

PURUS – VI (2011 COURSE) : SUMMER – 2016  
SUBJECT : MEDICINAL CHEMISTRY – II

Day : Saturday  
Date : 23-04-2016

Time : 10:00 AM TO 1:00 P.M.  
Max. Marks : 80

N.B.

- 1) Q.1 and Q.5 are **COMPULSORY**. Out of the remaining, attempt any **TWO** questions from Section – I and any **TWO** questions from Section – II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw diagrams, structures and give reactions wherever necessary.

**SECTION – I**

- Q.1 Attempt any **FIVE** questions of the following: (10)
- a) Define the terms analeptics and hallucinogens with one example.
  - b) Draw structures of any two long acting barbiturates.
  - c) Explain the term status epilepticus and suggest the therapy for the same.
  - d) Explain the terms REM and NREM giving their full forms.
  - e) Outline synthesis of Ketamine hydrochloride giving its category.
  - f) What is the role of Phase – I and Phase – II metabolic pathways?
  - g) Draw the basic molecular frame work of benzodiazepines and succinimides.
- Q.2 a) Elaborate in details oxidative pathways with examples. (10)  
b) Write an exhaustive note on Glutathione conjugation. (05)
- Q.3 a) Classify non-barbiturates giving one representative structure for each class. (05)  
b) Discuss Sandburg's hypothesis in details. (05)  
c) Outline synthesis and main uses of : (05)  
i) Pentobarbital sodium  
ii) Phenytoin sodium
- Q.4 Write short notes on any **THREE**: (15)
- a) Anticonvulsants
  - b) Respiratory stimulants
  - c) Chemistry of general anesthetics
  - d) Preanesthetic medication
  - e) Factors affecting drug metabolism

**SECTION – II**

- Q.5 Answer the following any **FIVE**: (10)
- a) Describe symptoms of depression.
  - b) Draw any two structures of phenothiazine class of antipsychotics.
  - c) Draw two structures of local anesthetics belonging to amino alkyl esters of PABA.
  - d) Outline the synthesis of Meprobamate.
  - e) Outline the synthesis of Dibucaine.
  - f) Draw the structures of any two local anaesthetics from anilide class.
  - g) Enlist different neurotic disorders.
- Q.6 a) Classify tricyclic antidepressants with structures. (05)  
b) Describe SAR of tricyclic antidepressants. (05)  
c) Comment on MAO inhibitors. (05)
- Q.7 a) Classify local anaesthetics in details. (05)  
b) Describe the SAR of ester class of local anaesthetics. (05)  
c) Give synthetic route for Lignocaine and Benzocaine. (05)
- Q.8 Write short notes on the following any **THREE**: (15)
- a) Site specific delivery through prodrugs
  - b) SAR of phenothiazines
  - c) Pharmaceutical applications of prodrugs

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

Day : Friday  
Date : 29-04-2016

Time : 10:00AM TO 1:00 PM  
Max. Marks : **80**

**N. B. :**

- 1) **Q.No.1 and Q. No.5 are COMPULSORY.** Out of the 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.

**SECTION - I**

- Q.1** Solve **Any FIVE** of the following : **(10)**
- a) What are the advantages of TLC?
  - b) What is HPLC? How is it superior to other chromatographic techniques?
  - c) Give the principle of TLC.
  - d) Compare between normal phase chromatography and reverse phase chromatography in HPLC.
  - e) Draw a well labeled diagram of high performance liquid chromatographic instrument.
  - f) Give important applications of TLC in pharmacy.
- Q.2** a) Explain in detail columns used in HPLC. **(07)**
- b) Discuss the various types of development methods of separation in TLC. **(08)**
- Q.3** a) Discuss in detail properties and working of electrochemical detector and fluorescence detector. **(07)**
- b) Compare between TLC and paper chromatography. **(08)**
- Q.4** Write short notes on **Any THREE** of the following : **(15)**
- a) Types of pumps used in HPLC
  - b) Methods for the preparation of thin layers on plates
  - c) Sample injection systems in HPLC
  - d) Reverse phase adsorption TLC

**P.T.O.**

**SECTION – II**

- Q.5** Solve **Any FIVE** of the following : **(10)**
- a) Give the properties of CO<sub>2</sub> as supercritical fluids.
  - b) Explain the terms resolution and selectivity factor.
  - c) How instrumentation for SFC does differ form HPLC?
  - d) Why saturation of development tank is one of the essential steps in HPTLC development?
  - e) Give the advantages of band application of sample over spot application.
  - f) Give the chemical test for checking the adulterants in tea powder.
- Q.6** a) Describe the duties of food safety officer. **(07)**
- b) Discuss the principle, technique and application of HPTLC. **(08)**
- Q.7** a) Give the advantages and disadvantages of super critical fluid chromatography. **(07)**
- b) Give the chemical tests for checking adulterants present in various spices. **(08)**
- Q.8** Write short notes on **Any THREE** of the following : **(15)**
- a) Densitometric measurement in HPTLC
  - b) Applications of super critical fluid chromatography
  - c) Advantages of HPTLC
  - d) Ideal properties of supercritical fluids

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**PURUS-VI (2011 COURSE) : SUMMER 2016**  
**SUBJECT : PHARMACEUTICAL BIOTECHNOLOGY**  
**(Including Molecular Biology)**

Day : **Friday**  
Date : **06-05-2016**

Time : **10:00 AM TO 1:00 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 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.
- 4) Draw neat and labeled diagrams **WHEREVER** necessary.

**SECTION-I**

- Q.1** Answer any **FIVE** of the following: (10)
- a) How would you define a plasmid?
  - b) What are purines and pyrimidines?
  - c) Give salient features of DNA double helix.
  - d) Draw a neat labeled diagram of a bacterial cell.
  - e) Write the importance of *Thermophilus aquaticus*.
  - f) What are introns and exons?
  - g) Differentiate between a probe and a primer.
- Q.2** Describe in details protein synthesis in a typical eukaryotic cell. (15)
- Q.3** Give details of Griffith's experiment and discuss its findings. (15)
- Q.4** Write short notes on any **THREE** of the following: (15)
- a) Recombinant DNA technology
  - b) Differences in mRNA, rRNA and t-RNA
  - c) Okazaki fragments
  - d) Principle of Agarose gel electrophoresis
  - e) Northern DNA hybridization.

**SECTION-II**

- Q.5** Answer any **FIVE** of the following: (10)
- a) What is induced mutation?
  - b) What is shake flask culture?
  - c) Draw a labeled diagram of batch fermentor.
  - d) Differentiate a fermentor and bioreactors.
  - e) What is single cell protein?
  - f) Give key composition of fermentation media.
  - g) Define strain improvement.
- Q.6** Define protein engineering and describe method used for site directed mutation. (15)
- Q.7** Describe enzymes as biocatalyst. Explain methods of enzyme immobilization. (15)
- Q.8** Write short notes on any **THREE** of the following: (15)
- a) Downstream process
  - b) Applications of enzymes in pharmaceuticals
  - c) Spray drying
  - d) Whole cell immobilization
  - e) Applications of proteases

PURUS- VI (2011 COURSE): SUMMER - 2016  
SUBJECT: PHARMACOGNOSY-II

Day: Thursday  
Date: 12-05-2016

Time: 10:00AM TO 1:00P.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 the **TWO** sections should be written in **SEPARATE** books.

**SECTION-I**

- Q.1** Answer the following question: ( ANY FIVE ) (10)
- a) What is infusion?
  - b) What is dry extract?
  - c) What is soft extract?
  - d) State the methods of extraction of Fixed oil.
  - e) Write down chemical constituents of Onion?
  - f) Draw the diagram of Percolator.

- Q.2** What is extraction? Explain Microwave assisted extraction. (15)

**OR**

Explain the application of HPTLC in herbal drug evaluation.

- Q.3** a) Explain in detail about Super Critical Fluid Extraction. (08)  
b) What are the advantages of continuous hot extraction over conventional methods of extraction? (07)

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

- a) Nutraceuticals
- b) Percolation
- c) Maceration
- d) HPLC

**SECTION-II**

- Q.5** Answer the following question: ( ANY FIVE ) (10)
- a) What is Ash value?
  - b) What is Foaming Index?
  - c) Cosmetic functions of Aloe.
  - d) Compare vein Islet number and Vein termination number.
  - e) Explain functions of cytokinins.
  - f) Phase of growth curve.

- Q.6** Explain WHO guidelines for standardization of herbal drugs. Elaborate bitterness value and morphological characteristics crude drugs. (15)

**OR**

Highlight WHO guidelines for standardization of herbal drugs. Explain pesticide residue and microbial load.

- Q.7** a) Explain the protocol to establish plant cells under in vitro conditions. (08)  
Highlight various nutritional requirements of plant tissue culture.

- b) Explain various biotechnological strategies to enhance secondary metabolites. (07)

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

- a) Surface sterilization of explant
- b) Microscopical evaluation