[4355] – 103

Seat No.	

First Year B.Pharmacy Examination, 2013
1.3 : PHARMACEUTICAL INORGANIC CHEMISTRY
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) Answers to the ***two*** *Sections should be written in* ***separate*** *answer books.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. Define nuclear chemistry, discuss the nuclear radiation measurement and nuclear reactions. **10**

OR

1. Give definition and classification of electrolytes, explain electrolytes combination therapy. **10**

2. Attempt **any five** of the following : **15**
   a) Classification of antidotes.
   b) Write the limit test for sulphate as per I.P.
   c) Assay of magnesium carbonate as per I.P.
   d) Explain adsorbents with examples.
   e) Therapeutic application of radiopharmaceuticals.
   f) Explain hard water.
   g) Write properties and mode of actions of potassium iodide.

3. Write notes on **any three** of the following : **15**
   a) Antacid
   b) Methods to remove hardness of water
   c) Pharmaceuticals necessities
   d) Oxygen gas
   e) Limit test for arsenic as per I.P.

P.T.O.

SECTION – II

4. What is purity of pharmaceuticals ? Explain factors affecting on purity of pharmaceuticals with examples. **10**

OR

4. Give definition and classification of topical agents, explain mode of action of zinc stearate and boric acid. **10**

5. Attempt **any five** of the following : **15**
   a) Assay of zinc sulfate.
   b) Explain properties and mode of actions of mercuric chloride.
   c) Physiological role of sodium iodide.
   d) Explain milk of magnesia as an antacid.
   e) Explain the physiological role of iron sorbite injection.
   f) What are acids, bases and buffers ?
   g) Write properties and mode of actions of zinc peroxide.

6. Write notes on **any three** of the following : **15**
   a) Explain different pharmacopoeias.
   b) Nuclear fusion and fission.
   c) Protective and adsorbents.
   d) Antimicrobials agents.
   e) Extra and intracellular ions.

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[4355] – 105

Seat No.	

First Year B.Pharm. Examination, 2013
1.5 : HUMAN ANATOMY AND PHYSIOLOGY
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Answers to the **two** Sections should be written in **separate** books.*
*2) Black figures to the **right** indicate **full** marks.*
*3) **All** questions are **compulsory**.*

SECTION – I

1. Define cardiac cycle and describe various events occurring in cardiac cycle. **10**

OR

1. Explain mechanism and physiology of respiration. **10**

2. Solve **any five** : **15**
   a) Draw a neat labelled diagram of cell.
   b) What are different types of anemia ?
   c) Explain structure and function of spleen.
   d) What is blood pressure ? Discuss factors affecting B.P.
   e) Discuss active and passive transfer of material across plasma membrane.
   f) What are types of tissue ? Give characteristics of each type.
   g) Explain structure of heart.

3. Write short notes on **any three** : **15**
   a) Hemolytic disease of newborn.
   b) Structure and functions of stomach.
   c) WBCs.
   d) Lymph node.
   e) Methods of artificial respiration.

P.T.O.

SECTION – II

4. Discuss female reproductive cycle and hormones involved in it. **10**

OR

4. Draw a neat labelled diagram of internal structure of kidney and explain in detail urine formation. **10**

5. Solve **any five** : **15**
   a) Differentiate between parasympathetic and sympathetic nervous system.
   b) Draw a neat labelled diagram of Ovary showing the developmental stages of an ovarian follicle.
   c) Enlist hormones secreted by hypothalamus and discuss their functions.
   d) Enumerate the organs male reproductive system with functions of each organ.
   e) Explain mechanism of muscle contraction.
   f) Discuss functions of skin.
   g) Discuss ear as a sense organ.

6. Write short notes on **any three** : **15**
   a) Nephron
   b) Cerebrum
   c) Pituitary gland
   d) Anatomy of neuron.

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Seat No.	

Second Year B.Pharmacy Examination, 2013
2.3 : PHARMACEUTICAL BIOCHEMISTRY
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Question Nos.* ***one*** *and* ***five*** *are* ***compulsory****. Out of the remaining attempt* ***any two*** *questions from Section –* ***I*** *and* ***any two*** *questions from Section –* ***II****.*
2) Answer to the ***two*** *Sections should be written in* ***separate*** *books.*
3) ***Neat*** *diagrams must be drawn* ***wherever*** *necessary.*
4) Black figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. What are purines and pyrimidines ? Explain biosynthesis of purines. **10**

2. Write short note on **any three** : **15**
   a) Therapeutic uses of enzymes
   b) β oxidation of saturated fatty acid
   c) Na^+ K^+ pump
   d) Transamination
   e) Essential fatty acids and its biological role

3. Explain **any two** : **15**
   a) Biosynthesis of fatty acids
   b) Enzyme inhibition
   c) Primary structure of protein

4. Explain **any two** reaction : **15**
   a) Amino acid reaction with ninhydrine
   b) Glucose reaction with Phenylhydrazine
   c) Two reactions of N-terminal determination of polypeptide

P.T.O.

SECTION – II

5. Write a detail note on liver function test. **10**

6. Write short notes on **any three** : **15**
   a) BMR
   b) Co-enzymes
   c) Marker enzymes
   d) ELIZA
   e) RIA

7. Write short notes on **any three** : **15**
   a) Ribosomes
   b) Transcription
   c) PCR
   d) Inhibitors of translation
   e) Genetic disorders of carbohydrate metabolism

8. Explain **any two** : **15**
   a) Transcription and reverse transcription
   b) Nucleosides and Nucleotides
   c) DNA polymerase and RNA polymerase

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[4355] – 206

Seat No.	

Second Year B.Pharmacy Examination, 2013
2.6 : PHARMACOGNOSY – I
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Answers to the* ***two*** *Sections should be written in* ***separate*** *books.*

2) ***All*** *questions are* ***compulsory****.*

3) Black figures to the ***right*** *indicate* ***full*** *marks.*

4) ***Neat*** *diagram must be drawn* ***wherever*** *necessary.*

SECTION – I

1. What is cultivation ? Write importance of cultivation. Describe factors affecting cultivation. **10**

   OR

   Give importance of quality control of crude drugs. Explain preliminary phytochemical screening in detail. **10**

2. Answer the following (**any five**) : **15**

   a) Write contribution of Charak and Sushruta to the Indian system of medicine.

   b) Define Stomatal number and Stomatal index.

   c) Describe various shapes of bark.

   d) Explain and give significance of Ash value.

   e) Describe the anatomy of leaf.

   f) What are vascular bundles ? Give its types.

   g) Define wood and give its types.

P.T.O.

3. Write a short note on (**any three**) : **15**
   a) Classification of crude drugs.
   b) History and scope of pharmacognosy.
   c) Differentiate between organized and unorganized crude drug with example.
   d) Pest and Pest Control.

SECTION – II

4. What are carbohydrates ? Give classification with example and explain chemistry of carbohydrate. **10**

   OR

   What are starches ? Describe various types of starch and write the importance of starch in pharmaceutical industry. **10**

5. Answer the following (**any five**) : **15**
   a) Describe soxhlet extraction.
   b) Differentiate between cotton and silk by chemical test.
   c) What is cellulose ? Describe its various types.
   d) Define and classify glycosides.
   e) Write syn, B.S., C.C. and uses of sterculia gum.
   f) Explain method of preparation and uses of inulin.
   g) Arnica as a herbal dietary supplement.

6. Write a short note on (**any three**) : **15**
   a) Gum and Mucilage
   b) Wool as a natural fiber
   c) Natural sweeteners
   d) Spirulina and Ginseng.

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[4355] – 207

Seat No.	

Second Year B.Pharmacy Examination, 2013
(2008 Pattern)
2.7 : PHARMACOLOGY – I (Including Pathophysiology)

Time : 3 Hours Max. Marks : 80

***Note** : 1) **All** questions are **compulsory**.*
*2) Answer to the **two** Sections should be written in **separate** answer books.*
*3) Neat labelled diagrams must be drawn **wherever** necessary.*
*4) Black figures to the **right** indicate **full** marks.*

SECTION – I

1. Define bioavailabilty of drugs. Discuss the factors affecting bioavailability. **10**

OR

Classify anti – coagulants. Discuss the pharmacology of Warfarin.

2. Solve **any five** of the following : **15**

i) Write the characteristics of dose response curve(DRC). Explain potency and efficacy of drugs using DRCs.

ii) Write advantages and disadvantages of oral route of drug administration.

iii) Define apparent volume of distribution (Vd). Explain clinical significance of Vd. of drug.

iv) Write a note on Vitamin-K.

v) Discuss the combined effects of drugs.

vi) Discuss the types of gene therapy.

vii) What are up-regulation and down-regulation of receptors ?

P.T.O.

3. Write a note on the following (**any three**) : **15**
   i) Pharmacokinetic type of drug interactions
   ii) G-Protein coupled receptor
   iii) Plasma protein binding of drugs
   iv) Antihistaminic drugs
   v) Drug treatment in geriatric patient

SECTION – II

4. Discuss in detail pathophysiology of myocardial infarction. **10**

OR

Define and classify diabetes mellitus. Discuss its pathophysiology and complications.

5. Solve **any five** of the following : **15**
   i) Discuss the pathophysiology of pain.
   ii) Explain the pathogenesis of Parkinson's disease.
   iii) Write the causes and pathophysiology of tuberculosis.
   iv) Explain the mode of transmission of Hepatitis-B infection.
   v) Discuss the pathophysiology of malaria.
   vi) Explain types and symptoms of depression.
   vii) Describe the types and clinical features of pneumonia.

6. Write a note on the following (**any three**) : **15**
   i) Pathophysiology of peptic ulcer.
   ii) Mechanisms of carcinogenesis.
   iii) Explain causes and risk factors of hypertension.
   iv) Pathogenesis of bronchial asthma.
   v) Epilepsy

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[4355] – 207

Seat No.	

Second Year B.Pharmacy Examination, 2013
(2008 Pattern)
2.7 : PHARMACOLOGY – I (Including Pathophysiology)

Time : 3 Hours Max. Marks : 80

***Note** : 1) **All** questions are **compulsory**.*
*2) Answer to the **two** Sections should be written in **separate** answer books.*
*3) Neat labelled diagrams must be drawn **wherever** necessary.*
*4) Black figures to the **right** indicate **full** marks.*

SECTION – I

1. Define bioavailabilty of drugs. Discuss the factors affecting bioavailability. **10**

OR

Classify anti – coagulants. Discuss the pharmacology of Warfarin.

2. Solve **any five** of the following : **15**

i) Write the characteristics of dose response curve(DRC). Explain potency and efficacy of drugs using DRCs.

ii) Write advantages and disadvantages of oral route of drug administration.

iii) Define apparent volume of distribution (Vd). Explain clinical significance of Vd. of drug.

iv) Write a note on Vitamin-K.

v) Discuss the combined effects of drugs.

vi) Discuss the types of gene therapy.

vii) What are up-regulation and down-regulation of receptors ?

P.T.O.

3. Write a note on the following (**any three**) : **15**
   i) Pharmacokinetic type of drug interactions
   ii) G-Protein coupled receptor
   iii) Plasma protein binding of drugs
   iv) Antihistaminic drugs
   v) Drug treatment in geriatric patient

SECTION – II

4. Discuss in detail pathophysiology of myocardial infarction. **10**

OR

Define and classify diabetes mellitus. Discuss its pathophysiology and complications.

5. Solve **any five** of the following : **15**
   i) Discuss the pathophysiology of pain.
   ii) Explain the pathogenesis of Parkinson's disease.
   iii) Write the causes and pathophysiology of tuberculosis.
   iv) Explain the mode of transmission of Hepatitis-B infection.
   v) Discuss the pathophysiology of malaria.
   vi) Explain types and symptoms of depression.
   vii) Describe the types and clinical features of pneumonia.

6. Write a note on the following (**any three**) : **15**
   i) Pathophysiology of peptic ulcer.
   ii) Mechanisms of carcinogenesis.
   iii) Explain causes and risk factors of hypertension.
   iv) Pathogenesis of bronchial asthma.
   v) Epilepsy

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Seat No.	

Third Year B.Pharmacy Examination, 2013
(2008 Pattern)
3.5 : PHARMACOLOGY – II

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Answer to the* ***two****(2) Sections should be written in* ***separate*** *books.*

2) Neat diagrams must be drawn ***wherever*** *necessary.*

3) Black figures to the ***right*** *indicate* ***full*** *marks.*

4) ***All*** *questions are* ***compulsory****.*

SECTION – I

1. Classify sympathomimetic drugs. Explain with the help of figure the steps involved in the biosynthesis of adrenaline. **10**

OR

1. Explain the mechanism of action, pharmacological actions, adverse effects and therapeutic uses of atropine. **10**

2. Answer **any five** : **15**

   1) Treatment of organophosphorous poisoning.

   2) Classify General Anesthetics.

   3) Explain preanaesthetic medication in brief.

   4) ADME of Alcohol

   5) Classify opoid analgesics.

   6) Mode of action of Benzodiazepines.

   7) What are the therapeutic uses of adrenaline ?

P.T.O.

3. Write notes on **any three** : **15**
   1) Pharmacotherapy of alcoholism.
   2) Morphine poisoning
   3) Ganglionic stimulants
   4) Distinguish between sympathetic and parasympathetic nervous system.
   5) Dales vasomotor reversal

SECTION – II

4. Classify antitussive agents. Explain the pharmcotherapy of cough. **10**

OR

4. Explain Biosynthesis, release and mode of action of thyroid hormones. **10**

5. Answer **any five** : **15**
   1) Classify oral hypoglycaemic drugs.
   2) Mechanism of action of oral contraceptives.
   3) What are SERM ? Explain in brief.
   4) Physiological role of Ca^{+2} in body.
   5) Classify anti-thyroid drugs.
   6) Write brief note on glucagon.
   7) Classify anti-emetics.

6. Write short notes on **any three** : **15**
   1) Oxytocis
   2) Pharmacotherapy of Rheumatoid Arthritis
   3) Anti-fertility agents
   4) Mineralocorticoids
   5) Local anesthetics

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Seat No.	

Final Year B.Pharmacy Examination, 2013
4.4 : PHARMACEUTICAL ANALYSIS – III
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

N.B. : *1) Write answer to Section **I** and Section **II** in **separate** books.*
*2) Q. No. **1** and Q. No. **5** are **compulsory**.*
*3) Write **two** questions from Section **I** and **two** questions from Section **II** from the **remaining**.*

SECTION – I

1. Answer **any five** of the following. **Two** marks **each**.

A) Why trans-1, 2-dichloroethene is IR inactive ?

B) How many NMR signals are shown by the following compounds ?
   1) Ethoxy acetic acid
   2) Diethyl ether
   3) Tert-butyl amine
   4) Acetone

C) In GLC, how the flow rate of carrier gas is controlled and measured ? How the soap-bubble flow meter works ?

D) What is ortho effect in mass spectrometry ? Explain with example.

E) What is full name of WCOT, SCOT and FSCOT columns used in Gas chromatography ?

F) Which of the following diatomic molecules do not absorbs in Infrared region ?
   1) HCl
   2) HBr
   3) N_2
   4) H_2
   5) O_2

P.T.O.

2. A) Explain the principle, instrumentation and applications of Flash chromatography. **8**

   B) Explain the principle of the capillary Zone electrophoresis. **7**

3. A) Discuss the types of IR transducers. **8**

   B) Explain the basic principle of IR spectroscopy. **7**

4. Write note on **(any three)** : **15**

   1) Factors affecting chemical shift
   2) Validation of analytical method as per ICH guidelines
   3) HETP
   4) Van Dee meter equation

SECTION – II

5. A) Explain in brief Trouble shooting and degassing techniques in HPLC. **5**

   B) How P^H affects the separation of amino acids by electrophoresis ? Explain. **5**

6. A) Explain the McLafferty rearrangement with suitable example. **8**

   B) Write the principle and instrumentation of Mass spectrometer. **7**

7. A) Explain the theory of Nuclear Magnetic Resonance spectroscopy. **8**

   B) How will you differentiate Salicylic acid and m-Hydroxy benzoic acid by IR Spectra ? **7**

8. Write note on **(any three)** : **15**

   1) Polymorphism
   2) HID calculations
   3) Columns used in Gas chromatography
   4) Supercritical fluid extraction

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Seat No.	

First Year B.Pharmacy Examination, 2013
1.1 : PHARMACEUTICS – I
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

***Instructions** : 1) Answer to the **two** Sections should be written in **separate** books.*
*2) Neat diagrams must be drawn **wherever** necessary.*

SECTION – I

1. Attempt **any one** : **10**

Define dosage form. Discuss in detail classification of dosage form and a note on sustained release dosage form.

OR

What do mean by clinical trials ? Explain the various phases of clinical trials.

2. Attempt **any five** : **15**

a) Write in brief about bioavailability.

b) Enlist the various applications of radio pharmaceuticals.

c) What is pharmacopoeia ? Add a note on national formulary.

d) Describe Ayurvedic as a system of medicine.

e) Explain in brief cGMP as a tool for quality assurance.

f) Describe various packages for tablets.

g) Enlist various factors affecting drug absorption.

3. Write short notes (**any three**) : **15**

a) Additives used in dosage form

b) Concept of preformulation

c) Containers and closures

d) Development of pharmacy profession

e) Drug efficiency and dose response curve.

P.T.O.

SECTION – II

1. Attempt **any one** : **10**

   What are solutions ? Explain various methods to improve the solubility of poor water soluble drugs.

   OR

   Describe the principle, construction, working and advantages of plate and frame filter press.

2. Solve **any five** : **15**

   a) Define powders. How will you dispense powder containing eutectic substances ?

   b) Enlist various IPQC and quality control tests for solutions.

   c) Write in brief about the factors which affects rate of filtration.

   d) Draw a well labeled diagram of planetary mixer.

   e) Define sieve number. What are the various grades of powder as per I.P. ?

   f) What are syrups ? How invert syrup is prepared and stored ?

   g) Effervescent granules are prepared in controlled environment. Why ?

3. Solve **any three** : **15**

   a) Write a note on ORS and tooth powder.

   b) What are aromatic waters ? How they are preserved ? Differentiate between aromatic and concentrated aromatic water.

   c) Give the principle, construction and working of the fluid energy mill.

   d) Explain in short the factors which affects rate of size reduction.

   e) Write in short about the various methods of granulations.

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Seat No.	

First Year B. Pharmacy Examination, 2013
1.2 : MODERN DISPENSING PRACTICES
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Answers to the two Sections should be written in separate books.
3) Black figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. Define prescription. Explain Inscription and add note on pricing of prescription. **10**

OR

Define suspensions. Classify them and explain its applications in drug delivery system. **10**

2. Attempt **any five** questions from the following : **15**

a) Differentiate between Liniments and Lotions.

b) Which are the different types of emulsifying agents ? How is the selection done ?

c) Comment on general information to be written on label.

d) Explain formulation of dusting powders.

e) Explain dry gum and wet gum method for compounding of emulsions.

f) Explain formulation of Glycerites.

g) In what proportion may a pharmacist mix 3% and 10% Iodine solution to prepare 500 ml of 8% Iodine solution.

P.T.O.

3. Write a short note on **(any three) :** **15**
   a) Factors affecting dose of drug
   b) Code of pharmaceutical Ethics.
   c) Patient medication records.
   d) Patient counseling

SECTION – II

4. What are powders ? Classify and add note on mixing of powders. **10**

OR

4. Discuss in detail various drug-food interactions with examples of drug to be taken on full and empty stomach. **10**

5. Solve **any five** question : **15**
   a) Write patient counselling for controlled release tablets.
   b) Write a legal requirements for sale of schedule X drugs.
   c) Write with examples OTC medication.
   d) What do you mean by aseptic processing ?
   e) Enlist various types of ligatures and sutures.
   f) Differentiate between pastes and creams.
   g) Explain patient counselling for dispensing of insulin injection.

6. Write a short note **(any three) :** **15**
   a) Suppository bases
   b) Physicochemical Incompatibility
   c) Role of pharmacist in hypertension treatment
   d) Drug Information Services.

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Seat No.	

First Year B.Pharmacy Examination, 2013
1.4 : PHARMACEUTICAL ORGANIC CHEMISTRY – I
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

***Instructions** : 1) Answers to the **two** Sections should be written in **separate** books.*
*2) Black figures to the **right** indicate **full** marks.*
*3) **All** questions are **compulsory**.*

SECTION – I

1. Explain the mechanism involved in Friedel craft acylation and nitration of Benzene. **10**

OR

1. What is SN_1 and SN_2 reaction mechanisms ? Discuss factors affecting on SN_1 and SN_2 mechanism. **10**

2. Solve **any five** : **15**

a) What is difference between nucleophilicity and basicity ?

b) Ethyl amine is more basic than Ammonia. Give reason.

c) Methyl group in Toluene is ortho para directing. Explain.

d) Define and illustrate hyper conjugation.

e) Explain enantiomerism with suitable example.

P.T.O.

f) Draw the structures of the following compounds :

i) 2-methyl-2-butane

ii) 2-methyl propanoic acid

iii) 1, 3, 5-Tribromobenzene.

g) Electron donating groups are ortho/para directors in electrophilic aromatic substitution.

3. Answer the following, **any three** : **15**

a) Substitution nucleophilic unimolecular internal.

b) Starting from benzene or toluene how will you prepare the following (give only the reaction equation and conditions).

c) Describe mechanism of sulphonation of benzene. Explain sulphonation in monosubstituted benzene.

d) What is resonance effect ? Write all possible structure for p-nitrophenol.

e) Give methods of preparation and reactions of alcohol.

SECTION – II

4. Explain why aldehydes are more reactive than Ketones for nucleophilic addition reaction and add a note on Cannizzaro reaction ? **10**

OR

4. Define elimination reaction. Explain E_1, E_2 and E_{1cb} reactions with their mechanism. **10**

5. Solve **any five** : **15**

a) 1,3-butadiene on treatment with bromine gives two products. Why ?

b) Sulphonic acid is stronger acid than carboxylic acid. why ?

c) Describe how primary, secondary and tertiary amines can be distinguished from one another ?

d) How will you differentiate the following pair of compounds by simple chemical test ?
   i) Pentanal and Pentanone
   ii) Aniline and phenol

e) Define the following :
   i) Markovnikoff's rule
   ii) Nucleophile
   iii) Acid.

f) Give any two methods of preparation of amines.

g) Give any two reactions of carboxylic acids.

6. Write short notes on **any three** : **15**

a) Aldol condensation

b) Knoevengal condensation

c) Saytzaff's and Hoffmann elimination

d) Grignard reactions of Aldehydes and Ketones

e) Claisen Ester synthesis.

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Seat No.	

First Year B. Pharmacy Examination, 2013
1.7 : COMPUTER APPLICATIONS AND BIO-STATISTICS
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Answers to the ***two*** *Sections should be written in* ***separate*** *answer books.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. A) Explain crossover design with example. **2**

   B) From the following data calculate mean and mode. **4**

Class limits	10-25	25-40	40-55	55-70	70-85	85-100
Frequency	8	15	54	37	22	9

   C) A card drawn from pack of cards, find the probability that **4**
   1) The drawn card is of spade and diamond and of club card.
   2) The drawn card is not face card.

OR

1. A) Explain basic principles of experimental design and selection of samples. **2**

   B) Find mean and standard deviation from following data. **4**

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	3	37	27	33	7	8	4

P.T.O.

C) In the box there are 9 Aspirin, 56 Rifampicin, 23 Propranolol and 4 Ibuprofen tablets. If one tablet chosen at random, find the probability that **4**

1) It is Aspirin and Ibuprofen
2) It is not Propranolol

2. A) Obtain the line of regression of Y on X for the following data **6**

Conc. (X)	1	2	3	4	5	6	7
Absorbance (Y)	0.24	0.45	0.68	0.83	1.02	1.25	1.42

B) Followings are the marks of student A and B, find who is more consistent ? **5**

Student A	12	47	8	26
Student B	5	2	4	6

C) Note on Statistical Quality Control (SQC) Charts. **4**

3. A) Given the following data **4**

	X	**Y**
Arithmetic mean	24	65
Standard deviation	13	5

Obtain two lines of regression and estimate value of Y when X = 33

B) Find the value of coefficient of correlation. **5**

X	25	34	76	43	23	54	33	22
Y	43	22	54	23	22	23	22	65

C) Differentiate between Parametric and nonparametric tests with examples. **6**

SECTION – II

4. A) Explain architecture of Computer with block diagram and examples. **5**

   B) Note on ASCII. **2**

   C) Classify printers with example. **3**

OR

4. A) Explain different types of Impact printers. **5**

   B) Explain generations of computers with example. **5**

5. A) Note on magnetic tape. **6**

   B) Differentiate between system software's and application software's. **4**

   C) Differentiate between RAM and ROM. **5**

6. A) Convert $(110010110)_2$ to decimal and $(9856)_{10}$ to binary form. **5**

   B) Attempt following : **10**
   a) Explain functions of operating systems.
   b) Note on plotters.

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Seat No.	

First Year B.Pharmacy Examination, 2013
PHARMACOGNOSY – I
(Old Course) (2004 Pattern)

Time : 3 Hours Max. Marks : 80

***Note** :1) Question **No. 1** and **5** are **compulsory**.*

*2) Out of remaining attempt **any two** questions from Section – **I** and **any two** questions from Section – **II***

*3) Answers to the **two** Sections should be written in **separate** books.*

*4) Figures to **right** indicate **full** marks.*

SECTION – I

I. a) Define evaluation of crude drug. Describe in detail Physical evaluation. **6**

b) Write a note on Stomata. **4**

II. a) Give the advantages of the cultivation of crude drugs and explain the factors affecting the cultivation of medicinal plants. **8**

b) Describe the morphology and anatomy of Roots. **7**

III. a) Explain different types of propagation of crude drugs with their merits and demerits. **8**

b) Discuss different types of classification of crude drugs. **7**

IV. Write short notes **(any three)** : **15**

i) Gum Acacia

ii) Fundamental tissue system

iii) Differentiate between Organized and Unorganized crude drugs

iv) Extractive values.

P.T.O.

SECTION – II

V. a) Explain the significance of Ash Value, and Foreign organic matter in authentication of crude drugs. **6**

b) Explain and differentiate between Heart wood and Sap wood. **4**

VI. a) Write a note on Ayurveda. **8**

b) Explain Bentham and Hooker system of classification. **7**

VII. a) Describe different types of Calcium oxalate crystals with their identification tests. **9**

b) Add a exhaustive note on Trichomes. **6**

VIII. Write short notes **(any three)** : **15**

a) Gibberlins

b) Chemical methods of pest control

c) Pectin

d) Cytokinins.

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[4355] – 201

Seat No.	

Second Year B. Pharmacy Examination, 2013
2.1 : PHYSICAL PHARMACY
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Answers to the **two** Sections should be written in **separate** answer books.*
*2) **Neat** diagrams must be drawn **wherever** necessary.*
*3) Black figures to the **right** indicate full marks.*
*4) **All** questions are **compulsory**.*

SECTION – I

Attempt **any one** :

1. Explain Nerst distribution law and discuss the factors affecting it. **10**

   OR

   What are colligative properties ? Explain any one property with its method.

2. Answer **any five** (**3** marks **each**) : **15**
   a) What is solubility parameter ? Give its significance.
   b) Discuss the factors affecting solubility of gases in liquids.
   c) What is Raoult's law ? Explain its deviations.
   d) Differentiate between lyophillic, lyophobic and association colloids.
   e) What is compressibility factor ? Explain factors affecting it.
   f) Define and differentiate between electrophoresis and electro-osmosis.
   g) Define with example sensitization and protective action.

3. Write short notes on (**any thre**e) : **15**
   a) Polymorphism
   b) Liquefication of gases
   c) One component system
   d) Colligative properties of electrolytes
   e) Donnan membrane equilibrium

P.T.O.

SECTION – II

4. Explain the concept of thixotropy and the measurement of thixotropy in formulation. **10**

OR

Explain effect of temperature on rate of reaction.

5. Answer **any five** (**3** marks **each**) : **15**

a) Define and differentiate between Nerst and Zeta potential.

b) Explain significance of kinetic study in pharmacy.

c) Define and differentiate between surface and interfacial tension.

d) Explain the concept and importance of dissolution.

e) Explain pharmaceutical importance of particle size and size distribution.

f) Define and differentiate between fundamental and derived properties.

g) Define and differentiate between order and molecularity.

6. Write short notes on (**any three**) : **15**

a) Insoluble monolayer and film balance

b) Viscoelasticity

c) Accelerated stability studies

d) Methods of determining particle size

e) Steady state diffusion

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[4355] – 202

Seat No.	

Second Year B. Pharmacy Examination, 2013
2.2 : PHARMACEUTICAL MICROBIOLOGY AND IMMUNOLOGY
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Answers to the **two** Sections should be written in **separate** books.*
*2) **Neat** diagrams must be drawn **wherever** necessary.*
*3) Black figures to the **right** indicate **full** marks.*
*4) **All** questions are **compulsory**.*

SECTION – I

1. Why we study detail structure of bacteria ? Draw and label typical structure of bacteria and give the function of each part. **10**

   OR

   Give the classification of viruses. Describe lytic and lysogenic cycle of bacteriophage. **10**

2. Answer the following (**any five**) : **15**
   a) Classify bacteria based on their requirement for temperature and oxygen.
   b) List different preservatives used in pharmaceutical formulations.
   c) How will you preserve microbial culture ? Explain it.
   d) Write note on ‘spotted fever group’ of rickettsia.
   e) Give the importance of actinomycetes.
   f) What are dermatophytes ? Explain it.
   g) Comment on ‘Agar is commonly used for the preparation of solid media’.

3. Write a note on (**any three**) : **15**
   a) Measurement of bacterial growth.
   b) Historical development of microbiology.
   c) Cultivation of human viruses
   d) Fluoresence microscopy.
   e) Sources and types of microbial contamination of pharmaceutical products.

P.T.O.

SECTION – II

4. Define antigen and antibody. Explain in detail different antigen-antibody reactions and give their significance. **10**

OR

Define disinfectant. Describe different classes, action and uses of disinfectants. **10**

5. Answer the following (**any five**) : **15**

a) Differentiate between immediate and delayed hypersensitivity.

b) What are adjuvants ? Give their significance.

c) Enlist the test microorganism used for antibiotic assay.

d) What is 100 class clean area ? Give particulate matter test as per I.P.

e) Write the applications of monoclonal antibody.

f) Draw and describe basic structure of immunoglobulin.

g) Write note on “Gaseous sterilization’.

6. Write note on (**any three**) : **15**

a) Immunity

b) BCG

c) Sterilization monitors

d) Comparison of hypersensitivity reactions

e) MIC

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[4355] – 204

Seat No.	

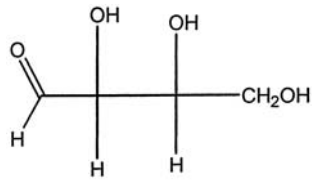
Second Year B.Pharmacy Examination, 2013
2.4 : PHARMACEUTICAL ORGANIC CHEMISTRY – II
(2008 Pattern)

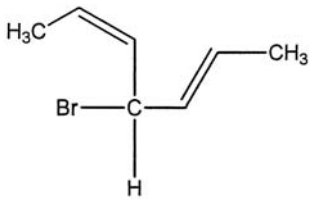
Time : 3 Hours Max. Marks : 80

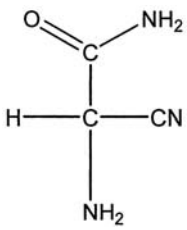
Instructions: *1) Question 1 & 5 are **compulsory**, out of the **remaining** questions solve **any two** in **each** Section.*
*2) Answer to the **two** Sections should be written in **separate** books.*
*3) **Neat** diagrams must be drawn **wherever** necessary.*
*4) Black figures to the **right** indicate **full** marks.*

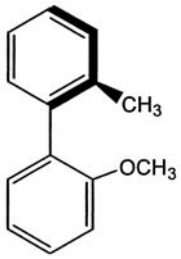
SECTION – I

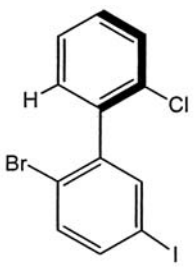
1. A) Establish R & S configurations **(any 5)**. **6**

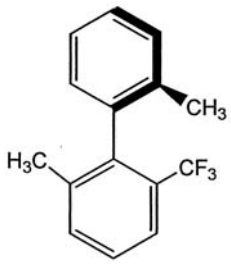
i) 

ii) 

iii) 

iv) 

v) 

vi) 

B) Comment on Atropi-isomerism. **4**

P.T.O.

2. Establish structure of maltose and comment on mutarotation. **15**

3. Illustrate with suitable examples different methods of resolution of racemic mixtures. **15**

4. Write short notes on **any three** : **15**

   i) Conformational isomerism of dialkyl cyclohexanes

   ii) Structure of cellulose

   iii) N-terminal assay

   iv) Reducing sugars

SECTION – II

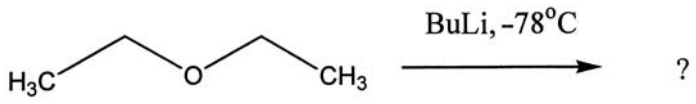
5. Give two methods of synthesis and two reactions of **any two** of the following heterocycles : **10**

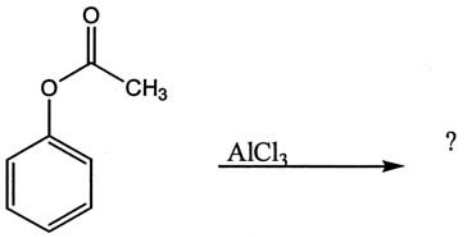
   i) Furan

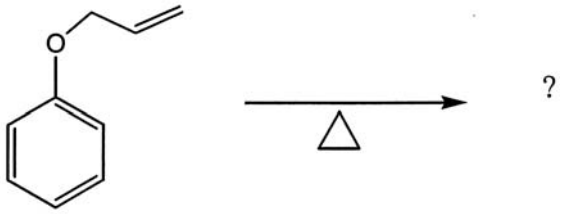
   ii) Pyridine

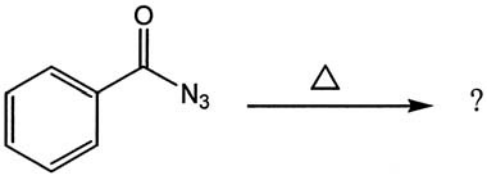
   iii) Pyrrole

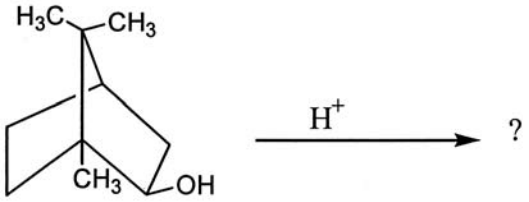
6. Predict the product for **any three** of the following : **15**

i) 

ii) 

iii) 

iv) 

v) 

7. A) Write short notes on **(any two)** : **9**
   i) Fischer indole synthesis
   ii) Knorr Pyrrole synthesis
   iii) Skraup Quinoline synthesis

   B) Comment on role of combinatorial synthesis in drug discovery. **6**

8. Write short notes on **(any three)** : **15**
   i) Pinacol-pinacolone rearrangement
   ii) Cope rearrangement
   iii) Beckmann rearrangement
   iv) Fries rearrangement

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Seat No.	

Third Year B. Pharmacy Examination, 2013
3.1 : PHARMACEUTICS – II
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Answers to the **two** Sections should be written in **separate** books.*
*2) **Neat** diagrams must be drawn **wherever** necessary.*
*3) Black figures to the **right** indicate **full** marks.*
*4) **All** questions are **compulsory**.*

SECTION – I

1. Discuss the physicochemical, biopharmaceutical and therapeutic aspects of design of dosage form. **10**

   OR

   Explain the equipments used for tablet coating and manufacturing problems and remedies during tablet coating. **10**

2. Solve **any five** : **15**
   a) What is lubrication efficiency ? How it is calculated ?
   b) What are Heckel plots ? Give its significance.
   c) What is need of granulation ?
   d) Explain defects in tablet manufacturing along with its reasons and remedies.
   e) Discuss mechanism of granulation.
   f) Explain steps in sugar coating.
   g) Explain the process of gelatin manufacturing.

3. Write short note on **any three** : **15**
   a) Preformulation
   b) In-process and finished product evaluation of capsules
   c) Mouth dissolving tablets
   d) Compression coated tablets
   e) Chewable tablets.

P.T.O.

SECTION – II

4. Discuss stability of emulsion with respect to **10**
   a) Thermodyna stability
   b) Electrical stability

   OR

   Classify hair removal products. Discuss the formulation and evaluation of depilatories. **10**

5. Solve **any five** : **15**
   a) Write a brief note of choice of emulsifier.
   b) What is phase inversion temperature ? Give its significance.
   c) Explain in brief significance of various cosmeceutical agents.
   d) Discuss the evaluation of antacid suspension.
   e) Discuss formulation principles of vanishing cream.
   f) Explain functioning mechanism of shaving cream.
   g) Classify skin cosmetics.

6. Write short notes on **any three** : **15**
   a) Gels
   b) Eye products
   c) Nail lacquer
   d) Face packs
   e) Lip stick

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[4355] – 302

Seat No.	

Third Year B. Pharmacy Examination, 2013
3.2 : PHARMACEUTICAL BIOTECHNOLOGY
(2008 Pattern)

Time : 3 Hours Max. Marks :80

Instructions *: 1) Answers to the **two** Sections should be written in **separate** answer books.*
*2) **Neat** diagrams must be drawn **wherever** necessary.*
*3) **All** questions are **compulsory**.*

SECTION – I

1. Enlist direct and indirect gene transfer methods. Describe the use of Agrobacterium and Ti Plasmid as a gene vector. **10**

   OR

   Describe Protoplast culture technique. Explain Protoplast isolation and protoplast fusion.

2. Attempt **any five** : **15**
   a) Types and role of restriction endonucleases
   b) Alkaline phosphatase in gene cloning as modifying enzyme.
   c) What are linkers and adaptors ?
   d) Write in short about Plasmid.
   e) Give an account of Blood plasma and serum in animal cell culture media.
   f) Write role S1 nuclease and DNA polymerase enzyme.
   g) Differentiate between callus and suspension culture.

3. Write note on **any three** : **15**
   a) Human Gene therapy
   b) Blotting technique
   c) Gene synthesis
   d) PCR
   e) Crayopreservation

P.T.O.

SECTION – II

4. What is hybridoma technology ? Write method of production and applications of monoclonal antibodies. **10**

OR

Explain in detail production, product recovery and application of Penicillin.

5. Attempt **any five** : **15**

a) ELISA

b) Immobilization of Enzymes

c) In-vitro fertilization

d) Significance of aeration in fermentation

e) RIA

f) Freezing germ cell

g) Production of dextran

6. Write note on **any three** : **15**

a) Methods of Purification toxicity of biotechnological product

b) Synthesis of human insulin

c) Types of vaccines

d) Social and ethical issues of Biotechnology

e) Somatotropin production by rDNA

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[4355] – 303

Seat No.	

Third Year B.Pharmacy Examination, 2013
MEDICINAL CHEMISTRY – I
3.3 : (2008 Pattern)

Time : 3 Hours Max. Marks : 80

Note : *1)* ***All*** *questions are* ***compulsory****.*
2) Correct structures and neat diagrams must be drawn ***wherever*** *necessary.*
3) Answers to the ***two*** *sections should be written in* ***separate*** *books.*
4) Figures to ***right*** *indicate* ***full*** *marks.*

SECTION – I

I. Solve **any one** :

a) Differentiate the parasympathetic receptor types with respect to their location, pharmacological responses, therapeutic uses of agonist and antagonist of each. **10**

b) What are Antihypertensive agents ? Discuss the SAR, MOA of Beta blockers. **10**

II. Solve **any five** : **15**

1) Discuss the SAR, MOA of Potassium sparing diuretics.

2) Outline the synthesis of Guanethidine.

3) Enlist the physicochemical parameters responsible for drug absorption and distribution in the biological system.

4) Explain Fergussion principle.

5) Outline the synthesis of Dicyclomine Hydrochloride.

6) Give the structure, IUPAC name and uses of Atenolol and Hydrochlorthiazide.

7) Write the SAR and MOA for ACE inhibitors.

P.T.O.

III. Write short notes **(any three) :** **15**

i) Types of receptors

ii) Antianginal drugs

iii) Antihyperlipidemic agents

iv) Alpha receptor antagonists

v) Calcium channel blockers

SECTION – II

IV. Solve **any one :**

a) Discuss the SAR, MOA of Phenothiazine derivatives. **10**

b) Discuss in detail Insulin therapy and the SAR, MOA of Hypoglycemic agents. **10**

V. Solve **any five :** **15**

1) Outline the synthesis of Haloperidol.

2) Discuss in brief anxiolytic agents.

3) Outline the synthesis of Amitriptyline.

4) Discuss the SAR and MOA of nonselective reuptake inhibitors.

5) Give the structure, IUPAC nomenclature, synthesis of Diazepam.

6) Discuss in brief the SAR and MOA of GABA analogs.

7) Write in brief about Local anaesthetics.

VI. Write short notes **(any three) :** **15**

a) General Anaesthetics

b) Drugs for treatment of Parkinsonism

c) Barbiturates

d) Analeptics

e) Alzeimer disease.

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[4355] – 304

Seat No.	

Third Year B. Pharmacy Examination, 2013
3.4 : PHARMACEUTICAL ANALYSIS – II
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) Answer to the ***two*** *Sections should be written in* ***separate*** *answer books.*
3) ***Neat*** *diagram must be drawn* ***wherever*** *necessary.*

SECTION – I

1. What are the advantages and applications of instrumental methods of analysis ? Classify these methods and explain your concept of selection of analytical method/technique. **10**

   OR

   Describe in details theory and instrumentation of double beam UV-VIS spectrophotometer.

2. Attempt **any five** questions from following : **15**
   a) Write note on abbe's refractometer.
   b) Provide comparative aspects of nephelometry and turbidometry.
   c) Write in detail about line broadening and Doppler effect.
   d) What are the methods of quantitation by UV-VIS spectrophotometry ?
   e) Describe various deviations to Beer's law.
   f) Explain in detail concept of molecular luminescence.
   g) Explain with example excitation and emission fluorescence spectra.

3. Write note on **any three** : **15**
   a) Background correction based on source self reversal
   b) Factors affecting fluorescence
   c) Interaction of EMR with analyte
   d) Measurement of angle of refraction
   e) Glow discharge atomizer

P.T.O.

SECTION – II

4. Classify electroanalytical techniques and describe instrumentation and applications of polarography. **10**

   OR

   Classify chromatographic techniques and describe qualitative and quantitative aspects of chromatographic analysis.

5. Attempt **any five** questions from following : **15**

   a) Explain the principle of paper chromatography.

   b) Write applications of TLC technique.

   c) Coulometric analysis.

   d) Describe different types of DSC techniques in brief.

   e) Describe various types of development in electrophoresis.

   f) Chromatographic column performance parameters.

   g) Explain the concept and applications of biamperometric titrations.

6. Write note on **any three** : **15**

   a) Isothermal titration calorimetry

   b) Applications of paper chromatography

   c) Two dimensional TLC

   d) Types of HPTLC plates

   e) Ilkovic equation and factors affecting diffusion current.

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Seat No.	

Third Year B.Pharmacy Examination, 2013
3.6 : PHARMACOGNOSY – II
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *:1) Answers to the* ***any two*** *Sections must be written in two separate answer books.*
2) ***Neat*** *labelled diagrams and figures must be drawn* ***wherever*** *necessary.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) All questions are ***compulsory****.*

SECTION – I

1. Solve **any one** : **10**

Explain classification and chemistry of Glycosides. Describe general methods used for extraction of Glycosides.

OR

Discuss general biosynthetic pathway of Terpenoids. Explain Pharmacognosy of Cinnamon.

2. Solve **any five** : **15**

i) Explain general method of extraction of Volatile oil.
ii) Write biological source, chemicals and uses of carnauba wax.
iii) Explain chemistry and chemical tests of digitalis Glycosides.
iv) Differentiate coriander and fennel morphologically and microscopically.
v) Explain preparation of different aloes.
vi) Discuss in short Pharmacognosy of Linseed oil.
vii) Explain general biogenetic pathway for lipids.

P.T.O.

3. Write note on **(any three)** : **15**
   I) Tracer technique and its application.
   II) Chemistry of saponins.
   III) Shikimic acid pathway.
   IV) Fixed oils and fats.

SECTION – II

4. Solve **any one** : **10**

   Explain classification and chemistry of Resin. Discuss in detail Pharmacognosy of Asafoetida.

   OR

   Explain classification and chemistry of Tannin. Discuss in detail Pharmacognosy of Ashoka.

5. Solve **any five** : **15**
   a) Explain general method or extraction of Tannin.
   b) Write biological source, chemicals and uses of myrobalan.
   c) Explain chemistry and chemical tests of capsicum.
   d) Differentiate pale catechu with black catechu.
   e) Explain supercritical fluid extraction technique.
   f) How papain is isolated and prepared from its source ?
   g) Explain methods of plant cell immobilization.

6. Write note on **(any three)** : **15**
   I) Mutation and polyploidy.
   II) Shilajit.
   III) Pyrethrum.
   IV) Froth Floating Technique.

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[4355] – 307

Seat No.	

Third Year B. Pharmacy Examination, 2013
3.7 : PHARMACEUTICAL BUSINESS MANAGEMENT
(2008 Pattern)

Time : 3 Hours Total Marks : 80

Instructions : *1) Q.No. **1** and Q. No. **5** are **compulsory**.*
*2) Solve **any two** questions from Section **I** and Section **II** respectively.*
*3) Figures at **right** indicate **full** marks.*

SECTION – I

1. A) Fixed cost Rs. 50,000, Variable cost per unit Rs. 100, Selling price Rs. 250 per unit Actual units produced and sold 3000 units. Calculate **6**
   a) P/V ratio
   b) BES
   c) BES if existing sales price increased by 15%
   d) Profit at sales Rs. 5,00,000 after taxation of 30%
   e) MOS

   B) Explain the process of new drug development. **4**

2. A) Give the details account on material management. **8**

   B) Explain in detail about Decision making. **7**

3. A) Give a brief account on Trade Union and Collective bargaining. **8**

   B) Explain in detail steps involved in Planning and Forecasting. **7**

P.T.O.

4. Write short notes on (**any three**) : **15**

   a) Thoughts of scientific management

   b) Functions of Manager

   c) Managerial grid

   d) CPM and PERT.

SECTION – II

5. A) Read the case carefully and answer the following : **6**

   Your Assistant, Madhuri, has worked for you over past 2 years. During that time, you have learnt to respect the clerical and word processing skills she demonstrates. However you are concerned about the other area of her job, that in your view, reflect sub standard performance. On occasions, it seems that she does not hear your request, or if she does not follow through on them. Occasionally, she performs tasks different from those you have assigned. For example, just yesterday, you asked that she make arrangements for a part time computer programmer to handle a special project. No programmer turned up this morning to take on the assignment. When you ask Madhuri about the situation, she says she forgot to make the phone call because she was so busy preparing a lengthy mail that you had given her the day before. You became frustrated by her response as similar incidents had happened many times in the past. You wonder if the reason incidents like this keep happening is due to a lack of listening skills on her part or a result of poor time management skills. You have heard complaints from others who must work with her from time to time so you are confident that your judgement is accurate in this matter. Whatever the cause, you have decided that now is the time to discuss this with her.

   Questions :

   1) How will you manage this situation ?

   2) What measures company should take to motivate the employees to remain committed to work ?

   3) Explain the concept of performance appraisal.

B) Explain the process and forms of communication. **4**

OR

B) Explain various theories of motivation in detail. **4**

6. A) What are different techniques of Sales Promotion ? **8**

B) What is Market Research. **7**

7. A) Explain different leadership styles and managerial grid. **8**

B) Explain in detail about various channels of distribution. **7**

8. Write short notes on (**any three**) : **15**

a) GDPI

b) Advertising

c) Product Life Cycle

d) Medical Representative.

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Seat No.	

Fourth Year B.Pharmacy Examination, 2013
4.2: BIOPHARMACEUTICS & PHARMACOKINETICS
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *:1) Answers to the **two** Sections should be written in **separate** books.*

*2) **Neat** diagrams must be drawn **wherever** necessary.*

*3) Black figures to the **right** indicate **full** marks.*

*4) All questions are **compulsory**.*

SECTION – I

1. Discuss the assumptions, limitations and significance of pH- partition hypothesis. **10**

OR

1. Describe various pharmacokinetic parameters and study designs used in BA/BE studies.

2. Answer **any five** : **15**

   1) Discuss briefly factors affecting gastric emptying of drug.
   2) What are the possible mechanisms of enzyme induction and enzyme inhibition ?
   3) Explain the objectives of bioavailability studies.
   4) Give significance of tissue binding of drug.
   5) What are the advantages and limitations of randomized, balanced, cross-over design in BE studies ?
   6) Explain in short Blood Brain Barrier.
   7) What are the various sites of drug metabolism in the body ?

P.T.O.

3. Write short note on **(any 3)** : **15**
   1) Volume of distribution and its importance.
   2) Bioactivation.
   3) Extra vascular drug binding.
   4) Regulatory requirements in BA/BE studies.
   5) Presystemic metabolism.

SECTION – II

4. Explain how, the plasma concentration remains steady as long as constant rate i.v. infusion is continued, when an i.v. bolus injection is given as a loading dose before starting i.v. infusion. **10**

OR

4. What are pharmacokinetic models ? Explain various types with their significance. **10**

5. Answer **any five** : **15**
   1) Name the methods used to calculate K_E from urinary excretion data. What are the advantages of urinary data over plasma data ?
   2) Explain what dose-dependent kinetics is. Give methods of detection.
   3) Define and explain in short- MRT (Mean Residence Time).
   4) Define and explain in short- AUC.
   5) Explain in short : elimination rate constant.
   6) Explain in short : C_{max} and t_{max}.
   7) Give possible reasons of non linearity in pharmacokinetics.

6. Write short note on **(any 3)** : **15**
   1) Two compartmental model.
   2) Wagnor- Nelson method.
   3) Method of residuals.
   4) Levels of IVIVC (In vitro- in vivo correlation).
   5) Individualization of dosage regimen.

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Seat No.	

Final Year B. Pharmacy Examination, 2013
4.3 : MEDICINAL CHEMISTRY – II
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) Answers to the ***two*** *Sections should be written on the* ***separate*** *answer books.*
3) Draw diagrams ***whenever*** *necessary.*
4) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. Solve **any one** : **10**

a) Give a brief account on Rational Drug Design, QSAR based approach of lead optimization as well as Computer based *de novo* approach of drug design with suitable examples or case studies.

OR

b) Classify antimalarials. Discuss SAR of 4-aminoquinolines, 8-aminoquinolines and 2,4-diaminopyrimidines. Give the synthesis of chloroquine or pyrimethamine.

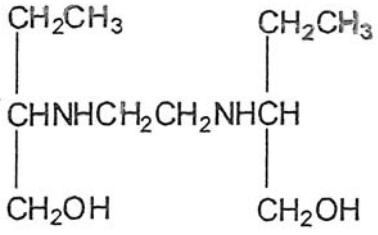
2. Solve **any five** : **15**

a) Identify the heterocyclic ring present in Sulphadiazine, Sulphasalazine and Sulphadoxine giving the synthesis of sulfamethoxazole.

b) Write structure, IUPAC name and Synthesis of Zidovudine.

c) Classify antiamoebic agents and write the SAR of any one class.

d) How will you synthesise the following drug molecule ?



P.T.O.

e) Discuss drug metabolism and its two phases in brief. Sketch the metabolic fate of diazepam.

f) Give a brief account on nitrofuran antibacterials with suitable structures of notable drugs in this class.

g) Explain in brief about Trypanosomiasis and its treatment.

3. Discuss in detail. **15**

a) What is Cancer ? Classify Antineoplastic agents with examples. Give a brief account of Anticancer Antibiotics.

b) Discuss Chemistry, MOA and SAR of Imidazole antifungal agents.

c) What are sulphonamide antibacterials and how do they act ? Explain the Importance of pka value in designing effective sulphonamide antibacterials.

d) Discuss Chemistry, SAR, MOA of fluoroquinolone antibacterial agents, giving the structure of ciprofloxacin.

e) Discuss Chemistry, SAR and MOA of benzimidazole anthelmintics, giving the structure of albendazole.

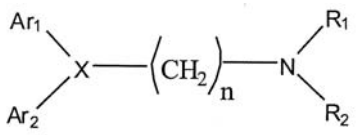
SECTION – II

4. Solve **any one** : **10**

a) Explain the chemistry of β-lactam antibiotics; add a note on the development of acid and enzyme resistant penicillins.

OR

b) The following structure is common to most of the sedative antihistaminics.



Comment on the possible variations with respect to Ar_1, Ar_2, X, R_1 and R_2 to modify the antihistaminic activity.

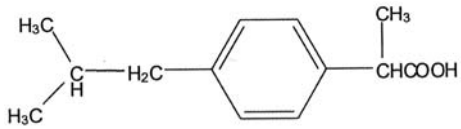
5. Solve **any five** : **15**

a) What is Salol, Partial salol, True salol ? Give structure, chemical name and uses of one example from each type.

b) Write in brief about eicosanoids approved for human clinical use.

c) Clavulanic acid is called as suicidal substrate. Explain.

d) Write the scheme of synthesis of following drug.



e) Comment on Antithyroid agents.

f) Discuss MOA and SAR of antibiotics containing nitroaromatic ring with propanediol side chain.

g) Outline the synthesis of Busulphan or procarbazine.

6. Solve **any three** : **15**

a) Explain in detail about the Beckett and Casy's model and effect of sodium ions on opioid receptors.

b) Write mode of action, SAR of Salicylate and Aniline analgesics.

c) What are estrogenic agents ? Explain Nonsteroidal estrogenic agents in detail.

d) Discuss Chemistry, MOA and SAR of Macrolide Antibiotics.

e) Write the SAR of steroidal anti-inflammatory agents.

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Seat No.	

Final Year B. Pharmacy Examination, 2013
4.5 : PHARMACOLOGY – III
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions : *1) Answers to the **two** Sections should be written in separate answer books.*
*2) Figures to the right indicate **full** marks.*
*3) **All** questions are **compulsory**.*

SECTION – I

1. Define congestive cardiac failure. Write mechanism of action, adverse effects and therapeutic uses of digitalis glycoside. **10**

OR

Classify antibiotics based on their mode of action. Write in brief mechanism of action, adverse effects and resistance to penicillin. **10**

2. Solve **any five** : **(15)**

a) Justify the use of nitrite in cyanide poisoning. **3**

b) Write sign, symptoms and management of lead poisoning. **3**

c) Explain the toxic effects associated with cancer chemotherapy. **3**

d) Write the mode of action and therapeutic uses of carbonic anhydrase inhibitors. **3**

e) Explain the major side effects associated with aminoglycoside. **3**

f) Discuss the mechanism of action and contraindications of chloroquine. **3**

g) Justify the use of sulfamethaxazole and trimethoprim as fixed dose combination. **3**

P.T.O.

3. Write short notes on **any three** : **(15)**
   a) Centrally acting anti-hypertensive drugs. **5**
   b) General principles for poisoning management. **5**
   c) Explain vaccines, its characteristics and types. **5**
   d) Monoclonal antibodies. **5**
   e) Explain different mechanism for antibiotic resistance. **5**

SECTION – II

4. Write the types of clinical trials and discuss in brief about different phases of clinical trials. **10**

   OR

   Define drug interaction. Write in brief about pharmacokinetic drug interactions with suitable examples. **10**

5. Solve **any five :** **(15)**
   a) Write the role and responsibilities of hospital pharmacist. **3**
   b) Define inpatient. Write advantages of inpatient care. **3**
   c) Explain the advantages of unite dose system. **3**
   d) Discuss the points of Nuremberg code. **3**
   e) Classify Adverse drug reactions. **3**
   f) Write the Stages of patient counselling. **3**
   g) Explain different types of hypersensitivity reactions. **3**

6. Write short notes on **any three** : **(15)**
   a) Principles of ICH GCP Guidelines. **5**
   b) Informed consent. **5**
   c) Floor stock system. **5**
   d) Hospital formulary. **5**
   e) Patient recruitment in clinical trials. **5**

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Seat No.	

Final Year B. Pharmacy Examination, 2013
4.6 : PHARMACOGNOSY – III
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *:1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the right indicates ***full*** *marks.*
3) Answers for ***two*** *Sections should be written in* ***two separate*** *answer sheets.*

SECTION – I

1. Describe systematic pharmacognostic study of Opium. **10**

OR

Classify Flavonoids. Explain Chemistry of each class and general biosynthetic pathway. **10**

2. Solve **any three** : **15**
   1) Write in detail cultivation and collection of Ergot.
   2) Write the chemical test for
      A) Cinchona
      B) Ipecac
   3) Draw neat labelled diagram of T.S. of Rauwolfia. Discuss its microscopic features.
   4) Discuss in detail Gulwel and Bhuiamla as a drug of traditional system of medicine.

3. Write short notes on **(any three)** : **15**
   1) Ginko
   2) Plant allergens
   3) Anti- inflammatory agents of marine sources
   4) Pilocarpus

P.T.O.

SECTION – II

4. Enlist various parameters recommended by WHO for quality control of herbal drugs. Elaborate on moisture content and pesticide residue. **10**

OR

Discuss the application of chromatographic technique in evaluation of herbal drugs. **10**

5. Solve **any three** : **15**
   1) Define herbal drug interaction and explain toxicity and interaction of Cannabis.
   2) Write extraction process and general characterization of Eugenol.
   3) Write method of preparation of Asava and Arishta. Enlist its evaluation parameters and marketed preparations.
   4) Describe structural elucidation of Atropine.

6. Write short notes on **(any three)** : **15**
   1) Digitalis toxicity and interaction.
   2) Regulations for import and export of herbal products.
   3) Preliminary Phytochemical investigation.
   4) Herbal skin care products.

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Seat No.	

Final Year B.Pharmacy Examination, 2013
4.7 : PHARMACEUTICAL JURISPRUDENCE
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) Answers to the ***two*** *Sections should be written in* ***separate*** *answer books.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. Discuss in detail the objectives and salient features of Drugs and Magic Remedies Act and Rules 1976. **10**

OR

1. Discuss in detail the guideline for Industrial Safety and Health. **10**

2. Attempt **any five** of the following : **15**
   a) Discuss about State and Joint State PCI as per Pharmacy Act 1948.
   b) Discuss in brief pharmacy education regulation.
   c) Explain guideline for Prevention of Food Adulteration as per Act 1954.
   d) Explain the Drugs Price Control Order 1998.
   e) Explain imprisonments in cyber crime as per Cyber Law.
   f) Explain features of Consumer Protection Act.
   g) Write procedure for analysis of Food Adulteration as per Act 1954.

3. Write notes on **any three** of the following : **15**
   a) Master formula records (MFR).
   b) Narcotic Drugs.
   c) Regulation for drug distribution.
   d) Explain responsibilities Drug Inspector.
   e) Scheduled Y.

P.T.O.

SECTION – II

1. Define patent. Elaborate criteria for obtaining patent and explain product and process patents. **10**

   OR

   What is IPR ? Write its significance and elaborate different forms of IPR.

2. Attempt **any five** (**3** marks **each**) : **15**

   a) What is Opposition to Grant of Patent ?

   b) What is patent infringement ?

   c) Write significance of Hatch Waxman Act.

   d) What is EMR ?

   e) What is compulsory license ? Write its significance.

   f) What is therapeutic equivalence book ?

   g) What are types of patent ?

3. Attempt **any three** (**each 5** marks) : **15**

   a) Explain patent grant procedure in India.

   b) Explain IND, NDA, ANDA and SNDA.

   c) Write short note on FDA.

   d) What are provisional and complete specifications ?

   e) Explain Patents Certification.