WINTER - 2014

PURUS - III (2011 COURSE):
SUBJECT: PHARMACEUTICAL CHEMISTRY - V (ORGANIC)

Day: Monday
Date: 10-11-2014

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 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 books.

SECTION-I

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

a) Give names of the resolving agents used for the separation of $(\pm)$ acids.
b) Write R and S configurations of 1 (1- naphthyl) ethyl isocyanate.
c) What are dissymmetric compounds? Illustrate.
d) What will happen when fumaric acid is heated?
e) Write stable and preferred conformation of $(CH_3)_2$ CH R (CH_3) C_6H_5.
f) What is kinetic resolution? Give examples.
g) What are meso compounds? Give Fischer configuration of meso tartaric acid.
h) What are coglomerates? Give examples.

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

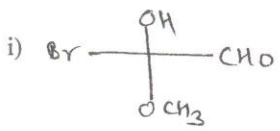
a) Write a note on stereoselective and sterospecific reactions.

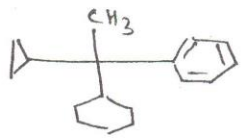
b) Discuss two methods of determination of configuration of geometric isomers based on chemical properties.

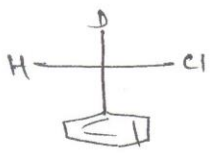
c) Discuss diastereomerism giving suitable examples.

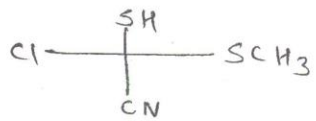
d) Discuss conformations of n- butane.

Q.3 **a)** Assign R or S configuration to Any **THREE** of the following: **(09)**

i) 

ii) 

iii) 

iv) 

b) Give all possible conformations of 1, 2-dimethyl cyclohexane giving comments on their stabilities on the basis of conformational analysis of each isomer. **(06)**

SECTION-II

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

a) What is the role of bromine in Hofmann rearrangements?

b) Show , with the help of suitable example that Curtius rearrangement proceeds with retention of configuration.

c) Give example of Lossen rearrangement.

d) Define giving examples, each of the following:
i) Synthon ii) Disconnection

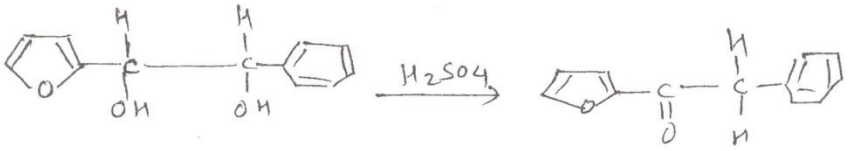
e) Write retrosynthesis of aspirin.

f) What is role of H_2O_2 in Dakin Oxidation?

g) Give an example of sigmatropic rearrangement.

Q.6 Discuss and depict mechanism of Any **THREE** of the following: **(15)**

a)



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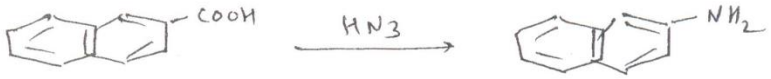

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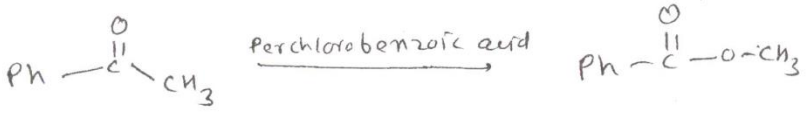

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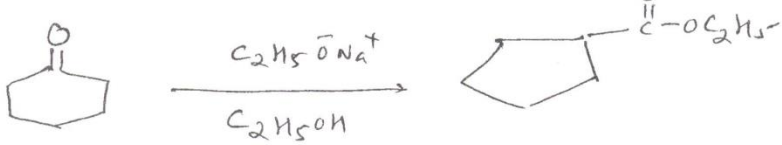

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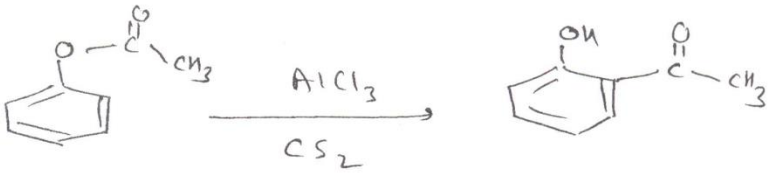
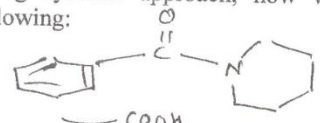


Q.7 Using synthon approach, how will you synthesize any **THREE** of the following: **(15)**

a)



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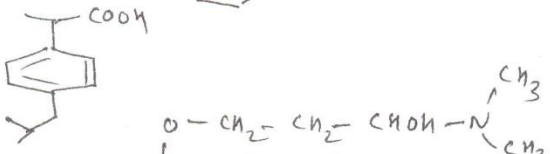
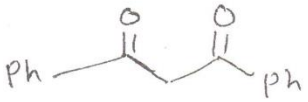


c)

d)



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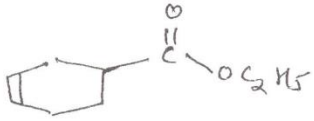

Q.8 Write short notes on Any **THREE** of the following: **(15)**

a) Wolf rearrangements

b) Sommelet rearrangement

c) Neber rearrangement

d) W. M. Rearrangement

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WINTER - 2014

PURUS - III (2011 COURSE):
SUBJECT : PHARMACEUTICAL MICROBIOLOGY - I

Day : Wednesday
Date : 19-11-2014

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 Match the following **(ANY FIVE)**: **[10]**

a)	Gentamycin	**i)**	*Streptomyces griseus*
b)	Penicillin	**ii)**	*Streptomyces venezuelae*
c)	Bacitracin	**iii)**	*Streptomyces erythraeus*
d)	Streptomycin	**iv)**	*Bacillus subtilis*
e)	Erythromycin	**v)**	*Penicillin notatum*
f)	Chloromphenicol	**vi)**	*Micromonospora purpurea*

Q.2 Classify Microscopes. Give an exhaustive account on 'Compound Microscope'. **[15]**

Q.3 **a)** Discuss various methods for quantitative measurement of bacterial growth. **[08]**
b) Explain isolation and applications of actinomycetes. **[07]**

Q.4 Write short notes on **ANY THREE** of the following: **[15]**
a) Yeasts
b) Preservation of Cultures
c) Rickettsia
d) Streak Plate Technique

SECTION - II

Q.5 Attempt **ANY FIVE** of the following: **[10]**
a) Give sterilization mechanism for : **i)** U.V. rays **ii)** Alcohols.
b) Explain Laminar Air Flow Unit.
c) Classify disinfectants.
d) Define : **i)** Q_{10} value **ii)** Preservative.
e) What are viruses?
f) How Kaolin Powder and vaccines are sterilized?

Q.6 Which methods are used for evaluation of disinfectants? Discuss 'phenol coefficient test. **[15]**

Q.7 **a)** How will you test opthalmic products for sterility? **[08]**
b) Explain various Sterilization Monitors. **[07]**

Q.8 Write short notes on **ANY THREE** of the following: **[15]**
a) Lytic Cylce
b) Pasterurization

WINTER - 2014

PURUS - III (2011 COURSE) :
SUBJECT : PHARMACEUTICAL ANALYSIS - I

Day : Friday
Date : 14-11-2014

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

N.B.

1) **Q.1 & Q.5** are **COMPULSORY.** Out of the remaining attempt any **TWO** questions from Section - I and Section - II.
2) Figures to the right indicate **FULL** marks.
3) Answer to both the sections should be written in **SEPARATE** answer book.

SECTION - I

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

a) How will you prepare and standardized 0.1 N perchloric acid?
b) Explain the term: Molarity, Precision, Analyte and Normality.
c) Give the principle and reaction involved in the assay of Boric acid.
d) Explain in brief Law of mass action and dissociation constant for weak base.
e) What do you mean by Non-aqueous titration? Classify Non-aqueous solvents?
f) Define the terms: Buffer, Buffer action, Buffer index and pH.

Q.2 a) Describe in detail Salt hydrolysis. **(07)**
b) Give the procedure, principle and reaction involved in the assay of Aspirin and Sodium acetate. **(08)**

Q.3 a) Explain in detail Neutralization curves. **(07)**
b) Give the Calibration methods and explain in detail calibration of volumetric flask and pipette. **(08)**

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

a) Theories of acid-base indicators
b) Preparation and standardization of 0.1 N NaOH and 0.1 N HCl
c) Determination of weak acid by Non-aqueous titration
d) Types of errors

SECTION - II

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

a) Explain the term Sequestering agent and Complexing agent.
b) Differentiate between Iodometry and Iodimetry.
c) Name the two indicators used in precipitation titration.
d) What are masking agents? Explain with suitable examples.
e) How will you prepare and standardize 0.1 N $KMnO_4$?
f) Give the principle and reaction involved in the assay of NaCl injection.

Q.6 a) Discuss in detail Ceriometric type of titrations. **(07)**
b) Give the Fajan's method for precipitation in detail. Add a note on assay of Potassium chloride. **(08)**

Q.7 a) Give in detail types of EDTA titration. **(07)**
b) Explain the various methods for balancing redox reactions with suitable examples. **(08)**

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

a) Metallochrome indicators
b) Compare between Mohr's and Volhard's method
c) Assay of H_2O_2 and $FeSO_4$
d) Redox indicators

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PURUS -III (2011 COURSE): WINTER - 2014

SUBJECT: PHYSICAL PHARMACY-I

Day: Monday
Date: 17-11-2014

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) Define tie line and conjugate phase
b) Write name and formula for an equation used to determine osmotic pressure.
c) Define additive and constitutive properties with examples.
d) Explain in short different types of van der waals forces of attraction.
e) Define degree of freedom and component.
f) Differentiate between ideal and real solutions.

Q.2 a) Derive an expression for Gibb's phase rule. What is reduced phase rule? **[08]**
b) Explain phase diagram for two component system. **[07]**

Q.3 a) Derive an expression for Ideal gas law. Add a note on kinetic molecular gas theory. **[08]**
b) Prove that vapor pressure lowering and freezing point depression are colligative properties. **[07]**

Q.4 Answer **ANY THREE** of the following: **[15]**

a) Methods used to determine Critical Constants.
b) Compressibility Factor.
c) Binding forces between Molecules.
d) Raoult's law and its Deviations.

SECTION-II

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

a) Define molality and mole fraction.
b) What is effect of dilution on specific conductance of electrolyte solution?
c) What is Q_{10} value?
d) Enlist methods used to determine order of reaction.
e) Give the advantages of conductometric titrations.
f) Define Energy of Activation. Give formula for Arrhenius equation.

Q.6 a) Explain Debye Huckel theory to obtain activity co-efficient **[08]**
b) Define Nernst distribution law. Add a note on effect of molecular association and dissociation on Nernst distribution law. **[07]**

Q.7 a) Define rate of reaction. Derive an expression for rate constant of second order reaction. **[08]**
b) Explain in detail about solubility of solids in liquid **[07]**

Q.8 Answer **ANY THREE** of the following: **[15]**

a) Transition state theory.
b) Degradation of medicinal agents

WINTER - 2014

PURUS - III (2011 COURSE):
SUBJECT: PATHOPHYSIOLOGY

Day: Friday
Date: 21-11-2014

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

SECTION - I

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

a) Enumerate few glycogen storage diseases.
b) Define allergy. What are the causes and symptoms of allergy?
c) Risk factors for cancer.
d) Define cell adaptation.
e) Differentiate metaplasia from hyperplasia.
f) What are the types of hypersensitive reactions?

Q.2 Define malignancy. Discuss pathogenesis of Cancer. **(15)**

Q.3 a) Explain process involved in normal wound healing and factors influencing healing. **(08)**
b) Write about mediators in inflammation. **(07)**

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

a) Principles of cell injury
b) Biological effect of radiation
c) Phagocytosis
d) Type III: Immune Complex reactions

SECTION - II

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

a) Explain Pthophysiology of Bronchial Asthma.
b) Give brief idea about acute renal failure.
c) Define depression.
d) Explain Pathophysiology of congestive cardiac failure.
e) Explain bacillary dysentery.
f) Give brief idea about HIV.

Q.6 a) Explain Pathophysiology of epilepsy and explain about tonic-clonic convulsions. **(08)**
b) Explain in detail the Pathophysiology of Parkinsonism **(07)**

Q.7 a) Explain Pathophysiology of amoebic dysentery. **(08)**
b) Explain Pathophysiology of Peptic ulcer. **(07)**

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

a) Chronic obstructive airway disease
b) Hepatitis
c) Ischemia Heart disease

PURUS-III: (2011 COURSE):

SUBJECT: PHARMACEUTICAL BIOCHEMISTRY-II

Day: Wednesday
Date: 12-11-2014

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 the remaining 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 the **SEPERATE** answer book.

SECTION-I

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

a) What is transamination?
b) State the function of DNA polymerase-I
c) State pharmaceutical use of di deoxynucleotides.
d) State normal blood calcium level and what is osteophoresis.
e) What is wobble hypothesis?
f) What are A- class proteins?

Q.2 Answer the following (**ANY THREE**) **(15)**

a) How amino group of amino acids is mobilized? Explain with suitable examples.
b) State biosynthesis of histamine and serotonin.
c) Describe treatment for ammonia and methanol toxicity.
d) What is propionate pathway? Give its importance.

Q.3 a) What is β-oxidation? Explain in detail. **(08)**
b) What is oxidative phosphorylation? Explain working of electron transport chain(ETC) **(07)**

Q.4 Write a note (**ANY THREE**) **(15)**

a) Gluconeogenesis
b) Glycolysis
c) Plasma proteins
d) Jaundice

P.T.O

SECTION-II

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

a) What is primer?
b) What is renal acidosis?
c) State catabolism of alanine.
d) What is hemolytic anemia?
e) What is ketosis?
f) What are terminating codons?

Q.6 Answer the following (**ANY THREE**) **(15)**

a) What is reverse transcription? Explain in detail.
b) Describe renaturation kinetics of DNA. State Hyperchromic effect.
c) What is translation? State properties of codon.
d) Describe catabolism of purins.

Q.7 **A)** What is DNA replication? Describe replication of prokaryotic DNA in detail. **(10)**
B) State pentose phosphate pathway and give its biochemical significance. **(05)**

Q.8 Write a note (**ANY FIVE**) **(15)**

a) MMA
b) Renal Osteodystrophy
c) PCR
d) Copy DNA(cDNA)
e) Osteomalecia
f) ELISA

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