

**FACULTY OF PHARMACY****B. Pharmacy 4/4 I – Semester (Main) Examination, November 2015****Subject: Pharmaceutical Analysis – II  
(Instrumental Methods of Analysis)****Time: 3 Hours****Max.Marks: 70****Note: Answer All questions. All questions carry equal marks.**

- 1 a) Explain different types of electronic transitions in organic compounds. 7  
 b) State and explain Beer-Lamberts Law. 7  
**OR**  
 c) Write about different types of spectrophotometers. Give the description and working of UV-visible spectrophotometer. 10  
 d) Give the different properties of electromagnetic radiation (EMR). 4
- 2 a) Write the theory and principles of IR spectroscopy. 7  
 b) Write about different sample handling techniques in IR analysis. 7  
**OR**  
 c) Give the description and working of IR-spectrophotometer with a neat labelled diagram. 10  
 d) Explain finger print and functional group regions of IR spectrum. 4
- 3 a) Explain theory and principles of NMR-spectroscopy. 7  
 b) Describe different ionization techniques used in mass spectroscopy. 7  
**OR**  
 c) Make note on shielding and deshielding. 7  
 d) Discuss about different factors affecting fluorescence emitted by organic compounds. 7
- 4 a) Give the description and working of glass electrode with a neat labelled diagram. 7  
 b) Write the different methods for measuring conductivity. 7  
**OR**  
 c) Give the description and working of dropping mercury electrode. Make a note on its advantages and disadvantages. 7  
 d) Write about different types of conductimetric titrations and their applications. 7
- 5 a) Give the principles and experimental details for qualitative and quantitative analysis by thin layer chromatography. 10  
 b) Write the applications of HPTLC technique. 4  
**OR**  
 c) Describe the different components of HPLC Instrument with a neat labelled diagram. 7  
 d) Explain the principle and experimental procedure of paper electrophoresis. 7

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**FACULTY OF PHARMACY****B. Pharmacy 4/4 I – Semester (Main) Examination, November 2015****Subject : Pharmaceutical Business Management****Time : 3 hours****Max. Marks : 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Describe critical elements of total quality management and how are they linked to modern management practices. 14  
**OR**  
 b) Explain different quantitative tools of forecasting for production and mention their limitations. 14
- 2 a) Describe the factors influencing the selection of location and layout. 7  
 b) Explain general flow patterns for production of tablets with the help of diagrams. 7  
**OR**  
 c) Explain the general utility requirements in a pharmaceutical unit along with their characteristics with reference to tablets and parenteral production. 14
- 3 a) Describe the different approaches of inventory management to prevent over stock or out of stock. 14  
**OR**  
 b) Draw the typical layout of drug store and explain the receiving, inspects and issue procedures. 14
- 4 a) Differentiate between job analysis and job evaluation. 6  
 b) Explain the concepts of merit rating and remuneration. 8  
**OR**  
 c) Describe Hawthorne experiments and their significance in industrial psychology. 14
- 5 a) What are the ways and means of advertising of pharmaceuticals without contravening the rules of Objectionable Advertisements Act. 7  
 b) Discuss about various marketing channels for pharmaceuticals. 7  
**OR**  
 c) Write the factors influencing pricing. 7  
 d) Explain different approaches for pricing of pharmaceuticals. 7

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## FACULTY OF PHARMACY

**B. Pharmacy 4/4 Year I – Semester (Main) Examination, November 2015**

**Subject: Biopharmaceutics & Pharmacokinetics**

**Time: 3 Hours**

**Max.Marks: 70**

**Note: Answer All questions. All questions carry equal marks.**

- |   |   |   |             |
|---|---|---|-------------|
| 1 | a) Write about  |   |             |
|   | i) Gastric emptying   |   | 8           |
|   | ii) Intestinal transit  |   | 6           |
|   |   | <b>OR</b>                                 |             |
|   | b) Explain  |   |             |
|   | i) Passive diffusion  |   | 7           |
|   | ii) Influence of compression force on absorption  |   | 4           |
|   | iii) Role of surfactants in absorption  |   | 3           |
| 2 | a) Explain various physiological barriers to drug distribution.   |   | 9           |
|   | b) Write a note on volume of distribution.  |   | 4           |
|   |   | <b>OR</b>                                 |             |
|   | c) Write the significance of protein drug binding.  |   | 9           |
|   | d) Explain perfusion rate limited distribution.   |   | 5           |
| 3 | a) Describe various factors affecting drug biotransformation.   |   | 8           |
|   | b) Write about  |   |             |
|   | i) Glomerular filtration  |   | 3           |
|   | ii) Salivary excretion  |   | 3           |
|   |   | <b>OR</b>                                 |             |
|   | c) Explain  |   |             |
|   | i) Biliary excretion of drugs   |   | 8           |
|   | ii) Active secretion  |   | 3           |
|   | iii) Glucouronidation reaction  |   | 3           |
| 4 | a) Enlist and explain the significance of various pharmacokinetic parameters.   |   | 6           |
|   | b) What are mixed order processes? Give examples.   |   | 4           |
|   | c) $t_{1/2} = 2.5$ hrs $V_d = 55$ lts. Calculate clearance.   |   | 4           |
|   |   | <b>OR</b>                                 |             |
|   | d) Draw a typical plasma concentration time profile graph for a drug administered orally showing pharmacokinetic and pharmacodynamic parameters. Write their significance   |   | 8           |
|   | e) Write a note on non-compartmental analysis.  |   | 6           |
| 5 | a) IV bolus dose – 184 mg. Assume one compartment kinetics. The equation of the curve that best fits the data is $c = 141e^{-0.026t}$ c is in mg/lit, t is in hrs. Calculate  |   |             |
|   | i) Biological half life   | (ii) AUC from zero to infinite time       | (iii) $V_d$ |
|   | (iv) Clearance  | (v) Plasma drug concentration after 6 hrs | 14          |
|   |   | <b>OR</b>                                 |             |
|   | b) How do you estimate absorption rate constant using Wagner – Nelson method.   |   | 8           |
|   | c) Drug is given by iv infusion. Half life is 22 hrs. $V_d = 15.7$ lts. Desired steady state concentration is 0.0002 g/ml. Assuming one compartment kinetics, calculate time required to reach 90% of $C_{ss}$ ; infusion rate to achieve desired steady state and loading dose to attain steady state rapidly. |   | 6           |

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**FACULTY OF PHARMACY****B. Pharmacy 4/4 I – Semester (Main) Examination, November 2015****Subject : Medicinal Chemistry – II****Time : 3 hours****Max. Marks : 70****Note: Answer all questions. All questions carry equal marks.**

- 1 a) Classify narcotic analgesics with examples and explain their mechanism of action. 4+1  
 b) Outline the synthesis and mention the uses and IUPAC name of following drugs.  
 i) Lidocaine                      ii) Pethidine                      iii) Diclofenac sodium                      3 x 3 = 9  
**OR**  
 c) Write the SAR of pethidine derivatives and Indole acetic acid derivatives. 3+3  
 d) Write a note on NSAID's 8
- 2 a) Write a note on alkylating agents used as antineoplastic agents. 8  
 b) Classify sulphonamides according to their chemical structure with examples. 6  
**OR**  
 c) Classify Penicillins and write the synthesis of any one penicillin drug. 8  
 d) Write a note on Quinolone antibacterials. 5
- 3 a) Write the definition, classification and uses of antifungal agents. 7+7  
 b) Write the synthesis of any one drug of  
 i) Antitubercular                      ii) Antifungal category  
**OR**  
 c) Write the life cycle of malarial parasite and describe in detail about the antimalarial agents. 14
- 4 a) Define and classify sedatives and hypnotics with examples. 1+5  
 b) Write a note on anticonvulsants. 8  
**OR**  
 c) Write a note on parkinsonism and the drugs used for its treatment. 7  
 d) Write a note on Anxiolytics. 7
- 5 a) Write any two essential amino acids and explain their functional role. 6  
 b) Write the structure, preparation and uses of Vitamin E and B1. 4+4  
**OR**  
 c) Write the chemical structure, preparation and uses of any two Vitamins from water soluble vitamins. 4+4  
 d) Describe briefly about development of protein drugs. 6

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**B.Pharmacy 4/4 I-Semester (Supplementary) Examination, April 2015**

**Subject : Bio Pharmaceutics and Pharmacokinetics**

**Time : 3 Hours**

**Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Define drug absorption. Explain various physicochemical factors influencing absorption. (14)

**OR**

- (b) What is the role of pH partition theory in absorption of drugs from GIT? Discuss in detail the effects of drug pKa and pH on absorption. (8)
- (c) Write a note on active transport mechanism of drug absorption. (6)
  
- 2 (a) Give an account of types and kinetics of protein binding of drugs, significance of protein binding of disposition of drugs in body and factors affecting plasma protein binding. (14)

**OR**

- (b) Describe affect of various physiological barriers on distribution of drugs. (9)
- (c) Write about displacement interactions in drug-protein binding. (5)
  
- 3 (a) Discuss with suitable examples the phase-I and phase-II reactions of drug metabolism. (14)

**OR**

- (b) Discuss various factors affecting biotransformation of drugs with suitable examples. (10)
- (c) Write short notes on first pass metabolism of drugs. (4)
  
- 4 (a) Derive pharmacokinetic parameters, plasma elimination half life and apparent volume of distribution in biological systems (8)
- (b) Write in brief about organ clearance. (6)

**OR**

- (c) Explain the methods of determining AUC. (7)
- (d) Discuss general approaches for dose adjustment in renal disease. (7)
  
- 5 (a) What are compartment models? Derive on expressions volume of assumptions, limitations for drug administered by IV Bolus administration (one compartment open model). (14)

**OR**

- (b) Plasma samples from a patient were collected after an oral dose of 100mg of a new drug as follows: (14)

Time (Hr)	1	2	3	4	5	6	8	10	12	14
Plasma concentration (mg/l)	0.38	0.73	0.91	0.97	0.97	0.92	0.71	0.53	0.40	0.30

Calculate pharmacokinetic parameters elimination rate constant, elimination half life absorption rate constant and apparent volume of distribution, assuming one compartment open model and first order drug absorption, along with plasma drug-time graph.

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**FACULTY OF PHARMACY**

**B. Pharmacy IV/ I-Semester (Suppl.) Examination, April 2015**

**Subject : Pharmaceutical Analysis – II (Instrumental Methods of Analysis)**

**Time : 3 Hours**

**Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Define chromophore and auxochrome and give examples of conjugated chromophores and auxochromes. (6)
- (b) Give the description and working of UV-visible spectrophotometer with a neat labeled diagram. (8)
- OR**
- (c) Explain any two methods for single component analysis by spectrophotometry. (6)
- (d) State and explain Beer-Lambert's law and its deviations in applications. (4)
- (e) Make a note on different types of solvents used for UV-spectrophotometric analysis. (4)
- 2 (a) State and explain Hook's law. (4)
- (b) Give the description and working of IR-spectrophotometer. (10)
- OR**
- (c) Write about molecular vibrations in IR spectroscopy. (4)
- (d) How do you do interpretation of IR spectra of organic compounds? Explain in brief. (10)
- 3 (a) Write about the following: (14)
- (i) Chemical shift
- (ii) Spin-spin coupling
- (iii) Solvents used in NMR spectroscopy
- OR**
- (b) Give the theory and principles of mass spectroscopy techniques. (7)
- (c) Explain the radiative and non-radiative phenomena with help of Jablonski diagram. (7)
- 4 (a) Give the description and working of standard Hydrogen Electrode. (6)
- (b) Write about different end point evaluation methods in potentiometric titrations. (8)
- OR**
- (c) Write short notes on Turbidometry and Nephelometry. (7)
- (d) Explain about different types of conductimetric titrations. (7)
- 5 (a) Write about the following: (7)
- (i) Column chromatography (7)
- (ii) Paper chromatography (7)
- OR**
- (b) Discuss the theory and principles involved in HPLC separations. (4)
- (c) Write about different types of detectors used in gas chromatography. (7)
- (d) Give the principles of electrophoresis technique. (3)

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**FACULTY OF PHARMACY**

**B.Pharmacy IV/ I-Semester (Suppl.) Examination, April 2015**

**Subject : Medicinal Chemistry – II**

**Time : 3 Hours**

**Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

- 1 (a) Define and classify Local anaesthetics with suitable examples. (1+4)  
(b) Write the synthesis and mode of action of the following drugs. (3x3)  
(i) Lidocaine (ii) Pethidine (iii) Ibuprofen  
**OR**  
(c) Classify the non-steroidal anti-inflammatory agents (NSAID's) and explain their mode of action. (6+2)  
(d) Describe the SAR of Local anaesthetics belongs to p-amino benzoic acid derivatives. (6)
- 2 (a) Classify the antibiotics with examples and mention their mode of action. (4+4)  
(b) Outline the synthesis of following drugs. (3+3)  
(i) Methorexate (ii) Chloramphenicol  
**OR**  
(c) Write the SAR of penicillins. (7)  
(d) Outline the synthesis, mode of action and uses of  
(i) Norfloxacin (ii) Sulphamethoxazole. (4+3)
- 3 (a) Classify antimalarial drugs with examples. (5)  
(b) Outline the synthesis, IUPAC name and therapeutic uses of following drugs. (3x3)  
(i) Primaquine (ii) Ethambutol (iii) Metronidazole  
**OR**  
(c) Write the mode of action and SAR of 4-amino quinolones. (3+3)  
(d) Write in detail about the standard drugs used in tubercular therapy. (8)
- 4 (a) Enumerate the radius Benzodiazepines with their structure and write their mode of action. (3+2)  
(b) Describe the SAR of Benzodiazepines and Barbiturates. (4+5)  
**OR**  
(c) Write the IUPAC name, synthesis and uses of following drugs. (3x3)  
(i) Phenytoin (ii) Chlorpromazine (iii) Halothane  
(d) Write a note on phenothiazines. (5)
- 5 (a) Write the structure of Riboflavin and ascorbic acid. Describe their biochemical role and uses. (4+4)  
(b) What are essential amino acid? Enumerate them with the chemical structure and mention their biochemical role. (6)  
**OR**  
(c) Write the structure, uses and biochemical role of any two fat soluble vitamins. (3+3)  
(d) Write a note on the development of protein drugs. (8)

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**B. Pharmacy 4/4 I-Semester (Supplementary) Examination, April 2015**

**Subject: Pharmaceutical Business Management**

**Time : 3 Hours**

**Max. Marks: 70**

**Not e: Answer All questions. All questions carry equal marks**

- 1 (a) Describe the term 'production control' under the production management. Explain the procedures for control the progress, flow and corrective measures. (9)
- (b) Describe the principles of TQM. (5)
- OR**
- (c) Describe the management functions of 'planning' and 'organizing'. (10)
- (d) Describe skills required for a manager. (4)
- 2 (a) Describe the services of 'power' in a pharmaceutical industry with examples. (10)
- (b) Describe the workstation designs. (4)
- OR**
- (c) Describe the requirements of factory building in pharmaceuticals industry. (8)
- (d) Draw the layout of stores department and explain. (6)
- 3 (a) Explain the purchasing cycle and procedures for the materials / items in an industry. (10)
- (b) Comment on the quality and quantity of materials in the inventory. (4)
- OR**
- (c) Define selective inventory control. Describe the statistical reorder point system with explanation. (9)
- (d) What is meant by 'stock-out position'? Explain the reasons and applications. (5)
- 4 (a) Define performance appraisal and explain its importance. Describe any one method of the same with relevant advantages and disadvantages. (10)
- (b) Describe four objectives of HRM. (4)
- OR**
- (c) Describe the role (functions and importance) of human resource manager in a pharmaceutical industry. (9)
- (d) Explain the concept of job analysis and its uses. (5)
- 5 (a) Describe the sales promotion strategies with objectives. (9)
- (b) Differentiate 'branded' and 'generic' products. (5)
- OR**
- (c) Explain the functions of marketing management with an outline plan of market. (7)
- (d) Explain the ground rules for product positioning in the market. (7)

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