacy.
c) Enlist methods to determine surface area.
d) Enlist methods to differentiate polymorphs.
e) Define **i)** Dilatant flow **ii)** Viscosity.
f) Classify different interparticulate bonds observed in a tablet.

Q.6 a) Explain in detail different methods used for particle size measurement. **(08)**
b) Give an account of factors affecting flow of powder. **(07)**

Q.7 a) Explain the phenomenon of compression and methods to evaluate the same. **(08)**
b) Write a note on different types of viscometers used to measure viscosity of sample. **(07)**

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

a) Measurement of diffraction angle
b) Thixotropy
c) Polymorphism
d) Compaction

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PURUS – IV (2011 COURSE): SUMMER – 2016
SUBJECT: DOSAGE FORM DESIGN – I

Day : Wednesday
Date : 04-05-2016

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

N.B.:

1) **Q. No. 1** and **Q.No.5** are **COMPULSORY**. Out of the 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 Answer **ANY FIVE** of the following: **[10]**

a) What are primary components of solution?
b) What you mean by polymorphism?
c) Differentiate between flocculation and deflocculation of suspsension.
d) Define sedimentation and what is stoke's law?
e) What is solid state stability?
f) What is zeta potential?
g) What is the role of humectant and co-solvent in preparation of suspension?

Q.2 a) Explain in detail about different formulation excipients needed for preparation of suspension. **[10]**
b) Discuss stability studies of solution. **[05]**

Q.3 a) Explain how the flow property of a drug substance is measured and mention its importance in formulation development. **[08]**
b) Discuss in detail aggregation and cake formation in suspension. **[07]**

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

a) Factors affecting dissolution
b) Crystal characteristics and bioavailability
c) Partition coefficient
d) Microbial contamination in non-sterile products

SECTION – II

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

a) Explain creaming of an emulsion.
b) Mention the advantages and disadvantages of emulsion.
c) Mention the reasons for formulation of dry syrups.
d) Explain identification tests for emulsion.
e) How effective concentration of preservative for emulsion be calculated?
f) What is displacement value?
g) What are the disadvantages of suppositories?

Q.6 a) Discuss physiological consideration and selection of base for suppository formulation. **[10]**
b) Discuss emulsifying agents. **[05]**

Q.7 a) Discuss various theories of emulsification. **[08]**
b) Discuss methods for preparation of suppositories. **[07]**

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

a) Evaluation of suppositories
b) Methods for manufacture emulsion
c) Mechanism and causes of protein destabilization
d) Processing and layout for dry syrup manufacturing

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PURUS – IV (2011 COURSE): SUMMER – 2016
SUBJECT : PHARMACEUTICAL MICROBIOLOGY (Including Immunology) – II

Day : Friday
Date : 06-05-2016

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 **SEPARATE** answer books.
3) Draw sketches **WHEREVER** necessary.
4) Figures to the right indicate **FULL** marks.

SECTION - I

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

a) How pyrogens are detected?
b) Mention various strain improvement strategies.
c) Write the significance of Probiotics.
d) Give merits and demerits of air–lift fermenters.
e) Define and explain MIC.
f) What are the sources of microbial spoilage?

Q.2 Draw and discuss complete fermentation process in detail. How industrial waste is treated? **[15]**

Q.3 a) Explain Microbial Assay of Vitamins. **[08]**

b) How to assess microbial contamination in pharmaceuticals. **[07]**

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

a) Challenge Test
b) Microbial Limit tests
c) Fermentation Media
d) Screening of Industrially Important Microbes

SECTION - II

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

a) Define 'Interferon' and 'Toxoids'.
b) Compare IgA and IgM.
c) What causes contact dermatitis?
d) What is the significance of Booster Dose?
e) Classify Antigen – Antibody reactions.
f) How HIV infection is diagnosed?

Q.6 Classify Immunity. Give an exhaustive account on different specific and non-specific defense mechanisms. **[15]**

Q.7 a) How vaccines are prepared and standardized? **[08]**

b) What is hypersensitivity? Discuss Type II hypersensitivity. **[07]**

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

a) BCG Vaccine
b) Hybridoma Technology
c) Immunofluorescence
d) Phagocytosis

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PURUS-IV (2011 COURSE) : SUMMER 2016
SUBJECT : PHARMACOLOGY-I

Day : Thursday
Date : 12-05-2016

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 Section-I and any **TWO** questions from Section-II
2) Section-I and Section-II should be written in **SEPARATE** answer book.
3) Figures to the right indicate **FULL** marks.

SECTION-I

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

a) What is prodrug?

b) What is clearance?

c) What are essential drugs?

d) Define mutagenicity and carcinogenicity.

e) What is tachyphylaxis?

f) What is drug intolerance?

g) What is pinocytosis?

Q.2 **a)** Define synergism. Discuss synergism with suitable examples. **(08)**

b) Define and classify receptors. Discuss in detail G-protein coupled receptors with examples **(07)**

Q.3 **a)** Define drug absorption. Discuss in detail various factors affecting absorption of drug. **(08)**

b) Explain in detail factors modifying drug action. **(07)**

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

a) Parenteral route

b) Plasma protein binding

c) First pass metabolism

d) Dose Response relationship

P.T.O.

SECTION-II

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

a) Write the co-transmitters of autonomic nervous system.

b) Name the tissue distribution of subtypes of muscarinic receptors.

c) Classify nicotinic receptor blockers.

d) Discuss about the enzymes matabolising noradrenaline.

e) Enlist the drugs affecting synthesis, storage, and uptake mechanism of catecholamines.

f) Write the therapeutic uses of α receptor blockers.

g) Write the interactions of catecholamines.

Q.6 **a)** Write the therapeutic classification of sympathomimetics. Explain pharmacological actions, adverse drug reactions, and therapeutic uses of cardiac stimulants. **(08)**

b) Discuss in detail biosynthesis and metabolism of acetylcholine. **(07)**

Q.7 **a)** Classify β – blockers. Write pharmacological account of β – blockers. **(08)**

b) Classify anti-cholinergic drugs. Discuss in detail balladona poisoning. **(07)**

Q.8 Write short notes on any **THREE** of the following: **(15)**

a) Dale's vasomotor reversal.

b) Neuromuscular junction blockers.

c) Amphetamine.

d) Organophosphate poisoning.

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