Code No. 13053 / Non-CBCS

FACULTY OF PHARMACY

B.Pharmacy IV/IV I – Semester (Non-CBCS) (Main) Examination, November 2018

Subject: Bio-Pharmaceutics & Pharmacokinetics

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

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

1. a) Explain the theories of dissolution. 7
   b) Explain in detail about carrier mediated transport. 7

   OR

   c) Explain the biological factors affecting the drug absorption. 7
   d) Write a note on passive diffusion. 7

2. a) Explain the kinetics of Protein drug binding. 7
   b) Write a note on passive diffusion. 7

   OR

   c) Explain the Organ/Tissue size and perfusion rate affecting distribution of drugs. 7
   d) Describe about the physiological barriers to the distribution of drugs. 7

3. a) Explain phase I and phase II reactions with suitable examples. 14

   OR

   b) Explain the mechanism of renal excretion of drugs. 7
   c) Explain about the concept of clearance.

4. a) Explain the zero order and First order kinetics. 7
   b) Explain the methods of dose adjustment in patients with hepatic failure. 7

   OR

   c) Explain about pharmacokinetic parameters – Apparent volume of distribution, half life and clearance. 7
   d) Explain drug – drug interactions with suitable examples. 7

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

   OR

   b) Plasma samples were collected from a patient after an oral dose of benzodiazepine solution as follows. (F=1) 14

Time (hr.)	0.25	0.5	0.75	1.0	2.0	4.0	6.0	10.0	14.0	20.0
Plasma Concentration (mg/lit)	2.85	5.43	7.75	9.84	16.2	22.15	23.01	19.09	13.9	7.79

Calculate all possible pharmacokinetic parameters.

****

Code No. 13056/Non-CBCS

FACULTY OF PHARMACY

B. Pharmacy 4/4-Year I-Semester (Non-CBCS) (Main) Examination,

November 2018

Subject : Dosage Formulation and Design (Pharmaceutics – III)

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

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

1 a) Describe the following physical properties and their effect on preformulation studies
i) Particle size and shape ii) Solubility iii) Polymorphism 8

b) Explain the significance of preformulation studies in the formulation of dosage forms. 6

OR

c) Write about different chemical properties of drug and their influence on formulation and stability of products. 14

2 a) Explain the concept of sustained release dosage forms and describe the approaches based on dosage form modification. 7+7

OR

b) Write a note on various microencapsulation techniques and their applications.

3 a) Write about the various approaches used in fabrication of TDDS and explain the *in vitro* evaluation of TDDS. 14

OR

b) Explain the concept of ocular drug delivery system and write in detail about design of occuserts.

4 a) Describe in detail about different bioavailability enhancement techniques. 14

OR

b) Write in detail about the concept of GMP in pharmaceutical production.

5 a) Define quality control and quality assurance. Describe raw material control in detail. 14

OR

b) Explain in detail about master formula record and batch production record.

*****

Code No. 13055 / Non-CBCS

FACULTY OF PHARMACY

B. Pharmacy IV/IV I – Semester (Non-CBCS) (Main) Examination, November 2018

Subject: Medicinal Chemistry – II

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

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

1. a) Define for NSAIDs and classify them with minimum two structural examples.
   b) Write the structure, synthesis and uses of the following drugs.
      (i) Bupivacaine (ii) Piroxicam
   c) Explain the SAR of Pethidine analogues. 6+4+4

OR

   d) Write a short note on Narcotic antagonists.
   e) Write the structure, synthesis and uses of the followings.
      (i) Diclofenac (ii) Fentanyle
   f) Explain in detail about the SAR of local anaesthetics. 6+4+4
2. a) Write the classification of Antineoplastic agents.
   b) Write a note on quinolone antibiotics.
   c) Write the synthesis and mode of action of following drugs.
      (i) Sulphamethoxazole (ii) Chlorambucil 6+4+4

OR

   c) Define antibiotics and write the general classification of antibiotics with suitable examples.
   d) Write a short note on Amino glycoside antibiotics.
   e) Write the structure, synthesis, mode of action and uses of chloramphenicol. 5+5+4
3. a) Explain the life cycle of Malaria parasite and write the classification of anti Malarial agents.
   b) Write the structure, IUPAC name, mode of action and uses of the following
      (i) Zidovudine (ii)INH 8+6

OR

   c) Enumerate the various classes of antifungal agents with examples.
   d) Write the synthesis and mode of action of the following drugs.
      (i) Chloroquine (ii) Piperazine citrate 7+3+4

Contd..2..

4. a) Outline the classification of anticonvulsants.
   b) Write in detail about SAR of Benzodiazepines.
   c) Write the synthesis and uses of the following drugs
      (i) Imipranine (ii) Ketanine 5+5+4

OR

   c) Define Sedatives and Hypotics and classify them with suitable examples.
   d) Write a note on Antiparkinsonism drugs. 7+7

5. a) What are Vitamins? Write the source, storage, biochemical role of fat soluble vitamins. 7+7
   b) Write in detail about development of protein drugs.

OR

   c) Explain in detail about essential amino acids and their functional role.
   d) Write the structure, uses and biochemical role of following Vitamins. 8+6
      (i) Vitamin B_1
      (ii) Vitamin C
      (iii) Vitamin E

****

Code No. 13054/Non-CBCS

FACULTY OF PHARMACY

B. Pharmacy IV/IV I – Semester (Non-CBCS) (Main) Examination, November 2018

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

OR

   c) Explain about different types of electronic transitions in organic compounds. 4
   d) Describe different components of UV spectrophotometer with a neat labeled diagram. 10
2. a) Explain the following
      Molecular vibrations
      Intensity and position of IR bands 7
   b) Explain different sample handling techniques used in IR spectroscopy. 7

OR

   c) Explain different IR regions for absorption of various functional groups 3
   d) State and explain Hook's law. 3
   e) Write about different types of detectors used IR spectrophotometers. 8
3. a) Write about theory and principles of NMR spectroscopy technique. 7
   b) Explain the fragmentation rules in interpretation of mass spectrum. 7

OR

   c) Explain the following
      Shielding and de shielding 4
      Mass analyzers 6
      Properties of fluorescence 4
4. a) Give the principles of DSC and DTA techniques. 7
   b) Write about different types of fuel gases and oxidants used in flame photometry applications. 7

contd..2..

OR

c) Describe different Ion-selective electrodes used in potentiometric titrations 8

d) Write the theory and principle involved in flame photometry technique. 4

e) Give different types of fuel gases and oxidants used in flame photometry applications. 2

5. a) Explain the theoretical principles of electrophoresis technique. 6

b) Write about different types of detectors used in gas chromatography. 8

OR

c) Write the principles of paper and thin layer chromatography. 6

d) Define the following. 8

Theoretical plate

Column efficiency

Resolution

Retardation factor.

****

Code No. 13057 / Non-CBCS

FACULTY OF PHARMACY

B. Pharmacy 4/4-Year I-Semester (Non-CBCS) (Main) Examination, November 2018

Subject : Pharmaceutical Business Management

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

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

1	a)	What are different levels of management and associated management information systems in production planning and control.	7
	b)	What are the problems of production and mention the remedies for them.	7
		OR	
	c)	Write the needs for TQM and explain its elements for organizational effectiveness.	8
	d)	Write the salient features of GSP.	6
2	a)	Describe different documentation and records to be maintained as part of GMP.	8
	b)	Explain Layout of sterile area in a pharmaceutical industry.	6
		OR	
	c)	Write the advantages and disadvantages of compartmentalized facilities.	6
	d)	Explain the special provisions and storage space requirements in plant layout.	8
3	a)	Write the importance of store organization and describe the factors to be considered for location and layout stores.	14
		OR	
	b)	Explain the procedures applicable for receiving, inspection, issue and control of store stock.	14
4	a)	What is importance of morale and describe consequences of poor morale.	6
	b)	Explain the transfer and remuneration polices in personnel management and their significance.	8
		OR	
	c)	Explain different concepts of individual and group behavior in industrial setup.	14
5	a)	Describe the factors to be considered for fixation of price.	6
	b)	Explain the steps involved in detailing the physician in sales promotion.	8
		OR	
	c)	Write importance of window and interior display in sale promotion.	6
	d)	Explain the peculiarities in sales promotion of pharmaceutical product.	8

*****

Code No. 1190

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Suppl.) Examination, April 2018

Subject: Bio-Pharmaceutics & Pharmacokinetics

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

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

1 a) Explain patient related factors affecting absorption. 7
b) Explain pH partition hypothesis. 7

OR

c) Explain dosage form factors affecting the absorption. 7
d) Write a note on passive diffusion. 7

2 a) Explain the factors affecting protein drug binding. 7
b) Explain about tissue binding of drugs. 7

OR

c) Explain permeability rate limited and perfusion rate limited drug distribution. 9
d) Write a note on volume of distribution. 5

3 a) Explain the factors affecting the biotransformation of drugs. 14

OR

b) Write about non renal routes of excretion of drugs. 7
c) Explain in detail about enterohepatic circulation of drugs. 7

4 a) Explain the methods of dose adjustment in patients with renal failure. 7
b) Explain the plasma concentration – time profile. 7

OR

c) Explain about different methods of determination of AUC. 7
d) Explain the significance of drug interactions in combination therapy. 7

5 a) Explain the method of residuals for calculation of absorption rate constant in one compartment open model. 7
b) A drug has a half life of 6 hrs. If it has a volume of distribution of 72 litres in an 85 kg individual. What is its charance? If its clearance is decreased by 50% due to renal failure what will be its new half life? (Assume Vd remains constant). 7

OR

c) A single intravenous injection of 5 mg/kg of drug A is given to a 50 year subject (weight 80 kg). The following plasma concentrations are collected. Assume that it follows one compartment open model. Calculate all possible pharmacokinetic parameters. 14

Time (hr)	0.1	0.5	1	8	16	24	48
Plasma Concentration (µg/ml)	1.142	1.0627	0.9712	0.2755	0.90653	0.0155	0.0002

d

****

Code No. 1193

FACULTY OF PHARMACY

B. Pharmacy 4/4-Year I-Semester (Suppl.) Examination, April 2018

Subject : Dosage Formulation and Design (Pharmaceutics – III)

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

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

1 a) What are preformulation studies? Explain different powder characteristics and their effect on formulation. 14

OR

b) Explain about accelerated stability studies. 7

c) Describe hydrolysis, oxidation and polymerization effect on formulation and its stability. 7

2 a) Explain the formulation methods of Sustained Release Dosage Forms (SRDF) and their evaluation. 14

OR

b) Define microencapsulation and explain the following techniques.
i) Air Suspension ii) Coacervation Phase separation iii) Spray Congealing
iv) Solvent evaporation

3 a) Write a note on preparation and evaluation methods of liposomes. 14

OR

b) Describe about preparation, evaluation and applications of nanoparticles.

4 a) Define absolute and relative bioavailability. Explain about experimental design of bioequivalence studies. 14

OR

b) Explain about process validation methods. 7

c) Describe the statistical interpretation of data in bioequivalence studies. 7

5 a) Write about sources of quality variation. 7

b) Explain active and therapeutic material control. 7

OR

c) Describe the concept of statistical quality control and quality control charts. 7

d) Explain in detail about manufacturing control, packing and label control for various pharmaceutical products. 7

*****

Code No. 1191

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Suppl.) Examination, April 2018

Subject: Pharmaceutical Analysis – II
(Instruments Methods of Analysis)

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

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

1	a)	Write about different properties of electromagnetic radiation.	5
	b)	Write the theory and principles of UV spectroscopy.	5
	c)	Explain the concept of chromophore and auxochrome.	4
		OR	
	d)	Describe different methods for quantitative analysis of single component samples by spectrophotometry.	10
	e)	State and explain beer lamberts law and deviations in its applicability.	4
2	a)	Explain Hook's law and intensity of absorption bands in IR spectroscopy.	6
	b)	Describe the interpretation of IR spectra of simple organic compounds.	8
		OR	
	c)	Explain the finger print region and characteristic absorptions of any five functional groups by drawing a schematic IR spectrum.	7
	d)	Explain different sample handling techniques used in IR spectroscopy.	7
3	a)	Explain the principles of fluorescence and phosphorescence phenomena with help of Jablonski diagram.	7
	b)	Write about different ionization techniques in mass spectroscopy.	7
		OR	
	c)	Explain the following:	
		i) Factors influencing intensity of fluorescence	6
		ii) Radiative and non-radiative process	4
		iii) Chemical shift and spin-spin coupling.	4
4	a)	Explain the following:	
		i) Nernst equation and calculation of cell potential.	5
		ii) Molar conductance and specific conductance	5
		iii) Effect of dilution on conductance.	4
		OR	
	b)	Describe different ion-selective electrodes used in potentiometric titrations.	7
	c)	Write short notes on Nehelometry and turbidometry.	7
5	a)	Give the description and working of HPLC with help of neat labelled diagram.	14
		OR	
	b)	Explain the principles and applications thin layer chromatography.	5
	c)	Explain about any three detectors used in gas chromatography.	9

****

Code No. 1192

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Suppl.) Examination, April 2018

Subject: Medicinal Chemistry – II

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

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

1 a) Define local anesthetics and classify them with minimum two examples. 6
b) Write the synthesis, mode of action and uses of the following drugs.
i) Lidocaine ii) Ibuprofen 4
c) Write in detail about structural modification of morphine analogues. 4

OR

d) What are narcotic analgesics. Classifs them with structural examples. 6
e) Write the synthesis, mode of action and uses of the following drugs.
i) Fentanyl ii) Paracetamol 4
f) Explain in detail about the SAR of pyrazolidine dione derivatives. 4

2 a) Define Beta lactan antibiotics and explain the classification and mode faction of penicillins. 7
b) What are antibacterial agents? Write the structure, synthesis, mode of action and uses of any one sulphonamide drug. 7

OR

c) Write a note on cephalosporins. 7
d) Write the synthesis, mode of action and uses of the following drugs:
i) Ampicillin ii) 5-Fluronzacil 9

3 a) Define antiviral agents and write their mode of action and classification. 7
b) Write a note on anti-tubercular agents. 7

OR

c) Write the synthesis, mode of action and uses of the following drugs: 7
i) Pyrimethanine ii) Dapsone
d) Write a note on antileptotic agents. 7

4 a) Define general anesthetics and explain the various stages of anesthesia. Write the classification of general anesthetics. 8
b) Write the structure, mode of action and uses of the following:
i) Phenytion ii) Diazepam 6

OR

c) Define tranquillizers and write their classification. 8
d) Write the structure, synthesis, mode of action and uses of the following:
i) Carbanazepine ii) Amitryptaline 6

5 a) What are essential amino acids? Write their chemical structure and biochemical role. 8
b) Write the sources, uses and biochemical role of following vitamins.
i) Vitamin B6 ii) Vitamin D iii) Vitamin B2 6

OR

c) Explain in detail about protein drug development. 9
d) What are vitamins? Explain the source, storage, biochemical role of vitamins A & K. 5

****

Code No. 1194

FACULTY OF PHARMACY

B. Pharmacy 4/4 I – Semester (Suppl.) Examination, April 2018

Subject: Pharmaceutical Business Management

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

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

1 a) Explain the requirements of GMP in pharmaceutical manufacturing. 14

OR

b) Explain the concept of economic batch quantity. 5

c) Write in detail about production forecasting and enlist various forecasting techniques. 9

2 a) Discuss about the plant layout and factors to be considered for a pharmaceutical industry. 9

b) Explain the procedure of work study and mention its significance. 5

OR

c) Explain pharmaceutical process flow patterns. 7

d) Describe the process flow diagrams for the production of tablets. 7

3 a) Explain the different approaches of inventory management and control. 14

OR

b) Explain layout of stores and its organization. 7

c) Explain different techniques used for handling of materials. 7

4 a) Explain behaviour of manager and subordinate according to Mc Gregor X and Y theory. 8

b) Describe the Maslow's hierarchy of needs theory. 6

OR

c) Write a note on individual and group behaviour. 8

d) Explain different methods of training. 6

5 a) Differentiate the following:

i) Marketing and Selling 4

ii) Branded and Generic 4

b) Explain different pricing strategies. 6

OR

c) Describe different sales promotion techniques. 6

d) Explain retailer and distributor roles in pharmaceutical business and suggest improvements for modern business. 8

****