PURUS – II (SEMESTER PATTERN): APRIL / MAY 2010
SUBJECT: PHYSICAL PHARMACY – I

Day : Saturday
Date : 08-05-2010

Time: 10:00 AM TO 1:00 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 Answer **ANY FIVE** of the following: **[10]**

a) Give the derivation for phase rule.
b) State Boyle's Law and Gay Lussac's Law.
c) What is co-solvency and co-solvent?
d) Define molality and mole fraction.
e) What is specific and equivalent conductance?
f) Explain why suspensions mostly follow zero order.

Q.2 a) Explain the oxidative decomposition of pharmaceutical preparations with suitable examples. Mention the measures to prevent oxidative decomposition. **[08]**
b) Discuss Rast's Camphor method for measurement of freezing-point depression. **[07]**

Q.3 a) What are the different methods to ascertain the order of a reaction? **[08]**
b) Explain Debye Huckel theory to obtain the activity coefficient. **[07]**

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

a) Solubility of solids in liquids
b) Arrhenius theory of ionization
c) Three component system
d) Accelerated stability studies

SECTION – II

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

a) How does an ideal gas differ from real gases?
b) Give the application of phase rule in pharmaceuticals.
c) Differentiate between order and molecularity.
d) What is effect of dilution on specific conductance of electrolyte solution?
e) Mention the different types of solutions along with example.
f) Write two applications of chemical kinetics.

Q.6 a) Derive an expression for the time taken for 90 percent retention of potency for a zero order reaction. **[08]**
b) Explain Claude's and Linde's method for liquefaction of gases. **[07]**

Q.7 a) What do you mean by critical constant? Explain determination of critical constant. **[08]**
b) Explain in detail Excluded volume is four times the actual volume of molecule. **[07]**

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

a) Equivalent and specific conductance
b) Chemical degradations of pharmaceutical products
c) Gaseous states: compressibility factor

PURUS-III : APRIL/MAY - 2010 (Semester Pattern)
SUBJECT : PHARMACEUTICAL BIOCHEMISTRY-II

Day : Friday
Date : 07-05-2010

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

N.B.
1) Q. 1 and Q. 5 are **COMPULSORY** of remaining attempt any **TWO** questions from Section-I and **TWO** question from section-II
2) Answer to the two section should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.
4) Give reactions and diagrams whenever necessary.

SECTION – I

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

a) What is transamination?

b) What is DNA Ligase?

c) Give catabolism of cysteine.

d) What are essential amino acids?

e) What is respiratory acidosis?

f) What is gluconeogenesis?

Q.2 Answer the following:

a) What is pentose phosphate pathway? Give its importance. **(04)**

b) How RNA virus replicate? **(04)**

c) What is bound acid of gastric juice? **(03)**

d) What is oxidative deamination? Give one example. **(04)**

Q.3 Attempt any **THREE** questions: **(15)**

a) What is acid-base balance? How blood pH is regulated?

b) Explain the role of Vitamin B6.

c) Give biosynthesis of fatty acid and explain multienzyme complex.

d) What is homoestasis of blood sugar? Explain different factors involved in it.

Q.4 Write short notes on any **THREE:**

a) Calcium metabolism

b) B-oxidation

c) Favism

d) Jaundice

SECTION – II

Q.5 Attempt any **FIVE** question: **(10)**

a) What is phenyl ketomuria?

b) What are marker enzymes?

c) What is substrate level phosphorylation?

d) What is ketosis?

e) Define mutation.

f) What is gene?

Q.6 Answer any **THREE:** **(15)**

a) Give biosynthesis of urea.

b) List enzymes required in DNA replication and explain their role.

c) What are inborn errors of metabolism? Give two examples.

d) What are allosteric enzymes and explain feed back inhibition?

Q.7 a) Give catabolism of tryptophan and biosynthesis of niacine. **(08)**

b) What is ATP cycle? Explain the working of electron transport chain. **(07)**

Q.8 Write short note on any **THREE**: **(15)**

a) Renal clearance

b) Lipo proteins

c) Liver function tests

d) Vitamin E

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PURUS -III (SEMESTER PATTERN): APRIL / MAY 2010
SUBJECT: PHARMACEUTICAL MICROBIOLOGY – I

Day : Saturday — Time: 2:00 P.M. TO 5:00 P.M.
Date : 15-05-2010 — Max. Marks: 80.

N.B.:

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

SECTION-I

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

a) Explain the principle of Gram staining.
b) Define D – value, Z – value of inactivation factor.
c) Explain in short contribution Paul Ehrlich in microbiology.
d) Write function of condenser and diaphragm in compound microscope.
e) Discuss applications of filteration sterilization.
f) Give characteristics of actinomycetes.
g) Write ideal characteristics of disinfectants.

Q.2 Answer the following: **[15]**

a) Discuss factors affecting selection of antimicrobials.
b) Explain role of sterilization indicators in sterility assurance.
c) Write in detail scope and potential of pharmaceutical microbiology.

Q.3 a) Discuss about isolation of pure culture. **[08]**
b) Write about different types of microscopy. **[07]**

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

a) Biohazards
b) Microbial Limit Tests
c) Clinical Significance of Fungi
d) Whittekar's Classification

SECTION-II

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

a) Draw a neat diagram of bacterial cell.
b) Differentiate between bacteria and fungi.
c) What is selective media? Explain with example.
d) Write in brief about tissue culture in virus cultivation.
e) Give advantages and disadvantages of pour plate technique.
f) Write principle of Acid-fast staining.
g) Define CFU. Give role of colony characteristics in identification of bacteria.

Q.6 Answer the following: **[15]**

a) Discuss asexual means of reproduction in bacteria.
b) How will you detect motility of bacteria? Explain structure of flagella.
c) What is bacteriophage? Explain lytic growth cycle.

Q.7 a) Write different techniques used in preservation of cultures. **[08]**
b) Explain in detail growth curve of bacteria. **[07]**

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

a) *Rickettsia*
b) Retro-virsues
c) Candidiasis
d) *Penicillium* species

PURUS-III (SEMESTER PATTERN): APRIL / MAY 2010
SUBJECT: PATHOPHYSIOLOGY

Day : Tuesday
Date : 18-05-2010

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

SECTION-I

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

- **a)** List risk factors of hypertension.
- **b)** Give causes of asthma.
- **c)** Classify shock.
- **d)** Mention symptoms of depression.
- **e)** Give types of insomnia.
- **f)** Enumerate mechanism of carcinogenesis.
- **g)** Classify tumors.

Q.2 **a)** Define angina pectoris. Discuss the pathophysiology of angina pectoris. **[08]**
b) Enumerate transmission, clinical features and prevention of HIV. **[07]**

Q.3 **a)** Discuss pathophysiology of peptic ulcer. **[08]**
b) Explain the symptoms and complications of diabetes mellitus. **[07]**

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

- **a)** Hepatitis A
- **b)** Types of hypertension
- **c)** Cardiac arrhythmia
- **d)** Chronic obstructive pulmonary disease

SECTION-II

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

- **a)** Classify epilepsy.
- **b)** Write risk factors of cancer.
- **c)** Enlist treatment of acute renal failure.
- **d)** Mention symptoms of schizophrenia.
- **e)** Define allergy.
- **f)** Define hypersensitivity.
- **g)** Which organism causes bacillary dysentery?

Q.6 **a)** Discuss pathophysiology typhoid fever. **[08]**
b) Describe pathophysiology of asthma. **[07]**

Q.7 **a)** Describe pathophysiology of urinary tract infection. **[08]**
b) Describe the symptoms and etiology of Parkinsonism. **[07]**

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

- **a)** Chronic renal failure
- **b)** Paralysis
- **c)** Shock
- **d)** Congestive cardiac failure

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PURUS-IV (SEMESTER PATTERN): APRIL / MAY 2010

SUBJECT: PHARMACEUTICAL ANALYSIS-I

Day : Saturday — Time: 2.00 P.M. To 5.00 P.M.

Date : 08-05-2010 — 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) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION-I

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

a) Define terms accuracy, precision, titration error and titrant.
b) Why only sulphuric acid is most suitable acid in permanganate type of titration?
c) Why lyophillic colloids are called protective colloids?
d) List out different filtration medias used in gravimetric analysis.
e) By which name sampling probe is known? What is its type?
f) What are different types of pipettes? How can you known whether they are calibrated or not?

Q.2 a) Write in detail rules for ion-electron balance method and oxidation number method with suitable example for calculation of equivalent weight. **[10]**

b) Give the chemical reaction and principle involved in the assay of sodium sulphate. **[05]**

Q.3 a) State the principle, reaction and role of each reagent for the assay of H_2O_2 and assay of $FeSO_4$, $7H_2O$. **[10]**

b) Discuss the procedure for calibration of burette and volumetric flask. **[05]**

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

a) Iodine titrations
b) Digestion
c) Errors
d) Mixed crystal formation

SECTION-II

Q.5 a) Explain the following terms: **[06]**

i) Co-ordination number
ii) Fractional precipitation
iii) Acid dissociation constant
iv) Solubility product
v) Sequestering agent
vi) Stability constant of complexes

b) Distinguish between Mohr's method and Volhard's method of end point detection. **[04]**

Q.6 a) How will you prepare and standardize: **[09]**

i) 0.1N HCl ii) 0.1N perchloric acid iii) 0.05M EDTA solution

b) Give reasons for: **[06]**

i) Buffers are used in complexometric titrations.
ii) Titrations of very weak acids or bases are performed in non-aqueous solvents.
iii) Silver nitrate solutions are stored in amber coloured bottles.
iv) Nitrobenzene or dibutyl phthalate has to be added during Volhard's method.

Q.7 Discuss the chemical reaction and principle involved in the assay of: **[15]**

a) Acetyl salicylic acid
b) Calcium gluconate injection
c) Ephedrine hydrochloride

[15]

PURUS - IV (SEMESTER PATTERN): APRIL / MAY 2010
SUBJECT: PHARMACEUTICAL CHEMISTRY – V (ORGANIC)

Day : Thursday
Date : 06-05-2010

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

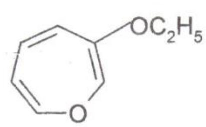
N.B.:

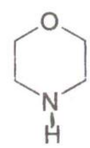
1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of remaining questions attempt **ANY TWO** questions from each section.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the section should be written in **SEPARATE** answer book.

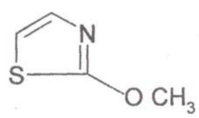
SECTION-I

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

a) What is Chichibabin reaction? Illustrate with suitable examples.
b) Define giving examples (i) Synthon and (ii) synthon equivalent.
c) For allylic bromination N-bromosuccinamide (NBS) is used as brominating reagent. Why?
d) Why Fructose reacts with acetic unhydride to give two isomeric pentaacetate derivatives? Give chemical equations.
e) Draw structure of Sucrose in chair perspective as well as in Haworth projection
f) Why Sucrose is non reducing Sugar?
g) Write IUPAC names of **ANY TWO** of the following compounds:

i) 

ii) 

iii) 

Q.2 Answer **ANY THREE** of the following: **[15]**

a) Write two methods of synthesis of imidazole.
b) Give details of Hantzch Pyridine Synthesis with examples.
c) Comment on cyclic structure of Fructose.
d) Discuss structure of starch.

Q.3 Give three methods of synthesis, three reaction and two examples of medicinally useful compounds: **[15]**

a) Thiazole
b) Isoquinoline
c) Pyrrole
d) Pyrimidine

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

a) Fischer Indole Synthesis
b) Mutarotation
c) Structure of Maltose
d) Free radicals polymerization

P.T.O.

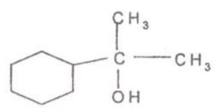
SECTION-II

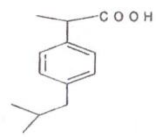
Q.5 Answer **ANY FIVE** of the following: **[10]**

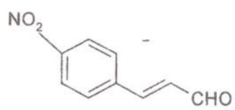
- **a)** Pyridine undergoes electrophillic substitutions at 3-position. Explain.
- **b)** Nitrobenzene is used as solvent in Skraups synthesis of pyridine. Explain.
- **c)** Why lactose is reducing reagent?
- **d)** Give the reaction of glucose with HIO_4.
- **e)** Why Sulphonation of thiophene is carried out by SO_3/pyridine?
- **f)** What is Mutarotation? Explain in detail.
- **g)** What is Autoxidation? Illustrate with examples.

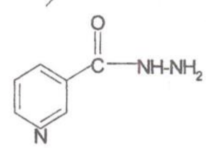
Q.6 a) Give methods of generation of Free radicals. **[05]**

b) Write the synthesis of any two of the following using synthon approach: **[10]**

i) 

ii) 

iii) 

iv) 

Q.7 Discuss the open as well as cyclic structure of glucose. **[15]**

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

- **a)** Methylation of Sugar
- **b)** Skraup Synthesis
- **c)** Quareshi Synthesis
- **d)** Guidlines of Disconnection

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