

PURUS – III (2011 COURSE): SUMMER – 2016
SUBJECT: PHARMACEUTICAL CHEMISTRY – V (ORGANIC)

Day: **Friday**
Date: **22-04-2016**

Time: **2:00 PM TO 5:00 PM.**
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.
- 4) Draw neat labeled diagrams **WHEREVER** necessary.

SECTION-I

- Q.1** Answer any **FIVE** of the following: (10)
- a) Explain with example plane of symmetry.
 - b) Draw Sawhorse projection:
i) 2,3-Dichlorobutane ii) 2-Bromo-1-chloropropane
 - c) Differentiate between enantiomer and diastereomers.
 - d) What is geometric isomerism?
 - e) Why meso compounds do not possess optical activity.
 - f) Draw schematic diagram of polarimeter.
 - g) Enlist the conditions for optical activity.
- Q.2** Explain in detail resolution of racemic modification with suitable examples. (15)
- Q.3** a) What is racemization? Explain different process with example. (08)
- b) Write in detail conformations of cyclohexane and comment on their stability. (07)
- Q.4** Write short notes on any **THREE** of the following: (15)
- a) Walden inversion
 - b) Rules to assign R and S configuration
 - c) Principles of polarimeter
 - d) Stereoselective and stereospecific reactions

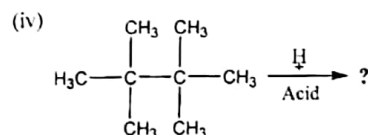
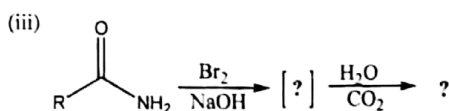
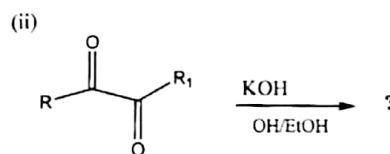
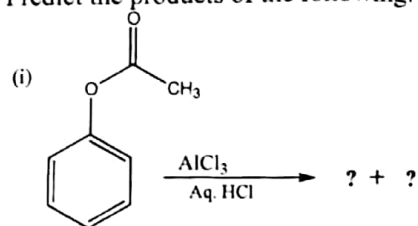
SECTION-II

- Q.5** Answer any **FIVE** of the following: (10)
- a) Define with example:
i) Synthone ii) Synthetic equivalent
 - b) Write any two synthetic applications of Wittig rearrangement.
 - c) How Beckmann rearrangement helps to distinguish between *syn* and *anti*, isomerism.
 - d) Write mechanism involved in Sommelet rearrangement.
 - e) What do you mean by Claisen rearrangement? Write an example.
 - f) Write stereochemistry of Hoffmann rearrangement.

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Q.6) Explain retro synthesis of Diclophenac, Paracetamol and Isoniazid. (15)

Q.7 a) Predict the products of the following: (10)



b) Explain rules for disconnection in retro-synthesis with suitable examples. (05)

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

- Bayer-villiger oxidation
- Dakin oxidation
- Wittig rearrangement
- Retro-synthesis of Iburpofen

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PURUS -III: (2011 COURSE): SUMMER - 2016
SUBJECT: PHARMACEUTICAL BIOCHEMISTRY-II

Day: **Thursday**
Date: **28-04-2016**

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

N.B:

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

SECTION-I

- Q.1** Answer **ANY FIVE** of the following: (10)
- a) What is oxidative phosphorylation?
 - b) What is ketosis?
 - c) State catabolism of aspartate.
 - d) What is osteomalacia?
 - e) What is physiological calcium?
 - f) Why folic acid is called vitamin of regeneration?
- Q.2** a) What is diagnostic polymerase chain reaction (PCR)? Explain in detail. (10)
b) What is renal clearance? Give its importance in the diagnosis of kidney diseases. (05)
- Q.3** a) What is pentose phosphate pathway? Explain in detail. (10)
b) State the biochemical role of transketolase and transaldolase. (05)
- Q.4** Write short notes on **ANY THREE** of the following: (15)
- a) Jaundice
 - b) Glycolysis
 - c) Kidney function tests KFT
 - d) ATP synthetase and ETC

SECTION-II

- Q.5** Answer **ANY FIVE** of the following: (10)
- a) What is oxidative deamination?
 - b) What is renal acidosis?
 - c) State catabolism of glutamate?
 - d) What is beri- beri?
 - e) What is osteoporosis?
 - f) Why methionine is called amino acid of regeneration?
- Q.6** a) What is transcription and reverse transcription? Explain post transcriptional modifications. (10)
b) What is gluconeogenesis? State its physiological importance. (05)
- Q.7** a) What is β - oxidation? Explain in detail. (10)
b) State propionate pathway and its importance. (05)
- Q.8** Write short notes on **ANY THREE** of the following: (15)
- a) Blood pH regulation
 - b) Biosynthesis of fatty acids
 - c) Kwashiorkor
 - d) Catabolism of phenylalanine

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PURUS-III (2011 COURSE) : SUMMER 2016
SUBJECT : PHARMACEUTICAL ANALYSIS-I

Day : Saturday
Date : 30-04-2016

Time : 2:00 PM TO 5:00 PM
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) Classify types of errors.
 - b) How to prepare 0.25 N NaOH solution?
 - c) Write reaction, principle involved in assay of Norfloxacin.
 - d) Why glycerine is added in the assay of boric acid?
 - e) How 0.1 N H_2SO_4 is prepared and standardized?
 - f) Write types of solvents used in non-aqueous titrations.
- Q.2** a) Derive an equation for dissociation constant for weak base. Give the chemical reaction and principle involved in assay of aspirin. (08)
b) Explain neutralization curve for strong acid and strong base. (07)
- Q.3** a) Discuss theories of acid-base indicators. (08)
b) Explain types of non-aqueous solvents with leveling and differentiating effect. Write applications of Non-aqueous titrations. (07)
- Q.4** Write short notes on any **THREE** of the following: (15)
- a) Salt Hydrolysis
 - b) Minimization of Errors
 - c) Buffering index
 - d) Gas sampling.

SECTION-II

- Q.5** Attempt any **FIVE** of the following: (10)
- a) Compare between Mohr's and Volhard's method.
 - b) Why 0.05 M $MgSO_4$ and 10 M ammonia solution is added in assay of calcium gluconate.
 - c) Write thermodynamics of chelation.
 - d) Write principle, reaction involved in assay of Hydrogen Peroxide.
 - e) Write about fractional precipitation.
 - f) Calculate K_{sp} of magnesium carbonate if 1 litre of its saturated solution contains 0.5339 of $MgCO_3$ at 20 °C [M. wt. = 84.32].
- Q.6** a) Discuss precipitation titrations. Add a note on Gay Lussac's method. (08)
b) Classify redox indicators. Discuss ceriometric titrations with examples. (07)
- Q.7** a) How end point is determined in complexometry? Discuss types of EDTA with examples. (08)
b) What are oxidants and reductants? Explain with examples. (07)
- Q.8** Write short notes on any **THREE** of the following: (15)
- a) Metallochrome indicators
 - b) Fajan's method
 - c) Applications of precipitation titrations
 - d) Differentiate between Iodometry and Iodimetry Titrations.
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Day: Tuesday
 Date: 03-05-2016

Time: 2:00 PM TO 5:00 PM.
 Max Marks: 80

N.B:

- 1) **Q. No 1 and 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 book.
- 3) Figures to the right indicate **FULL** marks.

SECTION-I

- Q.1** Answer **ANY FIVE** of the following: (10)
- a) Derive an equation for ideal gas law.
 - b) What is UCT and LCT? Give examples of each.
 - c) What are additive and constitutive properties?
 - d) At boiling point, water has only one degree of freedom. True or False. Explain.
 - e) Explain in brief the term 'Phase'.
 - f) Differentiate between ideal and real solution.
- Q.2** a) Define colligative properties. Prove that vapor pressure lowering and freezing point depression are colligative properties. (08)
- b) Explain in detail different intermolecular forces. (07)
- Q.3** a) Derive an expression for Gibb's Phase rule. What is reduced phase rule? (08)
- b) Define Raoult's law. Explain deviations from Raoult's law. (07)
- Q.4** Write short notes on **ANY THREE** of the following: (15)
- a) Ternary phase diagram
 - b) Kinetic molecular theory
 - c) Critical constants and their determination
 - d) One component three phase system

SECTION-II

- Q.5** Answer **ANY FIVE** of the following: (10)
- a) What is Q_{10} value?
 - b) What is effect of dilution on specific conductance?
 - c) Explain any two factors affecting solubility of weak electrolyte.
 - d) Differentiate between molecularity and order of reaction.
 - e) Give formula for Arrhenius equation. Define energy of activation.
 - f) Explain effect of temperature and pressure on solubility of gas.
- Q.6** a) Define Nernst Distribution law. Explain the effect of molecular association and dissociation on Nernst distribution law. (08)
- b) Explain in detail solute-solvent interactions. (07)
- Q.7** a) Derive an expression for rate constant and half life of first order reaction. (08)
- b) Explain Debye Huckel theory. (07)
- Q.8** Write short notes on **ANY THREE** of the following: (15)
- a) Methods to determine order of reaction
 - b) Decomposition of medicinal agents
 - c) Conductometric titrations
 - d) Arrhenius theory

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PURUS – III (2011 COURSE): SUMMER – 2016
SUBJECT : PHARMACEUTICAL MICROBIOLOGY – I

Day : Thursday
Date : 05-05-2016

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) Write role of Oculars and Condensers.
 - b) How Pasteur contributed to Microbiology?
 - c) Highlight the role of a Bacterial cell wall.
 - d) Actinomycetes are bacteria with fungal morphology.
 - e) What is 'Candidiosis'?
 - f) How anaerobic bacteria are inoculated?
- Q.2** Give an exhaustive account on isolation and preservation of microbial cultures. [15]
- Q.3** a) Discuss principle, working and uses of Phase Contrast Microscopes. [08]
- b) Fungi are a versatile group of microorganisms. Justify in detail. [07]
- Q.4** Write short notes on **ANY THREE** of the following: [15]
- a) Rickettsia
 - b) Bacterial growth
 - c) Whittaker's Five – Kingdom system
 - d) Significance of Electron Microscopes

SECTION - II

- Q.5** Answer **ANY FIVE** of the following: [10]
- a) Give features of an ideal disinfectant.
 - b) How to sterilize talc and vaccines?
 - c) What are bacteriophages?
 - d) Mention importance of DOP test.
 - e) Write about sterilization kinetics.
 - f) Define 'Interferon' and 'Antiseptic'.
- Q.6** Discuss the features and morphology of viruses. Explain life cycle of bacteriophages. [15]
- Q.7** a) How to evaluate disinfectants? [08]
- b) Give an exhaustive account on Non-Thermal Sterilization Methods. [07]
- Q.8** Write short notes on **ANY THREE** of the following: [15]
- a) Biohazards
 - b) Aseptic Area
 - c) Cultivation of Viruses
 - d) Phenols as disinfectants

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PURUS-III (2011 COURSE) : SUMMER 2016
SUBJECT : PATHOPHYSIOLOGY

Day : Saturday
Date : 07-05-2016

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 the remaining attempt any **TWO** questions from Section-I and any **TWO** questions from Section-II.
- 2) 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) Define hypersensitivity.
 - b) Names the factors influencing healing.
 - c) Define malignancy.
 - d) Names the biological effects of radiation.
 - e) What are the signs of inflammation?
 - f) Enumerate various environmental carcinogens.
 - g) Define apoptosis and necrosis.
- Q.2** a) Enlist various autoimmune diseases. Discuss pathophysiology of autoimmune disease of alimentary tract. (08)
- b) Enlist the etiological factors of cell injury. Discuss in detail pathogenesis of ischemic and hypoxic cell injury. (07)
- Q.3** a) Define and classify carcinogens. Explain in brief general biology of tumors. (08)
- b) Explain basic mechanisms of inflammation and repair. (07)
- Q.4** Write short notes on any **THREE** of the following: (15)
- a) Metastasis
 - b) Abnormalities in lipoproteinemia
 - c) Glycogen storage diseases
 - d) Allergy

SECTION-II

- Q.5** Answer any **FIVE** of the following: (10)
- a) Define Shock.
 - b) Define and classify Peptic ulcer.
 - c) Define and classify hypertension.
 - d) Define and classify bronchial asthma.
 - e) What is Cardiac arrhythmia?
 - f) Define and classify renal failure.
 - g) Define and classify hepatitis.
- Q.6** a) Explain Pathophysiology of diabetes mellitus. (08)
- b) Explain in detail pathophysiology of Paralysis. (07)
- Q.7** a) Explain Pathophysiology of urinary tract infections. (08)
- b) Define and classify angina pectoris. Discuss in brief pathophysiology of the same. (07)
- Q.8** Write short notes on any **THREE** of the following: (15)
- a) Tuberculosis
 - b) Typhoid fever
 - c) Pneumonia
 - d) Parkinson's Disease.

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