Code No. 4059

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Main) Examination, October 2016

Subject: Pharmaceutical Analysis – II
(Inst. Methods of Analysis)

Time: 3 Hours **Max.Marks: 70**

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

1 a) State and explain Beer's law and write its deviations in applicability. 4
b) Give the description and working of UV spectrophotometer with a neat labelled diagram. 10

OR

c) What is absorption maximum? Write about different factors affecting $^{a}_{max}$ of organic compounds. 7
d) Describe different methods for quantitative analysis of single component samples by spectrophotometry. 7

2 a) Explain the following: 7
i) Molecular vibrations
ii) Intensity and position of IR bands
b) Explain different sample handling techniques used in IR spectroscopy. 7

OR

c) Explain different IR regions for absorption of various functional groups and explain Hook's law. 6
d) Write about different types of detectors used IR spectrophotometers. 8

3 a) Write about theory and principles of NMR spectroscopy technique. 9
b) Explain the nitrogen rule in interpretation of mass spectrum. 5

OR

c) Explain about various ionization techniques in mass spectroscopy. 14

4 a) Explain Nernst equation and calculation of cell potential. 7
b) Write about different types conductometric titrations. 7

OR

c) Describe different ion-selective electrodes used in potentiometric titrations. 7
d) Write short notes on nepheloemetry and turbidometry. 7

5 a) Write about different types of detectors used in gas chromatography. 14

OR

b) Explain the components and working of HPLC. 10
c) Write about different stationery phases mobile phases used in HPLC.

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Code No. 4060

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Main) Examination, November 2016

Subject: Medicinal Chemistry – II

Time: 3 Hours **Max.Marks: 70**

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

1 a) Define and classify NSAIDS and write the synthesis of
   i) Diclofenac sodium
   ii) Naloxone
   iii) Lidocaine (5+3+3+3)

OR

   b) Classify local anesthetics, write the SAR and outline the synthesis and mode of action of
   i) Bupivacaine
   ii) Ibuprofen (5+5+2+2)

2 a) What are Beta-Lactam antibiotics? Classify them and write any one of its synthesis and mode of action. (2+6+6)

OR

   b) Write a note on the following:
   i) Quinolone antibacterials 7
   ii) Cephalosporins 7

3 a) Enumerate the various classes of anti-tubercular drugs. Write the synthesis and mention the mode of action of INH. (2+5)

   b) Write the mode of action and synthesis of any one drug from 4-aminoquinolines or 8-aminoquinolines used as antimalarials. (4+3)

OR

   c) Write in detail about antileprotic and antifungal agents. (7+7)

4 a) Write a note on the following:
   i) Analeptics 4
   ii) Phenothiazines 5
   iii) Barbiturates 5

OR

   b) Write the structure, mode of action and synthesis of
   i) Phenobarbitone
   ii) Phenytoin
   iii) Diazepan (4+5+5)

5 a) What are essential amino acids and write their importance and describe in brief about development of protein drugs. (5+9)

OR

   b) Draw the chemical structure, preparation and biochemical role of following vitamins.
   i) Vitamin – A
   ii) Vitamin – E
   iii) Vitamin – B_1 (4+5+5)

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Code No. 4058

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Main) Examination, October 2016

Subject: Biopharmaceutics & Pharmacokinetics

Time: 3 Hours **Max.Marks: 70**

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

1 a) What are various mechanisms of drug absorption? Discuss the mechanism of passive diffusion. 7

b) Discuss the physicochemical factors affecting the absorption of drugs. 7

OR

c) Explain briefly about various theories proposed for dissolution. 7

d) Write a note on pH partition theory. Mention its importance. 7

2 a) How do you determine binding constants and binding sites by graphical methods. 7

b) Explain the significance of protein binding. 7

OR

c) Briefly describe the process of drug distribution in the body and enumerate the factors affecting it. 7

d) Explain permeability rate limited and perfusion rate limited drug distribution. 7

3 a) Explain how biotransformation takes place and discuss the factors affecting biotransformation. 14

OR

b) Explain entero hepatic cycling. 7

c) Explain factors affecting the renal excretion of drugs. 7

4 a) Explain methods of adjustment of dose and dosage regimen in patients with hepatic failure. 7

b) What is the significance of half life of drugs? What do you understand by the terms "C_{max}", "t_{max}", "MEC" and therapeutic index. 7

OR

c) What are various methods for calculation of AUC? 7

d) Write in detail about pharmacokinetic drug interactions and its significance in combination therapy. 7

5 a) Discuss the method of residual for calculation of absorption rate constant. 7

b) Write about the Wagner Nelson method used for the determination of absorption rate constant from the plasma drug concentration time data that follows one compartment open model. 7

OR

c) A dose of 325 mg of drug was given intravenously to a patient and following blood data was obtained. Assuming that the drug follows one compartment open model. Calculate all possible pharmacokinetic parameters. 14

Time (Hrs)	2	4	6	8	10	12	16	20
Plasma concentration (mg/L)	18.3	10.1	5.8	3.3	1.8	1.0	0.31	0.12

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Code No. 4062

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Main) Examination, November 2016

Subject: Pharmaceutical Business Management

Time: 3 Hours **Max.Marks: 70**

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

1 a) Explain the concepts of bureaucratic, administrative and scientific management. 14

OR

b) Explain the different requirements of GMP in pharmaceutical manufacturing. 14

2 a) Explain the factors influencing the selection of an ideal plant location and building requirements and specifications. 14

OR

b) Explain the layout for parenteral and tablet production area. 14

3 a) Describe the significance of EBQ and ABC analysis in production planning and control. 14

OR

b) Explain the factors influencing the location and layout of stores and mention the issue procedures. 14

4 a) Differentiate between recruitment and selection. 7

b) Explain the training and transfer procedure in personnel management. 7

OR

c) Describe different approaches for the motivation of employees in work environment. 14

5 a) Describe different channels of distribution and mention their advantages and disadvantages. 14

OR

b) Explain about sales promotion policies, media planning and publicity specifically for pharmaceutical business. 14

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Code No. 4061

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Main) Examination, November 2016

Subject: Dosage Formulations & Design (Pharmaceutics – III)

Time: 3 Hours **Max.Marks: 70**

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

1 a) Write about various physical properties of active pharmaceutical ingredient (Bulk drug) in preformulation study. 14

OR

b) Enumerate the various causes of decomposition of medicinal agents. Discuss the stabilization of drug formulation against oxidation and hydrolysis. 14

2 a) Explain rationale behind the Sustained Release Drug Formulations (SRDF). Discuss the various techniques for making SRDF? How are they evaluated? 14

OR

b) Write the importance of microencapsulation in pharmacy. Write in detail about air suspension technique and solvent evaporation. 14

3 a) Write concept of liposomal Drug Delivery Systems (DDS). 7

b) Write preparation and characterization of nanoparticles. 7

OR

c) Discuss about ocuserts. 7

d) Explain the evaluation methods of Transdermal Drug Delivery Systems. 7

4 a) Define bioquailability and bioequivalence. Describe in detail bioequivalence procedure. 7

b) What are the different methods of measuring bioquailability? 7

OR

c) Write a note on types of validation. 7

d) Write the importance of validation and CGMP in production of pharmaceutical products. 7

5 a) Write briefly on master formula record and batch production record. 7

b) Explain briefly about auditing. 7

OR

c) Discuss about various control parameters during production of tablets. 14

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Code No. 6058 / S

FACULTY OF PHARMACY

B. Pharmacy 4/4 I-Semester (Suppl.) Examination, April 2016

Subject : Bipharmaceutics and Pharmacokinetics

Time : 3 Hours **Max. Marks: 70**

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

1 (a) Explain various factors affecting the drug absorption through GIT. (14)

OR

(b) Discuss the salient features of active transport. (7)

(c) Using Noye's – Whitne's equation, discuss the diffusion layer theory and the variables that influences the drug dissolution. (7)

2 (a) Explain with examples how protein binding takes place. Write about the factors affecting the protein binding. (14)

OR

(b) Explain various physiological barriers of drug distribution. (9)

(c) Explain about apparent volume of distribution. (5)

3 (a) Discuss the significance of enzyme induction and inhibition. (7)

(b) Define the term biotransformation. List out phase I and phase II reactions. Explain any three. (7)

OR

(c) Write a note on microsomal enzyme system. (7)

(d) What is the influence of pH and pKa on tubular reabsorption of drugs? (7)

4 (a) Define drug interactions with examples. Explain in detail the pharmacokinetic interactions. (14)

OR

(b) Explain renal clearance. (5)

(c) Explain the methods of adjustment of dose and dosage regime in patients with renal diseases. (9)

5 (a) How do you obtain different pharmacokinetic parameters following IV bolus administration of drug that confers the one compartment open model characteristics. (14)

OR

(b) A 59 kg male received 2 mg / kg of antibiotic orally and following blood data was obtained. Assuming that the drug follows one compartment open model and is completely absorbed. Calculate all possible pharmacokinetic parameters. (14)

Time (hrs)	0.25	0.5	0.75	1	1.5	2	2.5	3	4	6	8	12	18	24
Plasma concentration (mg/ml)	2.2	3.8	5	5.8	6.8	7.1	7.1	6.9	6.2	4.8	3.5	1.9	0.8	0.3

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Code No. 6062 / S

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Supplementary) Examination, April 2016

Subject : Pharmaceutical Business Management

Time : 3 hours **Max. Marks : 70**

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

1 a) What are the challenges in management of information and explain principles of the information management systems for different levels of management. 14

OR

b) Explain the procedure involved in environment management systems as per ISO 19000. 14

2 a) Describe the factors influencing for selection of plant layout. 6

b) Draw and explain the layout of tablet production area. 8

OR

c) Write good manufacturing practices pertaining to equipment and documentation in pharmaceutical unit. 14

3 a) Describe the concept of economic order quantity and ABC analysis. 14

OR

b) Explain the stock accounting procedures and records pertaining to stores. 14

4 a) Differentiate between recruitment and selection. 6

b) Explain appointment and transfer procedures for sustainability of pharmaceutical business. 8

OR

c) Describe different job evaluation methods and mention their benefits and drawbacks. 14

5 a) Write about the sales promotion objectives and policies in pharmaceutical business. 6

b) Explain various sales promotion techniques for pharmaceutical products. 8

OR

c) Differentiate between branded and genetic product. 4

d) Explain the factors to be considered for product development and differentiation in pharmaceutical sector. 10

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Code No. 6060 / S

FACULTY OF PHARMACY

B. Pharmacy 4/4 I-Semester (Suppl.) Examination, April 2016

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. (5)
(b) Describe the SAR of paraamnio benzoic acid derivatives used as Local anaesthetics. (5)
(c) Write the IUPAc name and synthesis of Lidocaine and Ibuprofen. (2+2)

OR

(d) What are analgesics ? Write the different mechanisms of analgesic action and classify narcotic analgesics. (1+2+5)
(e) Write the structure and synthesis of (3+3)
(i) Pethidine (ii) Naloxone

2 (a) Classify anti-neoplastic agents and write the synthesis of following drugs. (5+3+3+3)
(i) Methotrexate (ii) sulphamethoxazole (iii) Chloramphenicol

OR

(b) Write the mode of action of sulphonanides and classify the sulphonamides based on chemical structures. (2+5)
(c) Write the SAR of penicillins. (7)

3 (a) Classify antitubercular agents and write the mode of action, write the IUPAC name and synthesis of following: (5+3+3+3)
(i) INH (ii) Chloroquine (iii) Metronidazole

OR

(b) Describe in detail about the following:
(i) 4-aminoquinolines used as antimalarials (5)
(ii) Antifungal agents (5)
(iii) Antiprotozoal drugs (4)

4 (a) Write in detail about the following class of drugs and their applications.
(i) Barbiturates (5)
(ii) Benzodiazepines (5)
(iii) Phenothiazines (4)

OR

(b) Write the chemical structure of any one drug belongs to the following category and mention the name of ring present and write the IUPAC name of drug. (3+3+3)
(i) Anticonvulsants
(ii) Antipsychotics
(iii) Sedative and Hypnotics
(c) Write a note on General anaesthetics. (5)

5 (a) Draw the chemical structure, preparation and storage of any two water soluble and any two fat soluble vitamins. (3+3+3+3)
(b) Write in brief about biochemical role of Vitamin A. (2)

OR

(c) Write a note on Development of protein drugs. (8)
(d) Write the biochemical role of any three vitamins. (2+2+2)

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Code No. 6059 / S

FACULTY OF PHARMACY

B. Pharmacy 4/4 I-Semester (Suppl.) Examination, April 2016

Subject : Pharmaceutical Analysis - II
(Inst. Methods of Analysis)

Time : 3 Hours **Max. Marks: 70**

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

1 (a) (i) Write about different properties of electromagnetic radiation. (2)
(ii) Write the theory and principles of UV spectroscopy. (8)
(iii) Explain the concept of chromophore and auxochrome. (4)

OR

(b) State and explain Beer's law and describe different components of UV spectrophotomer. (14)

2 (a) (i) Give the principles of IR spectroscopy with a sketch diagram. (4)
(ii) Discuss the interpretation of IR spectra of simple organic compounds with examples. (10)

OR

(b) Explain the following: (7)
(i) Hook's law
(ii) Intensity and position of IR bands
(iii) Explain different sample handling techniques used in IR spectroscopy. (7)

3 (a) (i) Explain the principles of fluorescence and phosphorescence phenomena. (7)
(ii) Write about different Ionization techniques in mass spectroscopy. (7)

OR

(b) Explain the following:
(i) Shielding and de shielding (4)
(ii) Mass analyzers (6)
(iii) Properties of fluorescence (4)

4 (a) Write the principles of Flame photometry technique. (7)
(b) Explain different methods for determination of end point in potentiometric titrations. (7)

OR

(c) Give the principles of DSC and DTA techniques. (7)
(d) Write the advantages and applications of conductometric titrations. (7)

5 (a) Write the principles of paper and thin layer chromatography. (7)
(b) Write about any two types of detectors used in gas chromatography. (7)

OR

(c) Give the description and working of HPLC with the help of neat labelled diagram. (7)
(d) Explain the theory and principles of paper electrophoresis techniques. (7)

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Code No. 6061 / S

FACULTY OF PHARMACY

B. Pharmacy 3/4 I – Semester (Supplementary) Examination, April 2016

Subject : Dosage Formulation and Design (Pharmaceutics-III)

Time : 3 hours **Max. Marks : 70**

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

1 a) Discuss the effect of the following on the formulation development
i) Particle size ii) Polymorphism iii) Partition coefficient 9
b) What is the role of flow properties in preformulation studies? 5

OR

c) Define stability? Write a short note on accelerated stability testing. 6
d) Write the reasons and preventive measures for degradation reactions in formulation i) Oxidation ii) Hydrolysis 8

2 a) Write the advantages and disadvantages of sustained action pharmaceuticals. 5
b) Write a brief note on following sustained release formulations 9
i) Encapsulated slow release granules
ii) Drug-complex formulation

OR

c) Define microencapsulation? What are the reasons for microencapsulation? 5
d) Enumerate the methods for microencapsulation? Describe Coacervation-phase separation technique? 9

3 a) What are the different types of approaches for Transdermal drug delivery systems? 7
b) What are the different types of ocular drug delivery systems available? Describe the design of Occuserts? 7

OR

c) Explain *in vitro* evaluation of Transdermal patches. 6
d) Write the characterization of liposomes. 8

4 a) Discuss various methods for assessment of bioavailability. 7
b) Describe the Latin square experimental design for conducting bioequivalence study. 7

OR

c) Define validation? Give the importance of validation of pharmaceuticals. 5
d) Write about different types of process validation. 9

5 a) Write about quality control and quality assurance during compounding, packing and labeling. 8
b) Write a note on stability protocol of drug products. 6

OR

c) What is statistical quality control? What are the different types of control charts available? Write about QC charts for variables and attributes. 10
d) Write a brief note on i) Manufacturing Formula Record ii) Batch Production Record. 4

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