Total No. of Questions : 6] **SEAT No. :**

P3137

[Total No. of Pages : 2

[5245]-101
First Year B.Pharmacy (Semester - I)
1.1.1T PHARMACEUTICS - I
(2013 Pattern)

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

Instructions to the candidates:

1) ***Answers to the two Sections should be written in separate books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) **Attempt any one :** **[10]**

How excipients are classified? Add a note on flavours and colors used in pharmaceuticals.

OR

Write the history of pharmacy profession in India; also write a note on Pharmacy code of ethics.

Q2) **Attempt any Five :** **[15]**

a) What is Pharmacopoeia? Add a note on Indian Pharmacopoeia.
b) Explain the different preservatives used in pharmaceuticals.
c) Give the classification of dosage forms.
d) Describe Unani and Siddha as an alternate system of medicine.
e) Write the scope of formulation development.
f) Write the different sources of drug with suitable examples.
g) Describe Homoeopathy as an alternate system of medicine.

Q3) **Write short notes (any two) :** **[10]**

a) Principle of Ayurveda.
b) Career opportunities after pharmacy graduation.
c) Scope of pharmaceutical engineering.
d) Routes of drug administration.

P.T.O.

SECTION - II

Q4) **Attempt any one :** **[10]**

Discuss in detail formulation aspect of Pharmaceutical solutions.

OR

Differentiate between Quality control and Quality Assurance, explain cGMP requirement for pharmaceuticals.

Q5) **Attempt any Five :** **[15]**

a) Why preservatives are not added in Simple Syrup I.P.?

b) Discuss formulation of simple linctus and give direction for its administration.

c) What are elixirs? Write the formulation ingredients used in any-one elixir preparation.

d) Explain mechanism of solubilization of dill oil in Concentrated Dill Water I.P.

e) Explain any one method for preparation of Aromatic Water.

f) Why excessive heating of glycerin is avoided during preparation of paints?

g) Write the composition of any one mouth wash preparation.

Q6) **Write short notes (any two) :** **[10]**

a) Solvents used in pharmaceutical solutions.

b) Enema.

c) Medicated syrups.

d) Sweeteners in pharmaceuticals.

Total No. of Questions : 6] **SEAT No. :**

P3138 **[Total No. of Pages : 2**

[5245]-102
First Year B.Pharm. (Semester - I)
MODERN DISPENSING PRACTICES
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Explain in detail any one : **[10]**

a) Explain in detail parts and types of prescription.

b) Give detail account of dispensing along with container and closures.

Q2) Answer in brief. (Solve any Five) : **[15]**

a) Explain errors in prescription.

b) Explain in short patient medication record.

c) Difference between compounding and dispensing.

d) Explain stability of dispensed product.

e) How much zinc oxide ointment having 14 % and 20% drug concentration must be used to make 500 gm of 18 %.

f) Give objectives of House keeping.

g) Explain the steps in prescription filling.

Q3) Solve any two from following: **[10]**

a) Write a short note on pricing of Prescription.

b) Explain in details good compounding practices.

c) Write a note on Drug Profile.

d) Write a short note on Purchase record.

P.T.O.

SECTION - II

Q4) Answer any one question from following : **[10]**

a) Define Posology and Write a note on factors affecting the dose.

b) Explain in detail patient counseling.

Q5) Answer in brief. (Solve any Five) : **[15]**

a) Explain in detail Pharmacovigilance.

b) Write a note on Idiosyncratic cases.

c) Give Youngs and Dillings formulas for dose calculation.

d) Explain role of pharmacist in Family planning.

e) Draw Layout of retail drug store.

f) Explain patient counseling for OTC drugs.

g) Explain drug information service

Q6) Solve any two form following : **[10]**

a) Write a note on chemical incompatibility.

b) Explain the Physical incompatibility with remedy.

c) Explain Legal requirement of establishment of drug store.

d) Write in short Drug- Drug Interaction.

Total No. of Questions : 6] SEAT No. :

P3139 [Total No. of Pages : 2

[5245]-103
First Year B. Pharmacy (Semester - I)
PHARMACEUTICAL INORGANIC CHEMISTRY (1.1.3T)
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Attempt any one from the following. **[10]**

a) What is Hardness of Water? Explain in detail methods to remove Temporary and Permanent hardness of water.

b) Classify gastrointestinal agents along with examples of each class. Write in detail about saline catharatics.

Q2) Solve any five from the following- **[15]**

a) Write the preparation properties and uses of calcium carbonate.

b) Define Monograph. Explain the term Solubility in Monograph.

c) Explain in brief Acidifying agents.

d) Explain Bismuth compounds as GI protectives and adsorbents.

e) Explain Physiological role of Iodine in brief.

f) Draw well labeled diagram of Gutzeit Apparatus for limit test of Arsenic.

g) Write Preparation, properties and uses of Ferrous Sulphate.

Q3) Solve any two from the following- **[10]**

a) Write a note on Limit test of iron.

b) Write a note on Inorganic gases used in pharmacy.

c) Electrolytes combination therapy

d) Write Physiological role of Sodium and Chloride ions.

P.T.O.

SECTION - II

Q4) Attempt any one from the following : **[10]**

a) Explain in detail electrolytes used in acid base combination therapy.

b) What are topical agents? Discuss the mechanism of action of topical antimicrobial agents. Discuss properties, uses and assay of Hydrogen Peroxide and Zinc Oxide.

Q5) Solve any five from the following- **[15]**

a) Explain mode of action of expectorant. Explain Ammonium Chloride as expectorant.

b) Define along with examples-

i) Anticaries agents

ii) Astringents

iii) Antidotes

c) Discuss raw material as source of impurity.

d) Write short note on properties and uses of sodium thiosulphate.

e) Explain Barium Sulphate as radio opaque contrast media.

f) Explain different types of Ash values in relation to impurity.

g) Explain properties and uses of boric acid and copper sulphate.

Q6) Solve any two from the following- **[10]**

a) Explain in brief electrolyte replacement therapy.

b) Write a note on Dental Products.

c) Explain properties uses and storage of Magnesium Hydroxide.

d) Role of Calcium and Bicarbonate in our body.

Total No. of Questions : 6] SEAT No. :

P3140 [Total No. of Pages : 4

[5245]-104

First Year B. Pharmacy

PHARMACEUTICAL ORGANIC CHEMISTRY - I

(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answers to the two sections should be written in separate answer sheet.***
3) ***Neat diagrams must be drawn in separate answer sheet.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) What are elimination reactions? Explain mechanism, stereochemistry of E_1 and E_2 reactions. Compare E_1 and E_2 mechanism. **[10]**

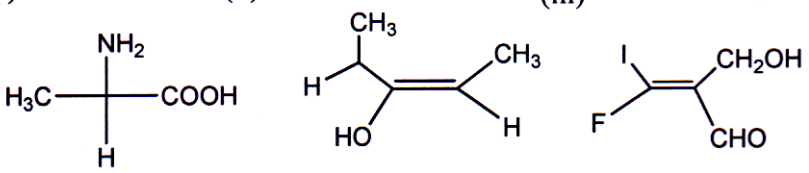
OR

What is aromatic electrophilic substitution reaction? Mention any three types of it. Write down the mechanism of Nitration of benzene and Friedel Crafts acylation.

Q2) Answer the following (Any Five) **[15]**

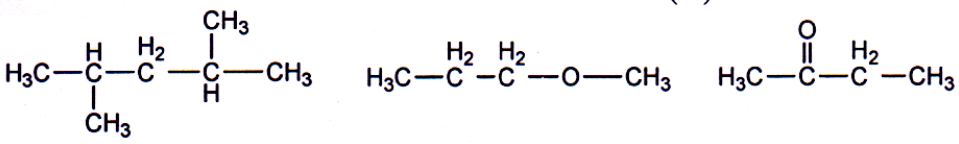
a) Assign R/S or E/Z configuration to following

(i) (ii) (iii)



b) Write IUPAC names for following structures

i) (ii) (iii)



P.T.O.

c) Write any three methods of preparation of alkanes.

d) Define following terms with suitable examples

i) Carbocation

ii) Carbanion

iii) Nucleophiles

e) Draw structures from IUPAC names of following:

i) 1, 3-dinitro beznene

ii) Methyl propanoate

iii) Methoxy propane

f) Explain hyerconjugation with example.

g) Draw resonating structures of any two from following.

i) Nitrobenzene

ii) Benzaldehyde

iii) Aniline

Q3) Answer the following (any two) **[10]**

a) Discuss Markovnikov and Anti-Markonikov rule with example.

b) Explain the addition-elimination and elimination-addition mechanisms of nucleophilic aromatic substitution.

c) Define hybridization. Mention different types of hybridization? Explain SP^3 hybridization.

d) Classify organic compounds on the basis of elemental composition (at least five classes with suitable examples).

SECTION - II

Q4) a) What is isomerism? Explain enantiomers and diastereomers with examples.

b) Classify various types of chemical reactions with suitable examples.

[10]

OR

Explain the directing effects of following functional groups towards electrophilic substitutions on benzene:

i) – OH

ii) – CH_3

iii) – COOH

iv) – NO_2

Q5) Answer the following (any five) **[15]**

a) Arrange following in order of increasing acidity with explanation

i) Acetic acid

ii) Trichloroacetic acid

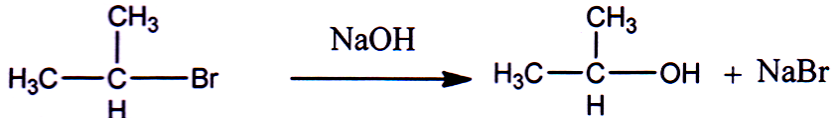
iii) Chloroacetic acid

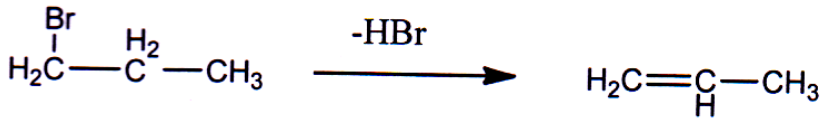
b) Explain Hoffman rule for 1, 2 elimination reaction?

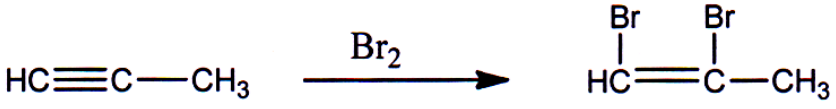
c) Write a note on Diels alder reaction.

d) Explain Tautomerism with example.

e) Identify the type of chemical reaction (Addition, Substitution etc) in following:

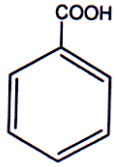
i) 

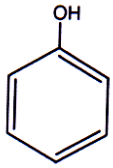
ii) 

iii) 

f) Explain Inductive effect and electromeric effect with example.

g) Draw all possible resonating structures of following

i) 

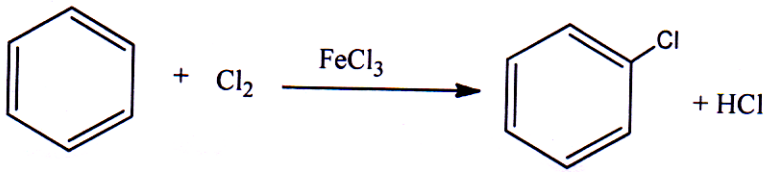
ii) 

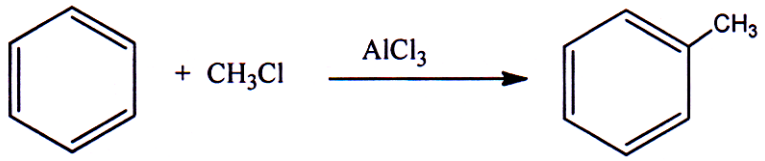
Q6) Answer the following (Any Two) **[10]**

a) Explain Inter and Intra molecular forces of attraction.

b) Explain the effects of H-bonding on Melting point and acidity with suitable examples.

c) Write down the stepwise mechanism for following reactions

i) 

ii) 

d) What are alkynes? Write their any two methods of preparation and two reactions.

Total No. of Questions : 6] **SEAT No. :**

P3141 **[Total No. of Pages : 2**

[5245]-105
First Year B. Pharmacy (Semester - I)
1.1.5 HUMAN ANATOMY AND PHYSIOLOGY - I
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Classify leukocytes. Explain in detail formation & structure of each type. Add note on functions of leukocytes. **[10]**

OR

Explain 'fluid Mosaic Model' of plasma membrane with the help of neat labeled diagram. Discuss the structure and function of membrane proteins.

Q2) Answer the following (Any 5) **[15]**

a) Explain the transport across plasma membrane by endocytosis.

b) Describe the structure and functions of endoplasmic reticulum.

c) Add an account on RBCs.

d) Define blood clotting. Enlist clotting factors.

e) Define the terms: Homeostasis, Hematopoiesis & Hemostasis.

f) Explain structure of smooth muscle.

g) Discuss the negative feedback system with example.

Q3) Write short note on (Any 2) **[10]**

a) Physiology of muscle contraction.

b) ABO & Rh blood Groups.

c) Cell division.

d) Epithelial tissues.

P.T.O.

SECTION - II

Q4) With well labeled diagram explain the different parts of Electrocardiogram. Discuss in detail the diagnostic importance of ECG. **[10]**

OR

With neat labeled diagram describe gross anatomy of heart. Discuss hormonal regulation of blood pressure.

Q5) Answer the following (Any 5) **[15]**

a) Discuss the anatomy and functions of liver.

b) Define the terms: Arteriosclerosis, Congestive Heart Failure & Hypertension.

c) Give composition, formation & circulation of lymph.

d) Add a note on salivary glands.

e) Write the locations and functions of Heart valves.

f) Explain the structure & functions of lymph nodes.

g) Explain the terms: Cardiac output & Stroke volume.

Q6) Write short note on (Any 2) **[10]**

a) Stomach: Anatomy, Histology & functions.

b) Cardiac cycle.

c) Conduction system of heart.

d) Spleen.

Total No. of Questions : 6] **SEAT No. :**

P3142 **[Total No. of Pages : 2**

[5245]-106
First Year B. Pharmacy
1.1.6 COMMUNICATION AND SOFT SKILL DEVELOPMENT
(2013 Pattern) (Semester - I)

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

Instructions to the candidates:

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

SECTION - I

Q1) Explain various parts of business letters. Explain the purpose and qualities of business correspondence. **[10]**

OR

Write meaning and importance of communication. Explain objectives of communication. Describe the different modes of overcoming barriers of communication.

Q2) Answer the following (Any 5) : **[15]**

a) State objectives of business letters.

b) Explain the importance of oral communication.

c) State the principles of thinking about purpose.

d) Explain the importance of knowing audience.

e) Explain salient features of technical communication.

f) Write importance of structuring the message.

g) Explain scope & significance of technical communication.

Q3) Write short note on (Any 2) : **[10]**

a) Body Language

b) Graphic Language

c) Official letters

d) Punctuation and spelling

P.T.O.

SECTION - II

Q4) Define business communication. Write principles and essentials of good correspondence. Explain different types of commercial correspondence. **[10]**

OR

What is globalization? State the advantages and disadvantages of globalization. Add a note on Email.

Q5) Answer the following (Any 4) : **[15]**

a) Explain various Interpersonal skills.

b) Explain importance of group discussion.

c) Write an account on emotional intelligence.

d) Describe Intonation and rhythms.

e) Explain importance of tele communication.

f) What is empathy? Discuss its types.

g) Explain Vowels and Consonants in phonetics.

Q6) Write short note on (Any 2) : **[10]**

a) Agenda

b) Resume

c) Business correspondence

d) Critical thinking

Total No. of Questions : 6]

SEAT No. :

P3386

[Total No. of Pages : 3

[5245]-107

First Year B. Pharmacy

1-7 COMPUTER APPLICATIONS & BIOSTATISTICS

(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

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

Q1) a) Define statistics. Explain scope of statistics in pharmaceutical sciences. **[5]**

b) Following are the health insurance claims (dollar amounts). Find the median & mean. **[5]**

Data: 1100, 1900, 600, 890, 690, 8900, 380, 1200, 1050.

OR

a) A card is drawn from a pack of cards, Find the probability that

i) The card drawn is spade.

ii) The card drawn is a face card.

b) What is central Tendency? Explain the different measures of central Tendency.

Q2) a) Obtain the lines of regression of Y on X and X on Y. For the following data: **[10]**

X	16	20	17	21	15
Y	50	60	58	60	55

i) Estimate value of Y when X = 25

ii) Estimate value of X when Y = 50

b) Give a testing of hypothesis procedure **[5]**

P.T.O

Q3) a) A problem in statistics is given to two students for solving probability that first student will solve the problem is 2/3 and probability that second student will solve the problem is 3/4. Find the probability that- **[5]**

i) Both the students will solve the problem.

ii) Both the students will not solve the problem.

iii) Problem will be solved.

b) Calculate spearmanris rank correlation coefficient bet^{n} the following marks given by two judges in series of eight one act plays in a drama competition. **[5]**

Marks by judge A	81	72	60	33	29	11	56	42
Marks by judge B	75	56	42	15	30	20	60	80

c) Write a short note on analysis of variance. **[5]**

SECTION - II

Q4) a) What are output Devices? Explain any two output devices. **[5]**

b) What is secondary storage? State and explain any two examples of secondary storage device. **[5]**

c) Explain **[5]**

i) Compiler

ii) Interpreter

Q5) a) Explain Generation of computers **[5]**

OR

Explain classification of software.

b) Explain various features of Windows O.S. **[5]**

OR

Explain any two G.U.I. components of windows

Q6) a) Explain any two features of Word Processor. **[5]**

b) State and explain any two built in functions used in MS-Excel. **[5]**

c) What is MS Power point? State its various uses in our day to day life. **[5]**

OR

c) What is MS-Outlook? Explain its functioning.

Total No. of Questions : 6] **SEAT No. :**

P3143 **[Total No. of Pages : 2**

[5245]-201
First Year B. Pharmacy (Semester - II)
1.2.1(T) PHARMACEUTICS - II
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Write on glass as a packaging material for pharmaceutical dosage forms. **[10]**

OR

Describe construction, working, advantages, disadvantages of rotary filter with neat diagram.

Q2) Answer the following (Any 5) **[15]**

a) Describe the construction and working of End Runner Mill.

b) Write the pharmaceutical significance of size reduction.

c) What are non renal routes of excretion?

d) Describe cGMP's related to sanitation.

e) What is filter aid and what are its ideal characteristics?

f) Draw neat and well labeled diagram of Hammer mill.

g) Give powder gradation as per British Pharmacopoeia.

Q3) Write short note on (Any 2) **[10]**

a) Filter press.

b) Colloidal mill.

c) Sieving.

d) Evaluation of plastic as packaging material.

P.T.O.

SECTION - II

Q4) Discuss various components of Good Manufacturing Practices. **[10]**

OR

Describe the filling technologies for oral solutions.

Q5) Answer the following (Any 5) **[15]**

a) Describe and differentiate between active and passive absorption.

b) What is first pass effect?

c) Write on mixing of solids.

d) Discuss in brief renal excretion.

e) Explain the term 'Area under the curve' with its therapeutic significance.

f) Describe the terms- pharmacokinetics and pharmacodynamics.

g) Why phase II metabolic reactions are called as conjugation reactions?

Q6) Write short note on (Any 2) **[10]**

a) Planetary mixer.

b) Prevention of aeration and foam.

c) Departments in pharmaceutical manufacturing unit.

d) Triple roller mill

Total No. of Questions : 6] **SEAT No. :**

P3144 **[Total No. of Pages : 2**

[5245]-202
First Year B. Pharmacy (Semester - II)
DOSAGE FORM DESIGN
(2013 Pattern)

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

Instructions to the candidates:

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

Q1) Explain theories of emulsions, and its formulation aspects in details. **[10]**

OR

Discuss different types of suppositories. Add note on evaluation of suppositories.

Q2) Solve any five form the following. **[15]**

a) What is target drug delivery system

b) Note on concept of modified release dosage forms

c) Discuss the process of solubilization of solute in solvent

d) Write about Dry suspensions for reconstitution

e) Write note on HLB and RHLB

f) Write about Suspensions containing poorly wettable solids

g) What are quality control aspects of radiopharmaceutical dosage forms

Q3) Write short note on. (Any Two) **[10]**

a) What is stoke's law? Give its significance and instability of suspension.

b) Explain the self-emulsifying drug delivery system

c) Explain the different Methods of mixing in powders

d) Note on Displacement value with its significance in suppository.

P.T.O.

SECTION - II

Q4) What are various approaches to enhance the drug solubility. **[10]**

OR

Define suspension? What are ideal properties of suspension? Add an account of physical stability of suspension.

Q5) Solve any five form the following. **[15]**

a) Differentiate between paste and Jellies.

b) What are suspending agents

c) Define Pastes. What are the types of pastes?

d) Applications of radiopharmaceuticals

e) Evaluation tests for ointments.

f) What are Creams? Write its applications.

g) Evaluation tests for suppositories.

Q6) Write short note on. (Any Two) **[10]**

a) Types of suspension

b) Additives in suspension

c) Ointment bases

d) Evaluation of creams

Total No. of Questions : 6] **SEAT No. :**

P3145 **[Total No. of Pages : 2**

[5245]-203
F.Y. B. Pharmacy (Semester - II)
PHARMACEUTICAL ORGANIC CHEMISTRY - II
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) What are alcohols? Classify with suitable examples. Write any three methods of preparation and three reactions of alcohols. **[10]**

OR

Explain the terms 1°, 2° and 3° amines with suitable example and how will you distinguish between them ? Give any three methods of preparations and reactions of amines with suitable examples.

Q2) Answer the following (Any 5) : **[15]**

a) 2, 4, 6 trimethylaniline is more basic than Aniline. Give reasons.

b) Give reason: phenols are more acidic than alcohols.

c) What are hydrazones how are they prepared.

d) Give any three methods of preparation of sulphonic acids.

e) Draw structures for the following IUPAC names 1,1 dimethylpropanol, 2-butanonone and 4-methyl-3-penten-2-one.

f) How will you differentiate between phenol and ethanol?

g) What are enamines? Explain preparation of enamines.

Q3) Write short note on (Any 2) : **[10]**

a) Acidity of phenols

b) Knoevenagel reaction

P.T.O.

c) Two methods of preparation of aldehydes with reaction mechanism.

d) Aldol condensation

SECTION - II

Q4) Define and explain SN. Comment on nucleophiles and leaving groups in SN. Give any three methods of preparation and any three reactions of alkyl halides. **[10]**

OR

Explain reaction, mechanism, kinetics and stereochemistry of SN^1.

Q5) Answer the following (Any 5) : **[15]**

a) Carbonation of Grignard reagents.

b) Comment on SN^2.

c) Explain Michael addition.

d) Define and enlist acid derivatives. Give preparation of acid chlorides from acids.

e) Define isocyanides with examples. Give any two structures of isocyanides.

f) Discuss structure and nomenclature of carboxylic acids.

g) Give any two reactions of preparation of cyanides.

Q6) Write short note on (Any 2) : **[10]**

a) Factors affecting Nucleophilic substitution reactions.

b) Discuss in detail HVZ reaction.

c) Ammonolysis of esters.

d) Preparation and use of acetoacetic ester.

Total No. of Questions : 6] **SEAT No. :**

P3146 **[Total No. of Pages : 2**

[5245]-204
First Year B. Pharmacy (Semester - II)
1.2.4 HUMAN ANATOMY AND PHYSIOLOGY - II
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Define respiration. Explain in detail mechanism of breathing and exchange of gases at lung and tissue level. **[10]**

OR

Draw neat labeled diagram of interior of eyeball. Explain physiology vision. Add note on retina.

Q2) Answer the following (Any 5) **[15]**

a) Explain the various phases of action potential in neurons.

b) Write a note on olfactory receptors.

c) Discuss the structure & functions of Lungs.

d) Enlist cranial nerves with type & functions.

e) Explain the structure & types of neurons.

f) Draw a neat labeled diagram of internal ear.

g) Write an account on structure & functions of hypothalamus.

Q3) Write short note on (Any 2) **[10]**

a) Anatomy & Functional areas of Cerebrum.

b) Sympathetic & Parasympathetic nervous system.

c) Reflex arc.

d) Structure & functions of skin.

P.T.O.

SECTION - II

Q4) Describe the external and internal gross anatomical features of the kidneys. **[10]**

OR

Draw neat labeled diagram of Male Reproductive Organ. Enumerate the organs male reproductive system with functions of each organ.

Q5) Answer the following (Any 5) **[15]**

a) Write a note on histology of ovary.

b) Explain Oogenesis.

c) Explain the cells of anterior pituitary gland.

d) Write histological features of adrenal glands.

e) Write a note on hormone of adrenal glands.

f) Explain the anatomy & histology urinary bladder.

g) Add a note on micturation physiology.

Q6) Write short note on (Any 2) **[10]**

a) Spermatogenesis.

b) Female reproductive cycle.

c) Thyroid gland.

d) Acid-base balance.

Total No. of Questions : 6] **SEAT No. :**

P3147 **[Total No. of Pages : 2**

[5245]-205
First Year B. Pharmacy (Semester - II)
PHARMACOGNOSY
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Elaborate in detailed general morphology and microscopy of seed. **[10]**

OR

Explain in detailed structure, replication and transcription of DNA. Describe in detailed molecular basis of hereditary in genetics.

Q2) Answer any five: **[15]**

a) Give various types of Inflorescence.

b) Explain primary and secondary growth of plant tissue.

c) Explain RNA translation.

d) Describe relevance of biology to pharmaceutical sciences.

e) Explain morphology of bark.

f) Describe Mendelian genetics.

g) Give excretory product of plant cells.

Q3) Write short notes on any two: **[10]**

a) Cell division.

b) Structure and function of Permanent tissue.

c) Morphology of wood.

d) Structure and function of protein.

P.T.O.

SECTION - II

Q4) Attempt any one **[10]**

a) Define Pharmacognosy and explain in detail account of contribution of various scientists in development of Pharmacognosy.

OR

b) What is Photosynthesis. Explain in detail process of Photosynthesis.

Q5) Answer any five of the following: **[15]**

a) Explain in brief Autotrophic and Heterotrophic mode of nutrition.

b) What are the causes of noise pollution?

c) Explain in brief Phytoremediation.

d) Explain in brief food chain.

e) Explain in brief factors responsible for rapid degradation of habitat of Western Ghats.

f) Explain in brief natural method of classification of crude drugs.

g) Explain in brief ecological succession.

Q6) Write short note on any two of following: **[10]**

a) Hybridization

b) Division of plant kingdoms

c) Binomial nomenclature

d) Mutation

Total No. of Questions : 6] **SEAT No. :**

P3148 **[Total No. of Pages : 2**

[5245]-206

First Year B. Pharmacy (Semester - II)

PHARMACEUTICAL ANALYSIS - I

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Explain different types of nonaqueous solvents. Discuss on leveling effect & differentiating effect of those solvent. **[10]**

OR

Discuss various test of significance in statistical analysis. Define the terms significant figure, correlation coefficient & coefficient of determination.

Q2) Attempt any five of following **[15]**

a) Discuss properties and preparation of primary standard substance.

b) Define the term equivalent weight & molecule weight for acid or base substances.

c) Explain titration of polyprotic acid.

d) What is buffer index significance.

e) Differentiate between quantitative and qualitative analysis.

f) Explain preparation and standardization of 0.1 N perchloric acid.

g) What is buffer.

Q3) Write a note on any two of following **[10]**

a) Types of titration curve in acid base titration. Explain any one.

b) Theories of acid base indicators.

c) Errors and its types.

d) Estimation of aspirin.

P.T.O.

SECTION - II

Q4) What are unit operations of gravimetry analysis. Explain co-precipitation and post precipitation. **[10]**

OR

Explain methods for calculating equivalent weight in redox substances.

Q5) Attempt any five of the following: **[15]**

a) Discuss concept of fractional precipitation.

b) What are organic precipitant.

c) Define the terms chelate & metal indicators.

d) Explain nerst equation.

e) Discuss fajans method.

f) What is external redox indicators.

g) Explain non indicators precipitation titration.

Q6) Write a note on any two of following: **[10]**

a) Types of complexometry titration.

b) Factor affecting solubility of precipitate under precipitation titration.

c) Titration curve for redox titration.

d) Permagnometry method.

Total No. of Questions : 6] **SEAT No. :**

P3149

[Total No. of Pages : 2

[5245]-301

Second Year B. Pharmacy (Semester - III)

PHYSICAL PHARMACEUTICS - I

(2013 Pattern)

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

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Attempt any one

Explain the phase diagram for two component system containing solid and liquid phases, add a note on solid dispersions. **[10]**

OR

What are the different types and properties of solutions? Explain Boiling point elevation and Freezing point depression as colligative properties of nonelectrolyte solution.

Q2) Attempt any Five **[15]**

a) Explain the VanderWaal equation for real gases.

b) Explain lowering of vapor pressure as colligative property.

c) Write the principle of two phase system aerosol.

d) Explain the Equivalent Conductance of Strong and Weak Electrolytes.

e) Explain the Linde's method for liquefaction of gases.

f) A solution containing 7.5g of nonelectrolyte solute dissolved in 50g of water has a boiling point of 101.9°C. What is the molecular weight of sucrose if ebullioscopic constant (K_b) for water is 0.51

g) Phase diagram for two component system containing liquid phases.

P.T.O.

Q3) Write short notes (Any two) **[10]**

a) Van't Hoff and Morse Equations for Osmotic Pressure.

b) Gibbs phase rule and its pharmaceutical applications.

c) One component system.

d) Conductometric titration.

SECTION - II

Q4) Attempt any one

Discuss Crystal Parameters and methods of Crystal analysis. **[10]**

OR

State Nernst Distribution law along with factors affecting and applications.

Q5) Attempt any Five **[15]**

a) Define solubility parameter, Solubility and Saturation solubility.

b) Give examples of different polymorphs.

c) Give significance of glass transition temperature in Pharmaceuticals.

d) Explain factors affecting solubility of gases in liquids.

e) Define and differentiate between Polymorphism and glass transition temperature.

f) Discuss effect of various parameters on solubility.

g) Discuss solubility and permeability co-relationship in detail.

Q6) Write short notes (Any two) **[10]**

a) Methods of Polymorph Detection.

b) Solubility of electrolytes.

c) Effect of temperature on Molecular behavior.

d) Crystallization.

Total No. of Questions : 6] **SEAT No. :**

P3150 **[Total No. of Pages : 2**

[5245]-302
S.Y. B. Pharmacy (Semester - III)
PHARMACEUTICAL MICROBIOLOGY
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Write in details scope and application of microbiology in pharmaceuticals and Write descriptive note on Whittaker's five kingdom classification. **[10]**

OR

Enlist the different growth requirement of bacteria and Explain in detail preservation of microbial cultures.

Q2) Answer the following (ANY FIVE): (3 mark × 5 Qs, out of 7 Qs.) **[15]**

a) Explain reproduction by binary fission.

b) Explain the importance of yeast and moulds.

c) How will you detect presence of Pseudomonas in pharmaceuticals?

d) Draw the growth curve of bacteria.

e) Write contribution of Louis Pasteur in microbiology.

f) Differentiate Prebiotics and Probiotics.

g) Draw the structure of Candida.

Q3) Write a note on (ANY TWO): (5 mark × 2 Qs, out of 4 Qs.) **[10]**

a) Cultivation of viruses

b) Identification of specific microorganism

c) Bacterial cell

d) Viable count

P.T.O.

SECTION - II

Q4) Write in details specific and nonspecific defense mechanism of host. **[10]**

OR

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

Q5) Answer the following (ANY FIVE) : (3 mark × 5 Qs, out of 7 Qs) **[15]**

a) Write advantages and disadvantages of phenol coefficient test.

b) Enlist steps involved in production bacterial vaccines.

c) Differentiate between Exotoxin and Endotoxin.

d) Draw the structure of immunoglobulin.

e) Write note on 'Types of immunity'.

f) Write note on HMI and CMI.

g) Write principal of ELISA Test.

Q6) Write a note on (ANY TWO): (5 marks × 2 Qs, out of 4 Qs.) **[10]**

a) Chemical classification of disinfectant

b) Quality control of vaccines

c) Moist heat sterilization

d) Microbial Virulence

Total No. of Questions : 6] **SEAT No. :**

P3151 **[Total No. of Pages : 2**

[5245]-303
S.Y. B. Pharmacy (Semester - III)
PHARMACEUTICAL BIOCHEMISTRY
(2013 Pattern) (Theory)

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

Instructions to the candidates:

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

SECTION - I

Q1) What is Secondary structure of proteins?

Write in detail about Globular and Fibrous Proteins giving suitable examples. **[10]**

OR

Give a complete Classification of lipids with suitable examples.

Explain the significance of Iodine value and Saponification value.

Q2) Write in brief on **any five** of the following: **[15]**

a) Biuret test

b) Compare Starch and Cellulose

c) Biological functions of carbohydrates

d) Genetic code

e) mRNA

f) Lipoproteins

g) Allosteric enzymes

Q3) Write short notes on **any two** of the following: **[10]**

a) Competitive Enzyme Inhibition

b) Classify Enzymes giving examples

c) Edman's Degradation

P.T.O.

SECTION - II

Q4) Explain the process of Glycolysis in detail. Give its significance. **[10]**

OR

Explain the in detail beta oxidation of long chain fatty acids containing even and odd no. of carbons.

Q5) Attempt short note on any five of the following: **[15]**

a) Gluconeogenesis

b) Oxidative Deamination

c) Fate of Pyruvate

d) Ketone bodies

e) Triglyceride Synthesis

f) Oxidative phosphorylation

g) Vitamin B6

Q6) Write notes on any two of the following: **[10]**

a) Purine catabolism

b) What is HMP shunt? Give its significance

c) Transamination and its biological importance

Total No. of Questions : 6] SEAT No. :

P3152 [Total No. of Pages : 2

[5245]-304

Second Year B. Pharmacy (Semester - III)

PHARMACEUTICAL ORGANIC CHEMISTRY - III

(2013 Pattern) (Theory)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answers to the two sections to be written in separate answer books.***
3) ***Figures in right indicate full marks.***
4) ***Neat diagrams must be drawn if necessary.***

SECTION - I

Q1) Draw the Newman projection formulae for n-butane & discuss the energy profile diagram for the same. **[10]**

OR

Discuss in details the conformational analysis of cyclohexane.

Q2) Answer any five: **[15]**

a) How shall you prepare amino acids from halogen acids?

b) Which is the most preferred conformation between menthol & neo-menthol and why?

c) Explain why trans decalin is more stable than cis decalin.

d) Explain the term dipole-dipole interaction with suitable examples.

e) Why cis-trans is different than Z-E nomenclature? Explain.

f) Discuss the limitations of D/L method of nomenclature.

g) Explain the priority rules for assigning Z/E nomenclature.

Q3) Write short notes on any two **[10]**

a) Geometrical Isomerism & structural Isomerism

b) Conformations of decalin.

c) Stereospecific & stereoelective reactions

d) Chirality with suitable examples

P.T.O.

SECTION - II

Q4) Define molecular rearrangement reactions and classify them. Explain in brief any 2 reactions with mechanisms, at electron deficient carbon. **[10]**

OR

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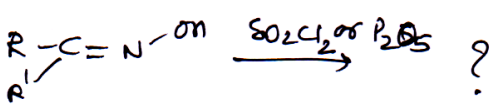
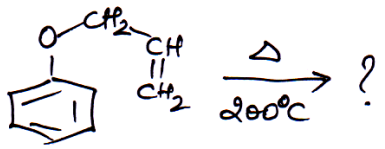
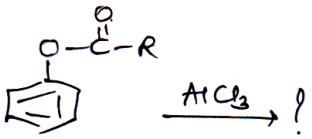
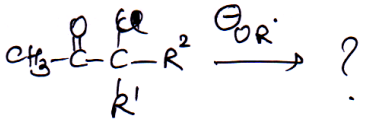
i) 

ii) 

iii) 

iv) 

Q5) Answer any five **[15]**

a) Explain the Elbs reaction for synthesis of anthracene.

b) Discuss the reduction of naphthalene under different conditions.

c) How are 1- & 2-anthranols prepared?

d) How shall you prepare 9-chloropharanthrene?

e) Write a short note on Willgerodt rearrangement.

f) Explain why claisen rearrangement is intramolecular.

g) In Oxy-lope rearrangement isomeric diene is not obtained. Explain.

Q6) Short notes (any two) **[10]**

a) Pinacol – Pinacolone rearrangement

b) Lossen rearrangement

c) Starenz Rearrangement

d) Favorskii Rearrangement

Total No. of Questions : 6] SEAT No. :

P3153

[Total No. of Pages : 2

[5245]-305

S.Y. B. Pharmacy (Semester - III)

PHARMACOLOGY - I

(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right side indicate full marks.***
3) ***Write answers for section - I and section - II in separate answer sheets.***

SECTION - I

Q1) Enlist and explain factors affecting drug distribution. **[10]**

OR

Enlist various routes of drug administration. Explain advantages and disadvantages of various routes of drug administration. **[10]**

Q2) Solve any five

a) Define absorption and explain factors affecting absorption of drug. **[3]**

b) What are different sources of drugs? **[3]**

c) Define drug distribution, metabolism and excretion. **[3]**

d) Define half-life of drug? Give its importance. **[3]**

e) Discuss structure and functions of plasma membrane. **[3]**

f) Define clinical trials? Enlist phases of clinical trials. **[3]**

g) What are the organs and enzymes involved in drug metabolism? **[3]**

Q3) Solve any two

a) What do you mean by therapeutic drug monitoring? Give its importance. **[5]**

b) Write a note on transportation of drug across plasma membrane. **[5]**

c) Discuss factors affecting drug excretion. **[5]**

d) Discuss new approaches in new drug discovery and development process. **[5]**

P.T.O.

SECTION - II

Q4) Write in detail drug receptor interaction and signal transduction mechanism in different type of receptor. **[10]**

OR

Discuss synthesis, storage, release and pharmacological actions of prastglandines. **[10]**

Q5) Answer the following (Any five)

a) Write in detail factors modifying drug action. **[3]**

b) Explain in detail dose response curve. **[3]**

c) Define pharmacodynamics and add a note on therapeutic Index. **[3]**

d) Discuss in detail drug treatment in geriatric patients. **[3]**

e) Define adverse drug reactions with their type. **[3]**

f) Write in details different type and pathophysiological role of leukotrienes. **[3]**

g) Explain in detail structure activity relationship and its effect on drug action. **[3]**

Q6) Solve any two **[10]**

a) Explain in detail drug synergism and drug antagonism and its types.

b) Define drug interaction and classify them with example.

c) Classify 5-HT receptor and write about its antagonist.

d) Discuss transduction mechanism of G protein coupled receptor.

Total No. of Questions : 6] SEAT No. :

P3154

[Total No. of Pages : 2

[5245]-306

S.Y. B. Pharmacy (Semester - III)

PHARMACOGNOSY & PHYTOCHEMISTRY - I

(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Answers to the two sections should be written in separate answer books.***
4) ***Draw neat and labelled diagram wherever necessary.***

SECTION - I

Q1) What is the role of primary & secondary metabolites in healthcare? Write sources, extraction, properties and uses of starch, & chitosan. **[10]**

OR

Explain the significance of Tannins as phytopharmaceuticals. Add a note on Amla.

Q2) Answer any five questions: **[15]**

a) Give the Keller-Killani test.

b) Write a note on Inulin.

c) Write a Short note on Shark Liver oil.

d) Give the BS and uses of Pale Catechu & Aloe.

e) Write a note on Sterculia.

f) Distinguish between Jute & Wool.

g) Give the chemical constituents of Rhubarb and Visnaga.

Q3) Write short notes on any two: **[10]**

a) Starch & Gelatin.

b) Rice Bran oil & Hydnocarpus oil.

c) Extraction of Bromelain.

d) ChebulicMyrobalan.

P.T.O.

SECTION - II

Q4) Define glycosides, classify with examples. Draw a neat labelled diagram of TS of Digitalis leaf. **[10]**

OR

What is Pharmacognostic scheme? Give the Pharmacognostic scheme of Liqourice.

Q5) Answer any five questions: **[15]**

a) Write a short note on Dioscorea.

b) Write general chemical tests for Silk.

c) Write short note on Gelatin.

d) What are Natural fibres?

e) Explain the microscopy of Kalmegh.

f) Write a note on Cocoa butter.

g) Give the applications of Cyclodextrins.

Q6) Write short notes on any two: **[10]**

a) Comment on occurrence and nomenclature of glycosides.

b) Write short note on carotenoids.

c) Saponin glycosides.

d) PUFA.

Total No. of Questions : 6] **SEAT No. :**

P3155

[Total No. of Pages : 2

[5245]-401

Second Year B. Pharmacy (Semester - IV)

PHYSICAL PHARMACEUTICS - II

(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Neat diagram must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Classify and explain in detail Newtonian and Non Newtonian systems. Add a note on thixotropy. **[10]**

OR

Define and classify different orders of reaction with the equations. Add a note on methods to determine order of a reaction. **[10]**

Q2) Attempt any five of the following: **[15]**

i) State Arrhenius equation and define energy of activation.

ii) How will you prevent hydrolysis of a pharmaceutical product?

iii) Explain Langmuir's adsorption isotherm.

iv) Write about physical instabilities in different formulations.

v) Explain mechanism of detergency.

vi) Explain working of capillary viscometers.

vii) Enlist applications of surfactants.

Q3) Write notes on any two of the following: **[10]**

i) Micellar solubilization

ii) Factors affecting stability of pharmaceuticals

iii) Spreading coefficient

iv) Thixotropy

P.T.O.

SECTION - II

Q4) Define colloids. Write an account of optical, kinetic and electrical properties of colloids. **[10]**

OR

Enumerate the various derived properties of powder. How can these be determined? **[10]**

Q5) Attempt any five of the following. **[15]**

i) What is Nernst and Zeta potential? Give its importance in the field of pharmacy.

ii) Explain Andreason Pipette method to determine particle size.

iii) Justify factors affecting flow of powders.

iv) Define: Angle of repose, Porosity and Granule density.

v) Explain Hofmeister series.

vi) Give pharmaceutical applications of colloids.

vii) Explain the concept of Donnan-membrane equilibrium with its role in pharmacy.

Q6) Write short notes on any two of the following: **[10]**

i) Specific surface and its determination.

ii) Stabilization of colloidal system.

iii) Particle volume measurement.

iv) Protective colloids.

Total No. of Questions : 6] **SEAT No. :**

P3156

[Total No. of Pages : 2

[5245]-402

S.Y. B. Pharmacy

2.7 : PATHOPHYSIOLOGY & CLINICAL BIOCHEMISTRY

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Define and classify hypertension. Explain the pathophysicology of hypertension. **[10]**

OR

Define and classify hepatitis. Discuss in detail pathophysiology of hepatitis.

Q2) Attempt **any five** of the following: **[15]**

a) Write the etiology of pneumonia.
b) Define and enlist the types of heart failure.
c) Define diarrhoea, cirrhosis and constipation
d) Write the complications of Gall stone.
e) Define and enlist the types of hepatitis.
f) Discuss pancreatitis.
g) Define and write etiology of inflammation.

Q3) Write a note on the following (**Any Two**) **[10]**

a) Raynauds disease
b) Jaundice
c) Peptic ulcer
d) Anemia

P.T.O.

SECTION - II

Q4) Discuss Pain in detail. **[10]**

OR

Discuss etiology and treatment of Tuberculosis in detail.

Q5) Solve any five of the following **[15]**

a) Write pathophysiology of leprosy

b) Explain in brief AIDS

c) Explain in brief Alzheimer's disease

d) Write clinical manifestations and treatment of gout

e) Write the causative agent of Syphilis and gonorrhoea.

f) Define the terms

i) Depression

ii) Osteoarthritis

iii) Hyperthyroidism

g) Explain in brief Glomerulonephritis

Q6) Write a note on following (any two) **[10]**

a) Epilepsy

b) Chronic renal failure

c) Diabetes mellitus

d) Parkinson's Disease

Total No. of Questions : 6] **SEAT No. :**

P3157

[Total No. of Pages : 2

[5245]-403

Second Year B. Pharm. (Semester - IV)

PHARMACEUTICAL ORGANIC CHEMISTRY - IV

(2013 Pattern)

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

Instructions to the candidates:

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

Q1) Give a detail account of methods of synthesis and reactions of furan. **[10]**

OR

Draw the structure and give numbering of following heterocycles with one example of drug belonging to each:

a) Pyridine
b) Quinoline
c) Pyridazine
d) Benzimidazole
e) Hydantoin

Q2) Answer in short (ANY FIVE) **[15]**

a) Why pyridine is more reactive towards nucleophiles than benzene
b) Explain basic and acidic character of pyrrole
c) Draw the resonance structures of furan
d) Write any two reactions for synthesis of quinoline
e) Explain the acidic and basic character of imidazole
f) Write the following reactions of indole:
   i) Gattermann Reaction
   ii) Reimer-Tiemann reaction
g) Give Hantszch synthesis of Pyridine

P.T.O.

Q3) Write a short note on (ANY TWO) **[10]**

a) Electrophilic substitution reactions of imidazole

b) Nucleophilic substitution reactions of pyridine

c) Disconnection involving two functional groups

d) Retrosynthetic scheme of Propranolol

SECTION - II

Q4) What is combinatorial synthesis? Explain various techniques in combinatorial chemistry. **[10]**

OR

Establish general and cyclic structures of D(+) glucose.

Q5) Solve any five of the following. **[15]**

a) Write a note on Mutarotation.

b) Give any three reactions of glucose.

c) What are Polysacchrides? Discuss in brief about Cellulose

d) Explain any two methods of preparation of Fructose.

e) Explain significance and medicinal importance of Carbohydrates.

f) Explain the use of Nanochemistry.

g) Explain applications of Combinatorial chemistry.

Q6) Write short notes on any two of the following. **[10]**

a) Use of Microwave in organic synthesis.

b) Reducing sugars

c) Ruff degradation.

d) Solid supported synthesis of peptides.

Total No. of Questions : 6] SEAT No. :

P3158 [Total No. of Pages : 2

[5245]-404

Second Year B. Pharmacy (Semester - IV)

244 : PHARMACEUTICAL ANALYSIS - II

(2013 Pattern)

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

Instructions to the candidates:

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

Q1) Write principle of polarography. Discuss in detail dropping mercury electrode. Write in brief about ilkovic equation. **[10]**

OR

Explain in detail different types of conductometric titration curves. Comment on calibration of conductometer.

Q2) Attempt any five of the following. **[15]**

a) Classify different electrodes used in potentiometry.

b) Explain mechanisms of mass transfer in electroanalytical techniques.

c) Define and give formula for specific and equivalent conductance.

d) What is cell constant? Write its importance.

e) Write in brief about end point detection in potentiometry.

f) Explain need of hydration of glass electrode.

g) Write role of supporting electrolyte and maxima suppressors in polarography.

Q3) Write notes on any two of the following. **[10]**

a) Pulse Polarography

b) High frequency titrations

c) Ion selective electrodes

d) Applications of Conductometry

P.T.O.

SECTION - II

Q4) Write principle of refractometry. Discuss in detail about Abbe's Refractometer. **[10]**

OR

a) Write in detail about oxygen combustion flask technique. **[5]**

b) Give an account on Dead Stop end point method. **[5]**

Q5) Attempt any five of the following **[5×3=15]**

a) Write a note on cotton effect

b) Principle of coulometric analysis

c) Advantage and disadvantage of coulometric analysis

d) Explain ORD spectra

e) Discuss about types of pane polarized light

f) Effect of temperature and solvent on optical activity

g) Rotating platinum electrode

Q6) Write a note on (any two) **[2×5=10]**

a) Spectropolarimeter

b) Silver coulometer

c) Application of coulometric analysis

d) Determination of nitrogen by Kjeldahl method

Total No. of Questions : 6] SEAT No. :

P3159

[Total No. of Pages : 2

[5245]-405

Second Year B. Pharm.

PHARMACOGNOSY AND PHYTOCHEMISTRY - II

(2013 Pattern) (Semester - IV)

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

Instructions to the candidates:

1) ***All questions are compulsory. Figures to the right indicate full marks.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Draw neat labelled diagrams wherever necessary.***

SECTION - I

Q1) Write biosynthesis and pharmacognosy of Isoquinoline narcotic alkaloid. **[10]**

OR

Write biosynthesis for trptophan derived Indole alkaloid. Explain pharmacognosy of anticancer Indole alkaloid.

Q2) Answer **any five** of the following. **[5×3=15]**

a) Draw a labelled diagram of T. S. of Datura leaf.

b) Write method for extraction of Strychnin and Brucin.

c) Write Murexide test, Vitali Morin test and Van erk test.

d) Write various uses and chemical constituents of Rauwolfia.

e) Draw a labelled diagram of T. S. of Kurchi Bark.

f) Mention the chemical constituents and uses of Ipecac.

g) Give biological source, chemical constituents and uses of a glycoalkaloid.

Q3) Solve **any two** of the following. **[2×5=10]**

a) Note on Ephedra

b) Write in short about Purin alkaloids

c) Note on Peruvian bark.

d) Discuss physical and chemical properties of alkaloids.

P.T.O.

SECTION - II

Q4) Classify Terpenoids. Write detail pharmacognosy of Cinnamon. **[10]**

OR

Comment on types of Resins. Write detail pharmacognosy of Podophyllum.

Q5) Answer **any five** of the following, **[5×3=15]**

a) Write Phytoconstituents and uses of Ginger.

b) Explain cultivation and collection of Sandalwood.

c) Explain the significance of optical activity in analysis of volatile oils.

d) Discuss on specific gravity determination.

e) Comment on Clavenger apparatus.

f) Describe chemical constituents of Artimissia.

g) Draw a labelled diagram of T. S. of hypanthium of Clove.

Q6) Write note on **any two** of the following. **[2×5=10]**

a) Taxol

b) Guggul

c) Cannabis

d) Extraction of volatile oils

Total No. of Questions : 6] SEAT No. :

P3160 [Total No. of Pages : 2

[5245]-406

S.Y. B. Pharmacy (Semester - IV)

PHARMACEUTICAL ENGINEERING

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Give theory of drying and explain in detail spray dryer. **[10]**

OR

Explain various modes of heat transfer in detail. Discuss convective heat transfer and explain tubular heat exchanger.

Q2) Solve any five **[15]**

a) Explain factors affecting evaporation.

b) Give Stefan Boltzmann law of heat transfer.

c) Explain wiped film evaporator.

d) Give applications of drying operation.

e) Define and explain heat exchangers with their different flow patterns.

f) Explain economy and capacity of Single Effect Evaporator.

g) Draw a neat labelled diagram of Fluidized bed dryer.

Q3) Answer the following (Any Two) **[10]**

a) Explain drum dryer.

b) Explain two film theory of interphase mass transfer.

c) Explain Fourier's law.

d) Give molecular diffusion in gases.

P.T.O.

SECTION - II

Q4) Describe steps in crystallization process and explain various theories of crystal growth. **[10]**

OR

Define and explain rectification. Explain various fractionating columns used in fractional distillation.

Q5) Solve any five **[15]**

a) Explain Reynold's number.

b) Define corrosion. What are the factors affecting corrosion.

c) Write a short note on separation of azeotropes.

d) Explain working of simple manometer.

e) Explain working of pitot tube.

f) Give working of a tank crystallizer.

g) Explain working of Rotameter.

Q6) Answer the following (Any Two) **[10]**

a) Mier's theory of supersaturation.

b) Bernoulli's theorem.

c) Molecular distillation.

d) Orifice meter.

Total No. of Questions : 6] **SEAT No. :**

P3161 **[Total No. of Pages : 2**

[5245]-501
Third Year B. Pharmacy (Semester - V)
INDUSTRIAL PHARMACY - I
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Discuss biopharmaceutical consideration for dosage form design. **[10]**

OR

Discuss in detail IPQC tests for tablet.

Q2) Answer ANY FIVE **[15]**

a) Write a note on co-processed excipients.

b) Discuss wet granulation process with example.

c) Give detail account on mechanism of granulation.

d) Discuss types of tablet.

e) Discuss chilsonator roller compaction process.

f) Give detail account on evaluation of granules.

g) What do you mean by embossing? Give account on double impression.

Q3) Solve ANY TWO **[10]**

a) Give the different methods of preparation of effervescent granules.

b) Discuss Heckel plot and Kawakita plot.

c) Discuss force volume relationship in tablet manufacturing.

d) Discuss Extrusion and Spheronization.

P.T.O.

SECTION - II

Q4) Describe in detail steps involved in Sugar coating. **[10]**

OR

Discuss in details the process of Manufacturing of Hard Gelatin Capsule.

Q5) Solve ANY FIVE **[15]**

a) What are different shapes of Soft gelatin capsule? Discuss concept of Gel strength.

b) Enlist various enteric coating materials?

c) Write about Glatt immersion sword system?

d) Filling capacity For Empty capsule shell ranges from 0 to 5?

e) Explain various material used in Film coating?

f) Discuss Dip coating process?

g) Enlist difference between Hard Gelatin Capsule and Soft Gelatin Capsule.

Q6) Solve ANY TWO **[10]**

a) Discuss in details variables involved in Film coating.

b) Add note on Fluidized Bed Granulator.

c) IPQC test for Capsules as per I.P.

d) Write a note on Accela-coata and Dria-coater.

Total No. of Questions : 6] **SEAT No. :**

P3162 **[Total No. of Pages : 2**

[5245]-502

Third Year B. Pharmacy (Semester - V) (Theory)

3.5.2 : PHARMACEUTICAL ANALYSIS - III

(2013 Pattern)

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

Instructions to the candidates:

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

Q1) What is EMR. Explain the wave and particle properties of EMR. Classify instrumental methods based on interaction or EMR with Matter. **[10]**

OR

Draw a neat diagram of double beam UV-Vis. Spectrophotometer. Explain the monochromators and detectors used in UV-Vis. Spectrophotometer.

Q2) Attempt Any five questions from the following: **[15]**

a) What is photoelectric effect?

b) Discuss principle involved in flame photometry.

c) Define Beer-Lambert's law and derive equation for it.

d) Explain apparent chemical deviation.

e) Discuss Woodward-Fieser rule and its importance in analysis by UV-Spectrophotometry.

f) Write a note on separating analytes from interferents.

g) Classify instrumental methods of analysis.

Q3) Write a note on Any Two: **[10]**

a) Derivative spectrophotometry

b) Applications of flame photometry

c) Liquid-liquid extraction

d) Electronic transitions involved in UV-Spectrophotometry

P.T.O.

SECTION - II

Q4) Discuss in detail about Instrumentation of Atomic Emision Spectrophotometry. **[10]**

OR

Write in detail about instrumentation of phosphorimeter.

Q5) Attempt Any five questions from the following: **[15]**

a) Write source of fluorimetric analysis

b) Applications of phosphorimetric analysis

c) Discuss about burners used in Atomic Absorption Spectroscopy

d) Applications of fluorimetric analysis

e) Discuss about theory of Turbidometry

f) Explain spectrofluorimeter

g) Explain Nephalometer

Q6) Write a note on Any Two: **[10]**

a) Single beam fluorimeter

b) Applications of nephelo-turbidometric analysis

c) Source used in Atomic Absorption Spectroscopy

d) Theory of phosphorimetry

Total No. of Questions : 6] **SEAT No. :**

P3163 **[Total No. of Pages : 2**

[5245]-503
Third Year B. Pharmacy (Semester - V)
MEDICINAL CHEMISTRY - I
(2013 Pattern)

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

Instructions to the candidates:

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

Q1) Discuss SAR and MOA of anti-hyperlipidemic agents. **[10]**

OR

Write in detail about design of drugs affecting adrenergic nervous system. Explain drugs affecting biosynthesis of norepinephrine.

Q2) Answer the following (Any Five) **[15]**

a) Explain role of intracellular cyclic nucleotides along with their structures.

b) Discuss SAR and MOA of potassium sparing diuretics.

c) Sketch out synthetic scheme for hydralazine.

d) What is protein binding? Write its significance.

e) Comment on receptor site theories.

f) Write a note on Ferguson principle.

g) What are cardiotonics? Explain in detail

Q3) Write a short note on (Any Two) **[10]**

a) Write synthesis of prazosin.

b) Discuss SAR and MOA of acetylcholine antagonist.

c) Add a note on conjugation reactions.

d) Sketch out synthetic scheme for furosemide.

P.T.O.

SECTION - II

Q4) Define receptor. Write types of receptors. Explain in detail about forces involved in drug receptor interactions. **[10]**

OR

What are antihypertensives? Classify with suitable example. Discuss its SAR and MOA.

Q5) Answer the following (Any Five) **[15]**

a) Sketch out synthetic scheme for dicyclomine hydrochloride.

b) Write a note on cholinergic receptors.

c) Comment on acetylcholinesterase inhibitors.

d) Write synthesis of losartan.

e) Highlight Ing's rule of five.

f) Explain in detail bioisosterism.

g) Classify and explain anticoagulants.

Q6) Write a short note on (Any Two) **[10]**

a) Write biosynthesis, storage, release and metabolism of acetylcholine.

b) Comment on beta blockers.

c) Classify ganglionic blocking agents with suitable example.

d) Sketch out synthetic scheme for terbutaline.

Total No. of Questions : 6] **SEAT No. :**

P3164 **[Total No. of Pages : 2**

[5245]-504
Third Year B. Pharmacy (Semester - V)
3.5.4. PHARMACOLOGY - II
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Define anticholinesterase agents. Classify anticholinesterase agents with suitable example. Explain pharmacology of Anticholinesterase and Organophosphorous poisoning and its treatment. **[10]**

OR

Define Adrenergic drugs. Classify adrenergic drugs with suitable example on the basis of their therapeutic uses. Explain in detail pharmacological action of Adrenaline.

Q2) Answer the following (Any Five) **[15]**

a) Differentiate Parasympathetic and Sympathetic nervous system.

b) Classify Adrenergic receptor with their site or location.

c) Define the following terms :

i) Miosis

ii) Mydriasis

iii) Glaucoma

d) Classify anticholinergic drugs with suitable example.

e) Classify cholinergic drugs with suitable example.

f) Comment on succinyl choline is depolarising blocker.

g) Explain biosynthesis of Adrenaline.

P.T.O.

Q3) Write a short note on (Any Two) **[10]**

a) Skeletal muscle relaxant.

b) Antimuscarinic poisoning and its treatment.

c) α - Blockers.

d) Pharmacotherapy of glaucoma.

SECTION - II

Q4) Describe pharmacological actions of glucocorticoids. **[10]**

OR

What is mechanism of action, Pharmacological actions, adverse effects of sulphonylureas and add note on biosynthesis and storage of Insulin.

Q5) Attempt (Any Five) **[15]**

a) Explain physiological actions of growth hormone.

b) Explain physiological actions of ADH.

c) Explain mechanism of action of oxytocin.

d) Explain mechanism of action of Acarabose.

e) Give Adverse effect of Insulin.

f) Classify antithyroid drugs with example.

g) Give the fucntions of various hormone.

Q6) Write a note on (Any Two) **[10]**

a) Therapeutic effects of glucocorticoids.

b) Antiandrogens.

c) Calcitonin

d) Mineralocorticoids.

Total No. of Questions : 6] SEAT No. :

P3165 [Total No. of Pages : 2

[5245]-505

Third Year B. Pharmacy (Semester - V) (Theory)

355 : ANALYTICAL PHARMACOGNOSY AND EXTRACTION TECHNOLOGY

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Attempt any one of the following: **[10]**

a) Explain the principle, instrumentation and applications of Soxhlet extraction.

b) Explain the Principle, procedure and applications of Froth-floatation technique.

Q2) Attempt any five of the following: **[15]**

a) Give the chemical tests for Strychnine and Piperine

b) Explain the isolation procedure of Curcumin

c) Enlist different types of adsorbents for thin layer chromatography

d) Explain merits and demerits of Microwave-assisted extraction

e) Explain "Haemolytic activity" as per WHO guidelines

f) Explain enfleurage method with an example

g) Explain swelling index as per WHO guidelines

P.T.O.

Q3) Attempt any two: **[10]**

a) Explain the maceration and percolation process.

b) Explain the principle and advantages of HPTLC method.

c) Explain the procedure for determination of Tannin content as per WHO guidelines.

d) Define Adulteration and explain its types with suitable examples.

SECTION - II

Q4) Attempt any one of the following: **[10]**

a) Describe in detail:

i) Methods of determining moisture content in crude drugs.

ii) Different types of Ash value with their significance.

b) State the role of documentation in quality management system as per WHO guidelines for Pharmaceutical Laboratory.

Q5) Attempt any five of the following: **[15]**

a) Give the isolation procedure of Taxol

b) Explain the extraction of peppermint oil by steam distillation method

c) Explain chemical tests for podophyllotoxin and menthol

d) Explain merits and demerits of Sonication

e) Add a note on "Pesticidal residue" as per WHO guidelines

f) Draw neat labeled diagram of supercritical fluid extractor

g) Enlist the contents of 'Certificate of Analysis' as per WHO guidelines

Q6) Attempt any two: **[10]**

a) Explain the decoction and infusion process.

b) Explain Source, properties, isolation & tests of artemisinin

c) Explain the procedure for determination of bitterness value as per WHO guidelines.

d) Enlist parameters of proximate phytochemical analysis

Total No. of Questions : 6] SEAT No. :

P3166 [Total No. of Pages : 2

[5245]-506
Third Year B. Pharmacy
PHARMACEUTICAL BUSINESS MANAGEMENT & DISASTER MANAGEMENT
(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Define Planning. Give types & importance of planning. Describe about sales forecasting. **[10]**

OR

Explain in detail concept of material management in pharmaceutical industry.

Q2) Answer any Five (Each three marks): **[15]**

a) What do you mean by Management audit?

b) Give basic principles of organizations.

c) What are concepts & purpose of controlling?

d) Define decision making, give its importance.

e) Write short note on budgetary control.

f) Write note on Management thoughts.

g) What do you mean by objectives by management?

Q3) Write note on any two (Each Five marks): **[10]**

a) Peter Drucker contribution in modern management

b) Network techniques

c) Departmentalization

d) Functions & responsibility of manger

P.T.O.

SECTION - II

Q4) What is leadership? Give its importance, qualities & styles of leadership. **[10]**

OR

Define Sales Promotion and give different techniques of Sales Promotion.

Q5) Answer any Five (Each three marks): **[15]**

a) Communication process

b) Give various types of price.

c) Reinforcement theory of motivation

d) What are various methods of advertising?

e) Describe in brief volcanic eruption.

f) Give brief account of Group discussion.

g) How Channel of distribution is important in pharmaceutical marketing?

Q6) Answer any TWO (Each Five marks): **[10]**

a) Performance appraisal

b) Sales promotion.

c) Manmade disaster

d) Disaster Preparedness plan.

Total No. of Questions : 6] **SEAT No. :**

P3167 **[Total No. of Pages : 2**

[5245]-507
T.Y. B. Pharmacy (Semester - V)
API TECHNOLOGY
(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) What is Hydrolysis? Give details of Unit process of Hydrolysis. Describe Hydrolyzing agents. Describe manufacturing process of any one API by Hydrolysis process. **[10]**

OR

Give the summary or Glossary of Q7 Guidelines.

Q2) Answer the following (ANY FIVE) **[15]**

a) Define Active Pharmaceutical Ingredient, with examples.

b) Enlist various equipments used in API manufacturing.

c) Enlist and describe oxidizing agents.

d) Describe various Nitrating agents and give significance of Mixed Acids

e) Describe any one API prepared by Esterification.

f) What is GMP? What is significance of various GMP guidelines for API manufacturing.

g) Give details of Schimd Reactor.

Q3) Write Short notes on (ANY TWO) **[10]**

a) API Quality Specifications

b) Chirality and US FDA guideline

c) Nitrators used in API manufacturing

d) Any one API prepared by Oxidation with layout diagram.

P.T.O.

SECTION - II

Q4) Attempt any one question **[10]**

What are optimal routes for scale-up of API? Discuss suitable strategies for selection of the most optimal route.

OR

Classify and discuss reactors used in API manufacturing.

Q5) Attempt any five **[15]**

a) Discuss solvents that are useful for scale-up.

b) Enlist techniques for API purification and discuss any one technique.

c) What is the purpose of work up in API preparation?

d) Discuss potential health hazards in API preparation.

e) Enlist the various stages in Process development.

f) What are In Process controls in API manufacturing?

g) Explain industrial manufacturing of Metformin with suitable flow charts.

Q6) Write short notes on (Any Two) **[10]**

a) Process variables in API manufacturing.

b) Work-up procedures in API manufacturing.

c) Industrial manufacturing method & flow chart of Amoxicillin trihydrate.

d) MSDS.

Total No. of Questions : 6]

SEAT No. :

P3168

[Total No. of Pages : 2

[5245]-601

T.Y.B.Pharmacy (Semester - VI)

3.6.1 (T) INDUSTRIAL PHARMACY - II

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Explain coarse emulsion and micro emulsion Discuss in detail various theories proposed for stabilization of emulsion. **[10]**

OR

Explain formulation, evaluation and stability aspect of suspension.

Q2) Answer the following (any 5) : **[15]**

a) Explain identification test for type of emulsion.
b) Write a note on structured vehicle with suitable examples
c) Explain in detail additives used in formulation of stable suspension.
d) Give classification of disperse system.
e) Explain in brief Kraft point.
f) Distinguish between cracking Vs creaming Vs phase inversion.
g) Explain any method for manufacturing of multiple emulsion.

Q3) Write short note on (any 2) **[10]**

a) Preservation of emulsion
b) Controlled flocculation
c) Suspension for reconstitution
d) Antacid suspension

P.T.O

SECTION - II

Q4) Explain physicochemical properties, biopharmaceutical considerations and therapeutic aspects and their significance in design of semisolid dosage form **[10]**

OR

Describe in *vitro* and in *vivo* techniques for studying drug diffusion through skin.

Q5) Answer the following (Any 5) **[15]**

a) Explain preservatives and antioxidants used in creams with suitable example.

b) Discuss factors affecting absorption of drug from semisolids.

c) Explain stratum corneum as rate limiting barrier.

d) Describe layout for manufacturing of emulsion as per Good Manufacturing Practices (GMP).

e) Explain role of triple roller mill in the manufacturing of semisolids.

f) Write a note on gelling agents.

g) Describe various equipments used in large scale manufacturing of suspension

Q6) Write short note on (Any 2) **[10]**

a) Significance of flux and its measurement

b) Drug diffusion through skin

c) Oleaginous bases

d) IPQC test for semisolids

Total No. of Questions : 6]

SEAT No. :

P3169

[Total No. of Pages : 2

[5245]-602

T.Y.B.Pharmacy (Semester - VI)

PHARMACEUTICAL ANALYSIS - IV

(2013 Pattern)

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

Instructions to the candidates:

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

Q1) Explain the theory of paper chromatography. Discuss the different types of stationary phase and applications of paper chromatography. **[10]**

OR

Explain the theory of HPTLC technique. Discuss the advantages and Detection system in HPTLC.

Q2) Attempt any five of the following. **[15]**

a) Explain Van Deemter equation.
b) Discuss the types of column chromatography.
c) Write the factors affecting efficiency of the column.
d) Discuss the different types of HPTLC plates.
e) Write the applications of TLC.
f) Write various principles of separation in chromatography.
g) Discuss the pharmaceutical applications of column chromatography.

Q3) Write a note on any two of the following : **[10]**

a) Development of TLC and its evaluation.
b) Differential Scanning Calorimetry.
c) "System Suitability Parameters" in chromatography.
d) Developments of Electrophoresis.

P.T.O

SECTION - II

Q4) Describe the properties of particles emitted during radioactive decay. **[10]**

OR

Discuss schematically, the instrumentation associated with X-ray methods.

Q5) Answer any five of the following : **[15]**

a) Explain the term Design Qualification with suitable examples.

b) What are the methods of determination of Precision?

c) Write principle of DTA

d) What are sample characteristics affecting TGA results?

e) Explain with suitable example, how TGA helps to decide the drying temperature.

f) State parts of DTA apparatus and write function of each part.

g) Write principle of Isothermal Titration Calorimetry

Q6) Write a note on any two of the following : **[10]**

a) Installation Qualification

b) Robustness and Ruggedness

c) Measurement of Radioactivity

d) Applications of X-ray diffraction methods

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Total No. of Questions : 6]

SEAT No. : ____

P3170

[Total No. of Pages : 2

[5245]-603

T.Y. B.Pharmacy (Semester - VI)

MEDICINAL CHEMISTRY - II

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Classify oral anti-hyperglycemic agents with suitable examples and structures. Add a note on Sulfonylureas as anti-hyperglycemic agents. **[10]**

OR

Classify sedative and hypnotics with suitable examples and structures. Add a note on chemistry of barbiturates.

Q2) Solve any FIVE questions : **[5 × 3 = 15]**

a) Give structure, IUPAC and synthesis of haloperidol.

b) Classify anticonvulsant agents.

c) Which compounds are used as MAO inhibitors in anti-depressant therapy and why?

d) Comment on inhalational anesthetics.

e) Discuss cannbinols as hallucinogens.

f) Outline the synthesis of diazepam.

g) What is Fenton reaction? Give its significance in Parkinson's disease.

P.T.O

Q3) Solve any TWO questions : **[2 × 5 = 10]**

a) Classify atypical antipsychotics with examples. Why are they termed as atypical?

b) Discuss in detail the agents used in anti-migrane therapy.

c) Explain important structural features and mode of action of local anesthetics.

d) Discuss SAR of tricyclic antidepressant agents.

SECTION - II

Q4) Classify anxiolytics with suitable examples and structures. Discuss the SAR of benzodiazepines **[10]**

OR

Explain the role of phase I & phase II reactions in drug metabolism with suitable examples.

Q5) Solve any FIVE: **[5 × 3 = 15]**

a) Outline the synthesis of phenytoin.

b) Give the structures and IUPAC of Mepivacaine and Chlorprozine.

c) Give the chemical categories of CNS stimulants with examples.

d) Discuss radiopaque compounds as diagnostic agents.

e) How cocaine played a role as lead molecule in development of local anesthetics?

f) Outline the complete metabolic pathway for procaine.

g) Why carbidopa is prescribed with levodopa in anti-parkinson's therapy?

Q6) Solve any TWO : **[2 × 5 = 10]**

a) Enlist SSRIs. Give structure, IUPAC and synthesis of fluoxetine.

b) Which are the drugs used in treatment of Alzheimer's disease? Discuss with chemistry and mode of action.

c) Discuss phenothiazines as antipsychotics.

d) With respect to drug discovery, discuss etiology of neurodegenerative disorders.

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Total No. of Questions : 6]

SEAT No. :

P3171

[Total No. of Pages : 2

[5245]-604

T.Y.B.Pharmacy (Semester - VI)

PHARMACOLOGY - III

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Classify antidepressant drugs. Write mechanism of action, therapeutic uses and adverse effects of antidepressant drugs. **[10]**

OR

Write pharmacokinetics and pharmacodynamics of Ethanol. Discuss the treatment of alcoholism.

Q2) Answer the following (Any five) **[15]**

a) Write an account on injectable and surface anesthetics

b) Write a short note on selective serotonin reuptake inhibitors.

c) Benzodiazepines in treatment of anxiety.

d) Discuss mechanism of action, therapeutic uses of Lithium carbonate.

e) Write adverse effects of MAO inhibitors

f) Write the pharmacology of inhalation anesthetics

g) Pharmacotherapy of Parkinson's disease

P.T.O

Q3) Write short note on (Any two) **[10]**

a) Atypical Antidepressant

b) Barbiturates

c) Pharmacotherapy of Alzheimer' s disease

d) General anesthetics

SECTION - II

Q4) Classify Opoid analgesics and write pharmacological details of morphine **[10]**

OR

Write pharmacological account of emetics and anti-emetics

Q5) Answer the following (Any four) **[15]**

a) Classify antitussives

b) Define and classify laxatives

c) Explain pharmacotherapy of gout

d) Write a short note opoid analgesics

e) Classify NSAIDS

f) Write a note on H2 antagonists

g) Write a note on morphine poisoning

Q6) Write short note on (Any two) **[10]**

a) Write Pharmacotherapy of constipation

b) Explain pharmacotherapy of Rheumatoid arthritis

c) MOA, ADR and Uses of Salbutamol, Omeprazole Ibuprofen

d) Write Pharmacology of Bronchodilators

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Total No. of Questions : 6]

SEAT No. :

P3172

[Total No. of Pages : 2

[5245]-605

T.Y.B.Pharmacy (Semester - VI)

NATURAL PRODUCT CHEMISTRY

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Attempt any one of the following : **[10]**

a) Explain the different methods of characterization of carbon skeleton of natural products. And also explain elemental composition by combustion analysis.

b) List out methods to study biogenetic pathways. Explain in detail Tracer Techniques with its significance.

Q2) Attempt any five of the following : **[15]**

a) Give advantages of HPTLC over TLC.

b) Explain application of UV

c) What do you mean by Circular Dichroism?

d) Write a note on Refractive Index and Optical Rotation

e) What is the importance of Ozonolysis?

f) What is grafting? Give applications

g) Give applications of proton NMR.

P.T.O

Q3) Attempt any two: **[10]**

a) Principle and applications of IR.

b) What is Liquid- liquid chromatography? Add a detailed on HPLC.

c) Enlist various strategies of drug discovery. Explain any two.

d) What are the various techniques used to investigate the biosynthetic pathways? Describe any one of them.

SECTION - II

Q4) Attempt any one of the following: **[10]**

a) Write a detailed note on natural sweeteners. Add note on Liquorice and Stevia

b) Explain the significance of natural products in drug discovery with their biological relevance.

Q5) Attempt any five of the following : **[15]**

a) Biological Sources and chemical constituents of Cochineal.

b) Biological Sources and chemical constituents of Stevia.

c) Enlist marine anticancer drugs.

d) Comment on Liquorice.

e) Give general chemistry about colors and dyes.

f) Write a note on Turmeric.

g) Write a note on Monellin.

Q6) Attempt any two : **[10]**

a) Write a note on MARINE Cardiovascular

b) Write a detailed note on natural colorants.

c) Write a note on Gymnema sylvestre.

d) Write detailed note on Serendipity berry and Katemfe.

Total No. of Questions : 6]

SEAT No. :

P3173

[Total No. of Pages : 2

[5245]-606

T.Y.B.Pharmacy (Semester - VI) (Theory)

BIOORGANIC CHEMISTRY & DRUG DESIGN

(2013 Pattern)

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

Instructions to the candidates:

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

Q1) Discuss Molecular Adaptation in detail. Explain various interactions involved in Molecular Recognition. **[10]**

OR

Explain mechanisms of Drug-DNA interactions.

Q2) Attempt any five of the following : **[15]**

a. Comment on human and bacterial DHFR inhibitors.

b. Explain physiological role of human Carboxypeptidase.

c. Define Molecular recognition and explain its types.

d. Explain biochemical role of Phosphodiesrerase — I.

e. Write a note on oxidative degradation of DNA strands.

f. Explain antisense therapy.

g. Write a note on Insulin receptors.

P.T.O

Q3) Answer any two of following : **[10]**

a. Write a note on structure and function of $GABA_A$ receptors.

b. Explain significance of Bioorganic Chemistry in drug discovery.

c. Explain biological pathway of serotonin and how MAO breaks it down.

d. Write a note on tyrosine kinase cascade.

SECTION - II

Q4) Write a detail note on QSAR and explain various QSAR parameters. **[10]**

OR

Write in detail about structure-based drug design strategy in drug discovery with example.

Q5) Attempt any five of the following : **[15]**

a. Write a note on drug discovery.

b. Write a note on molecular modeling.

c. Explain the concept of soft drugs.

d. Write a note on molecular mechanics.

e. Explain mechanism-based drug design.

f. Write a note on descriptors used in QSAR model.

g. Highlight role of stereochemistry in drug design.

Q6) Answer any two of following : **[10]**

a. Write applications of prodrug and give one example.

b. Write in short about-pharmacophore model development and give its applications.

c. Give focus on methods for lead search.

d. Give classification of prodrugs with suitable examples.

Total No. of Questions : 6]

SEAT No. :

P3174

[Total No. of Pages : 3

[5245]-607

T.Y.B.Pharmacy (Semester - VI)

PHARMACEUTICAL BIOTECHNOLOGY

(2013 Pattern)

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

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate books.***
2) ***Neat diagrams as well as flow-charts must be drawn wherever necessary.***
3) ***Black Figures to the right indicate full marks.***
4) ***All questions are compulsory.***

SECTION - I

Q1) Give the principle of r-DNA technology along with significance of enzymes. Enlist and explain various methods of screening the recombinants. **[10]**

OR

Define Biotechnology.

Write a detailed account on scope, potential and achievements of biotechnology to pharmaceutical sciences.

Q2) Answer ANY FIVE of the following : **[15]**

a) Enlist different genetic engineering techniques. Add a note on DNA hybridization.

b) Explain steps involved in isolation of DNA.

c) What is gene transfer? Enlist methods of gene transfer and explain any one of them?

d) Give benefits and method of preparation of cDNA

e) Explain principle and applications involved in Gel electrophoresis or Southern blotting.

P.T.O

f) Write significance of enzymes actiong on DNA

i) Restriction endonuclease

ii) Ligase

iii) Alkaline phosphatase

g) Enumerate types of clonimg vectors Add a note on COSMID as vector.

Q3) Write short notes on ANY TWO of the following : **[10]**

a) Expression vector

b) RFLP

c) Human gene therapy

d) Gene sequencing methods

SECTION - II

Q4) What do you mean by hybridoma technology? Explain steps involved in monoclonal antibodies production and its applications. **[10]**

OR

Explain benefits of recombinant DNA products. Write a detailed account on human insulin production by rDNA technology.

Q5) Answer ANY FIVE of the following : **[15]**

a) What is enzyme immobilixation? Give applications of Enzyme immobilization

b) Explain methods of germplasm storage

c) Describe components and working of fermentor.

d) Give benefits of transgenic animals with suitable examples

e) How to control foam during fermentation?

f) Explain the process of manufacturing of antibiotic by fermentation with suitable example

g) Give role of HAT medium in monoclonal antibody production

Q6) Write short notes on ANY TWO of the following : **[10]**

a) Down stream processing

b) Interferon production by rDNA

c) Production of vitamin by fermentation

d) Human Gene therapy

Total No. of Questions : 6]

SEAT No. :

P3175

[Total No. of Pages : 3

[5245]-701

Final Year B.Pharmacy (Semester - VII)

STERILE PRODUCTS

(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answers to two sections should be written in separate answer books.***
3) ***Figures to the right indicate full marks.***
4) ***Draw neat diagrams wherever necessary.***

SECTION - I

Q1) Give an elaborate account of various air class zones in sterile parenteral manufacturing facility. Explain the significance of air class buffering zones, positive pressure and air lock system. **[10]**

OR

Give types of glass and plastics used in packaging of sterile parenteral products. Write an elaborate account of evaluation of rubber closures for vials as per I.P.

Q2) Answer the following (Any five) : **[15]**

a) Describe general requirements for sterile parenteral products.

b) How types I glass is differentiated from type II glass as per I.P.?

c) What are pyrogens? What are the methods to get pyrogen free water?

d) What I.P.Q.C. tests are done on sterile parenteral product before filling and sealing?

e) Describe applications, advantages and disadvantages of sterile parenteral products.

f) Describe factors that decide the choice of container and closure system for a sterile parenteral product.

g) Write note on prefilled syringes.

P.T.O

Q3) Answer the following (any two) : **[10]**

a) Write note on sterile reconstituted products.

b) Give flow diagram for large scale Manufacture process of aqueous sterile solution having heat stable drug.

c) Write note on stability study of SVPs (Small Volume Parenterals)

d) Enlist official quality control tests for SVPs (Small Volume Parenterals) Describe the test for freedom from particulate matter.

SECTION - II

Q4) Write the ideal properties of plasma volume expanders. Explain different types of plasma volume expanders. **[10]**

OR

Explain in detail types and formulation of LVPs (Large Volume Parenterals)

Q5) Answer the following (any five) : **[15]**

a) Explain the importance of primary drying in lyophilization.

b) What is intra venous admixture?

c) Explain absorbent foam dressings?

d) How will you evaluate ophthalmic products?

e) Write the applications of contact lens.

f) Write the ideal properties of ligatures and sutures.

g) Explain the preparation and storage of dried human plasma.

Q6) Write a note on (any two) : **[10]**

a) Working of lyophilizer

b) Whole human blood

c) Surgical cotton

d) Stability of LVPs (Large Volume Parenterals)

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Total No. of Questions : 6]

SEAT No. :

P3176

[Total No. of Pages : 3

[5245]-702

Final Year B. Pharmacy (Semester - VII)

PHARMACEUTICAL ANALYSIS - V

(2013 Pattern)

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

Instructions to the candidates:

1) ***All question 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

Q1) Describe principle, instrumentation and applications of NIR technique **[10]**

OR

Describe principle, instrumentation and applications of FTIR technique.

Q2) Attempt any five of the following : **[15]**

a. Compare applications of Raman and IR techniques

b. What are the advantages of Raman techniques?

c. Compare SEM and TEM techniques

d. Explain principle of SEM

e. Explain fingerprint IR region

f. Explain use of molecular vibrations in IR interpretation.

g. Explain advantages of FTIR technique

P.T.O

Q3) Attempt any two of the following : **[10]**

a. Explain characteristic IR bands of organic acid compounds.

b. Discuss dispersive IR instrument

c. Discuss IR solid and gas sample handling.

d. Discuss in brief FT Raman.

SECTION - II

Q4) Discuss the principle, sample handling technique and columns used in Gas Chromatography. **[10]**

OR

Discuss the instrumentation, working and applications of Atomic Emission Spectroscopy.

Q5) Attempt any five of the following : **[15]**

a) Give the applications of Gas Chromatography.

b) What are the ideal characteristics of detectors used in GC explain.

c) Discuss the applications of Super Critical Fluid Chromatography.

d) Write principle of Super Critical Fluid Extraction.

e) Write principle of Atomic Emission Spectroscopy.

f) Why derivatization is carried out in GC?

g) Write the theory of Atomic Emission Spectroscopy.

Q6) Write a note on any two of the following **[10]**

a) Quantitation by Gas Chromatography

b) Flame ionisaion and Electron capture detectors

c) Instrumentation and working of Super Critical Fluid Chromatography

d) Flash Chromatography

Total No. of Questions : 6]

SEAT No. :

P3177

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Final Year B. Pharmacy (Semester - VII)

MEDICINAL CHEMISTRY - III

(2013 Pattern)

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

Instructions to the candidates:

1) ***Attempt all questions.***
2) ***Figures to the right indicate full marks.***
3) ***Answers to the two sections should be written in separate books.***

SECTION - I

Q1) Outline the mechanism of action and give the classification with examples of NSAID's. Give an account including SAR of pyrazolidinedionesas analgesics. **[10]**

OR

Give the structural features of histamine receptor and discuss the structure modifications of H_2 receptor antagonists.

Q2) Solve any five questions (each question carries 3 marks) : **[15]**

a. Write a short note on Opioid antagonists.

b. Give the IUPAC name and sketch the scheme of synthesis of Diclofenac.

c. Give the SAR of prostaglandins.

d. Write a note on endogenous opioids.

e. Write a note on H_3 receptor agonists.

f. Classify opioid analgesics with examples.

g. Give the mechanism of action of opioid analgesics.

P.T.O

Q3) Write short note on any two (each question carries 5 marks) : **[10]**

a. Give the SAR of steroidal anti-inflammatory agents.

b. Give a short account of methadones and benzomorphans as analgesics.

c. Sketch the scheme of synthesis of Ibuprofen and Cetrizine.

d. Give SAR of meperidines as analgesics.

SECTION - II

Q4) Discuss various GIT disorders. Discuss in brief about drugs used for treatment of peptic ulcer. **[10]**

OR

Discuss in brief about drugs used for treatment of asthma .Add a note on anti-inflammatory steroids used for treatment of Asthma

Q5) Solve any five : **[15]**

a) Explain the Chemistry, SAR and MOA of Ondansetron.

b) Outline the synthesis of guaifensin

c) Discuss in brief about Xanthine derivatives used for asthama

d) Give the drugs used as laxatives with their MOA.

e) Give the Structure, MOA and therapeutic use of:

i) Salmeterol ii) Ambroxol

f) Write the SAR and MOA opoid antidiarrheals.

g) What are expectorants. Explain with examples and their MOA.

Q6) Write Short Notes on (Any Two) : **[10]**

a) Antispasmodic agents

b) Decongestants

c) Prokinetic drugs

d) Antitussive agents

Total No. of Questions : 6]

SEAT No. :

P3178

[Total No. of Pages : 2

[5245]-704

Fourth Year B. Pharmacy

PHARMACOLOGY - IV

(2013 Pattern) (Semester - VII)

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

Instructions to the candidates:

1) ***All question are compulsory.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***

SECTION - I

Q1) Classify Penicillins. Explain mode of action, therapeutic uses and adverse effects of Penicillin G. **[10]**

OR

Explain in detail mode of action, therapeutic uses, adverse effects and drug interactions of tetracyclines.

Q2) Solve any five : **[15]**

a) Explain mode of action of Erythromycin.

b) Why sulfonamides are not effective in presence of pus?

c) Explain mode of action and therapeutic uses of Chloroquine.

d) Discuss mode of action and adverse effects of Rifampicin.

e) Explain antimicrobial spectrum of fluroquinolones.

f) Explain mechanism of action of Cotrimoxazole.

g) Classify antiviral drugs.

P.T.O

Q3) Write short note on any two : **[10]**

a) Aminoglycosides

b) DOT therapy

c) Toxicity of anticancer agents

d) Antileprotic agents.

SECTION - II

Q4) Classify antianginal agents. Explain pharmacology of nitrates. **[10]**

OR

Classify diuretics with example. Explain in detail mode of action, pharmacological actions, therapeutic uses and adverse effects of potassium sparing diuretics

Q5) Solve any five : **[15]**

a) Discuss therapeutic uses of calcium channel blockers.

b) Write a note on Haemopoeitics.

c) Explain mode of action and therapeutic uses of Clonidine.

d) Discuss role of HMG-CoA reductase inhibitors in atherosclerosis.

e) Classify antiarrhythmic agents with examples.

f) Explain role Sodium nitroprusside in hypertensive crisis.

g) Explain mode of action and therapeutic uses of Digitalis glycosides.

Q6) Solve / Write short note on any two : **[10]**

a) Differentiate between Warfarin and Heparin.

b) ACE inhibitors.

c) Membrane stabilizing agents.

d) Role of reactive oxygen intermediates in various diseases.

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Total No. of Questions : 6]

SEAT No. :

P3179

[Total No. of Pages : 3

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Final Year B. Pharmacy (Semester - VII)

4.7.5 : NATURAL DRUG TECHNOLOGY

(2013 Pattern) (Theory)

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

Instructions to the candidates:

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

Q1) Explain Basic Concepts of 'Ayurveda'. Add a note on Diagnosis and Treatment in Ayurveda. **[10]**

OR

What are the Current Approaches of Herbal Drug Standardization? Describe the System Biology Approach.

Q2) Answer the following (Any Five) : **[15]**

a) Describe the Method of Preparation of Bhasma.

b) Why the Crude Drugs are required to be Protected from Moisture and Temperature?

c) Describe the Applications of DNA fingerprinting in Plant Identification.

d) Explain Panchmahabhuta Siddhanta.

e) Describe the factors responsible for Level of Plant metabolites.

f) Explain Principle of Homeopathy.

g) How crude drugs can be protected from Livestock?

P.T.O

Q3) Write a Note on (Any Two) : **[10]**

a) Siddha System of Medicine

b) Good Agriculture Practices

c) Arishta and Asava

d) Crude Drug Monograph

SECTION - II

Q4) What are Various Novel Drug Delivery Systems? Describe Phytosomes. **[10]**

OR

What is Significance of Dietary Supplements? Explain Pre and Probiotics.

Q5) Answer the following (Any Five) : **[15]**

a) Explain the Role of Turmeric in Skin Cosmetics

b) Describe Insect flower.

c) Describe the Significance of Omega -3- PUFA.

d) Describe the Importance of Essential Oils in Skin Permeation Enhancers.

e) Brief on Natural Products used in Wound Recovery.

f) Explain Spirulina as Dietary Supplement.

g) How Amla is useful in Herbal Cosmetics?

Q6) Write a Note on (Any Two) : **[10]**

a) Evaluation Methods of Hair Cosmetics.

b) Utility of Biofuels in day today life.

c) Methods of Pest Control.

d) Comment on Antioxidants.

Total No. of Questions : 6]

SEAT No. :

P3180

[Total No. of Pages : 3

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Final Year B. Pharmacy (Semester - VII)

BIOPHARMACEUTICS AND PHARMACOKINETICS

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) List various factors affecting absorption and explain in detail pharmaceutical factors affecting absorption of drug from GI tract. **[10]**

OR

List factors affecting biotransformation of drug. Discuss effect of physicochemical properties of drug on biotransformation of drug.

Q2) Answer the following (Any FIVE) : **[15]**

a) Absorption of drug via transdermal route

b) Effect of disease on absorption of drug from GI tract

c) First pass effect on drug absorption

d) Theories of dissolution of drug

e) Effect of presence of food on drug absorption from GI tract

f) BCS class II drugs

g) Active transport of drug

P.T.O

Q3) Write short Note on (Any Two) : **[10]**

a) Phase II reactions in biotransformation of drug

b) In-vitro-In-vivo correlation

c) Michaeles Menten equation

d) Non-renal clearance of drug

SECTION - II

Q4) What is Bioavailability and Bioequivalence and explain methods for assessing bioavailability study. **[10]**

OR

Explain ONE Compartmental open model for assessment of parameters by IV Infusion administration.

Q5) Answer the following (Any FIVE) : **[15]**

a) Add a note on methods for enhancing bioavailability

b) What is Balanced Incomplete Block design

c) Explain Single verses Multiple dose study

d) What are the advantages of urinary data over plasma data

e) What is method of residual

f) What is non compartmental analysis

g) Define and explain in short AUC

Q6) Write short Note on (Any TWO) : **[10]**

a) Biowaivers

b) Sigma minus method

c) Two compartmental analysis

d) Wash out period

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Total No. of Questions : 6]

SEAT No. :

P3181

[Total No. of Pages : 3

[5245]-707

Final Year B.Pharmacy (Semester - VII)

PHARMACEUTICAL JURISPRUDENCE

(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answers to the two sections should be written on separate answer books.***
3) ***Neat labelled diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) State the constitution & functions of Drug consultative committee (Dcc) & Drug Technical advisory board (DTAB) as per drugs & cosmetics Act 1940. **[10]**

OR

State the constitution & functions of various consumer protection councils as per consumer protection act 1986. **[15]**

Q2) Answer the following (any five) :

a) Explain "Education Regulations" under pharmacy act, 1948?

b) Give the objectives of food safety & standards Act, 2011

c) Differentiate between state pharmacy council & 'Joint. State pharmacy council.

d) Explain the formula to calculate the retail price of a formulation as per DPCO.

e) Define i) Schedule (m) ii) schedule - y

f) State the objectives of prevention of Cruelty to Animals Act, 1960

P.T.O

g) Define "advertisement" under Drugs & magic Remedies Act, 1954

Q3) Write short notes on (any two) : **[10]**

a) Prohibited class of advertisements as per Drugs & magic Remedies Act.

b) Procedure for taking samples of Drugs & cosmetics by drug inspector.

c) Controlled operations under narcotic drugs & psychotropic substances Act.

d) Qualifications and duties of Government Analyst under D & C Act

SECTION - II

Q4) What are the salient features of intellectual property? Explain various types of Intellectual property. **[10]**

OR

What is patent co-operation treaty? What are its advantages? Describe the process of filing a PCT application along with PCT timelines.

Q5) Answer the following (any five) : **[15]**

a) What are the criteria for obtaining patent in India?

b) What was the mail box provision in Indiat patent Act? When was this provision introduced?

c) Has India granted a compulsory licence to any drug so for? If yes, discuss the conditions under which the licence was granted.

d) What is the significance of the section 3 (d) of the Indian patent act to the pharmaceutical industry?

e) What is the difference between a convention patent application ordinary patent application & international patent application?

f) What is the priority date of a patent?

g) Who can file a patent in India? Where are the patent offices located in

India.

Q6) Write short notes on (any two) **[10]**

a) Grounds of patent opposition

b) Patent infringement

c) Patent certifications & orange book

d) TGA

Total No. of Questions : 6]

SEAT No. :

P3182

[Total No. of Pages : 3

[5245]- 801

Fourth Year B. Pharmacy (Semester - VIII)

4.8.1 : ADVANCED DRUG DELIVERY SYSTEM

(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answers to the two sections should be writen in separate answer books.***
3) ***Neat labeled diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Describe concept of modified drug release, Prerequisites of drug candidates, explain diffusion based controlled drug delivery system **[10]**

OR

Explain formulation development and evaluation of colon targeted drug delivery system in detail.

Q2) Answer the following (Any Five) : **[15]**

a) Give an account on intrauterine drug delivery system

b) What are prebiotics write applications of prebiotics

c) What are liposomes give its types

d) Write on dose calculation for controlled drug delivery system

e) Write on classification of polymers

f) What are current related factors in iontophoresis

g) Factors affecting sonophoretic drug delivery system

P.T.O

Q3) Write short note on (Any Two) : **[10]**

a) Ophthalmic inserts

b) Penetration enhancers

c) Mucosal drug delivery system

d) Parentral implants

SECTION - II

Q4) Describe pharmaceutical aerosols and type of Aerosol systems. **[10]**

OR

What is mean by Mechanical encapsulation of Microencapsulation? Explain Spheronization technique in detail.

Q5) Answer the following (Any Five) : **[15]**

a) Applications of Microencapsulation

b) Advantages and Disadvantages of Aerosols

c) Types of propellants used in Aerosols

d) Explain *in-situ* polymerization technique of Microencapsulation

e) What is the use of optimization technique in Pharmaceutical Industry

f) Describe fundamental concept of Microencapsulation

g) Enlist the Microencapsulation methods

Q6) Write Short note on (Any Two) : **[10]**

a) Explain two level factorial design

b) Explain fluidized bed coater method of Microencapsulation

c) Write on Manufacturing of Pharmaceutical Aerosols

d) Write on Foam system of Aerosols

Total No. of Questions : 6]

SEAT No. :

P3183

[Total No. of Pages : 3

[5245]- 802

Fourth Year B.Pharmacy (Semester - VIII)

4.8.2 : COSMETIC SCIENCE

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Define and classify cosmetics. Give detail account on anatomy, composition and functions of skin. **[10]**

OR

Write in detail about the various additives used in cosmetics.

Q2) Answer the following (Any Five) : **[15]**

a) Discuss formulation aspects of cleansing cream.

b) Discuss in brief about quality of water in cosmetic industry.

c) Discuss about the formulation of after shave lotion.

d) Discuss formulation aspects of moisturizing cream.

e) Write in brief about face packs.

f) Describe in brief about bath soaps.

g) Discuss about compact rouges

P.T.O

Q3) Write short note on (Any Two) : **[10]**

a) Microbial control in cosmetic manufacturing

b) Face powders

c) Anti ageing and anti wrinkle creams

d) Lipsticks

SECTION - II

Q4) What are eye makeup preparations? Explain in detail about eye mascara and eye shadow. **[10]**

OR

Discuss in detail about formulation development, manufacturing and evaluation of Shampoos.

Q5) Answer the following (Any Five) : **[15]**

a) Discuss the formulation aspects of depilatories.

b) Explain hair dyes as cosmetic products.

c) Discuss in brief about importance of hydroxyl acids as cosmeceuticals.

d) Discuss in brief about evaluation tests for manicure preparations.

e) Discuss the formulation aspect of eye liner.

f) Write about baby shampoos.

g) Discuss in detail about nail bleach.

Q6) Write Short note on (Any Two) : **[10]**

a) Tooth paste

b) Antioxidants as cosmeceuticals

c) Hair tonics

d) Nail lacquer

Total No. of Questions : 6]

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P3184

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Final Year B. Pharmacy (Semester - VIII)

PHARMACEUTICAL ANALYSIS - VI

(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat labeled diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) Answer the following (any one) **[10]**

What is chemical shift? Elaborate the factors affecting chemical shift.

OR

Discuss the principle involved in Proton NMR and the instrumentation of conventional 300 MHz NMR instrument.

Q2) Answer the following (Any Five) : **[15]**

a) Differentiate between acetone and acetaldehyde by ^{1}HNMR.

b) Relaxation mechanisms in proton NMR.

c) Discuss the peak area integration method in Proton NMR.

d) Internal standards in ^{1}H-NMR spectroscopy.

e) Significance of coupling constant 'J'.

f) How will you detect keto-enol conversion using proton NMR?

g) Rules governing multiplicity of ^{1}HNMR spectra.

P.T.O

Q3) Write short Note on (Any Two) : **[10]**

a) ESR

b) Shielding and Deshielding

c) Classify Ion Exchange Resin.

d) Capillary electrophoresis

SECTION - II

Q4) Answer the following (Any one) **[10]**

Elaborate different system suitability parameters with their respective formula.

OR

Explain principle of Mass spectroscopy. Discuss TOF and Quadrapole mass analyzers.

Q5) Answer the following (Any Five) : **[15]**

a) Internal standardization technique for quantification in column chromatography.

b) Draw neat and well labelled diagram of single focusing mass spectrometer

c) Define generation of metastable ion in field free region.

d) Resolution in mass spectroscopy

e) Isocratic Vs Gradient elution

f) Nitrogen rule in mass spectrometry

g) Discuss the advantages of UPLC over HPLC.

Q6) Write short Note on (Any Two) : **[10]**

a) Applications of HPLC

b) Fast Atom Bombardment (FAB) in mass spectrometry.

c) Chemical ionization in mass spectrometry.

d) Discuss principle of double focusing mass analyzer.

Total No. of Questions : 6]

SEAT No. :

P3185

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Final Year B. Pharmacy (Semester - VIII)

MEDICINAL CHEMISTRY - IV

(2013 Pattern)

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

Instructions to the candidates:

1) ***All question are compulsory.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Figures to the right indicate full marks.***

SECTION - I

Q1) What are Antiviral Agents ? Give chemical classification of Antiviral Agents with example.Discuss in brief about Purine Nucleotides and Nucleosides. **[10]**

OR

Classify antimalarials with suitable example. Write chemistry and SAR of amino quinolines.

Q2) Answer the following (Any Five) : **[15]**

a) Give the scheme of synthesis of Ciprofloxacin

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

c) Discuss Chemistry. SAR and MOA of benzimidazole anthelmintics, giving examples.

d) Give the scheme of synthesis of 5-F1Vcytosine.

e) Explain DHFR inhibitors as Chemotherapeutic agents.

f) Discuss NNRTIs as anti-HIV agents.

g) Give the scheme of synthesis of Albendazole.

P.T.O

Q3) Write short Note on (Any Two) : **[10]**

a) Antitubercular agents

b) Antiameobic agents

c) HIV protease inhibitors.

d) Neuramidase inhibitors.

SECTION - II

Q4) What are Antibiotics? Give chemical classification of Antibiotics. Discuss in brief about Macrolide Antibiotics. **[10]**

OR

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

Q5) Answer the following (Any five) : **[15]**

a) Give the scheme of synthesis of Methotrexate.

b) Give a brief account on Polyene antibiotics.

c) What are Antifertility agents?

d) Give the scheme of synthesis of Cephadroxil

e) Write a note on Oral Contraceptives.

f) Give Structure, IUPAC and Mode of action of Chloramphenicol.

g) Give the scheme of synthesis of Amoxycillin Trihydrate.

Q6) Write short note on (Any two) : **[10]**

a) SAR and MOA of Tetracyclines.

b) Antiestrogens.

c) Write chemistry, SAR and mode of action of aminoglycoside antibiotics.

d) Androgens.

Total No. of Questions : 6]

SEAT No. :

P3186

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Final Year B.Pharmacy (Semester - VIII)

PHARMACOLOGY - V (INCLUDING BIOSTATISTICS)

(2013 Pattern)

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

Instructions to the candidates:

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

SECTION - I

Q1) Classify drug Interaction. Explain in Brief drug interaction during absorption and distribution with suitable example. **[10]**

OR

Define pharmacorigilance. Write in brief about monitoring, detection and reporting of adverse drug reactions (ADR).

Q2) Solve any five : **[15]**

a) Justify the use of penicillin and proberecid as beneficial drug interaction.

b) Write the variables affecting drug abuse and misuse.

c) Explain the laboratery tests for liver dysfunction.

d) Discuss drug - food interaction with example

e) Explain the types of hypersensitivity reactions.

f) Write the applications of stem cell therapy.

g) Explian the effect of change in pH during drug excretion with example.

P.T.O

Q3) Write notes on (any two) **[10]**

a) Advantages and applications of TDM.

b) Pharmacodynamic drug interaction.

c) Drug Induced Diseases.

d) Carcinogenecity

SECTION - II

Q4) Explian clinical research. Write in brief about different phases of clinical trials. **[10]**

OR

Write the composition, objectives and process of pharmacy and therapeutic committee in hospital pharmacy.

Q5) Solve any five : **[15]**

a) Write about inclusion and exclusion criterion in subject selection.

b) Define cross over trial, control group and double blinded study.

c) Explain unit dose drug distribution system with its advantages.

d) Write about role and responsibilities of contract. Research organization (CRO)

e) Write the importance of data handling and record keeping in clinical trials.

f) Explain the role of hospital pharmacist in practice of rational drug therapy.

g) Ethical issues in nuremberg code.

Q6) Write short notes on (any 2) **[10]**

a) Drug development process

b) Hospital formulary.

c) Composition and process of - IRB

d) Principles of ICH GCP guidelines.

Total No. of Questions : 6]

SEAT No. :

P3187

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Final Year B. Pharmacy (Semester - VIII)

NATURAL PRODUCTS : COMMERCE, INDUSTRY & REGULATIONS

(2013 Pattern)

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

Instructions to the candidates:

1) *All question are compulsory.*
2) *Answers to the two sections should be written in separate answer books.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Figures to the right indicate full marks.*

SECTION - I

Q1) Solve any One : **[10]**

Explain the initiatives taken up by the Government of India to promote Export of herbal drugs and products. And a note on Major herbs and herbal extracts exported from India.

OR

List the Ayurvedic medicine suppliers of India and explain their products and market share.

Q2) Solve any Five: **[15]**

1. Add an exhaustive note on "National Medicinal Plant Board."
2. Give the significance of pharmacovigilance.
3. Give the procedure for registration of traditional medicinal products in India.
4. Leading manufacturers of herbal drugs.

P.T.O

5. List the documents need to be submitted for company registration.

6. Explain the advantages of using herbal medicines.

7. Add a brief note on potential spices exported from India.

Q3) Write notes on any Two : **[10]**

1. Note on Traditional medicinal products and domestic market.

2. Add a note on Biofuels its demand and supply in future market.

3. Give the general procedure for drug export registration to various countries.

4. Note on herbal cosmetics products.

SECTION - II

Q4) Solve any One : **[10]**

Explain the minimum regulatory requirement as per WHO Guide lines in context to safety and efficacy parameters for the registration of herbal drugs.

OR

Give reasons for toxicity in herbal medicine. And add a note on pharmacokinetics and pharmacodynamics in herbal drug toxicity.

Q5) Solve any Five : **[15]**

1. Define allergy and give examples of plants causing allergic reactions.

2. Define the terms Common Technical Document (CTD) and Electronic Common Technical Document (ECTD)

3. Give the structure of ICH steering committee and its sub groups.

4. Discuss few examples of herb drug interaction.

5. Discuss the different categories of TSM products as per WHO guidelines

6. Toxicity and drug interaction of Garlic.

7. Add a brief note on concepts on Quality by Design (QbD)

Q6) Write Notes on (any two) : **[10]**

1. Note on Quality Control (safety parameters) of herbal drugs.
2. Add a note on Good Laboratory Practices (GLP).
3. Define herbal drug interaction and explain toxicity and interaction of St. Johns Wart.
4. Explain how you will achieve quality, safety and efficacy of herbal medicine.

Total No. of Questions : 6]

SEAT No. :

P3188

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Final Year B. Pharmacy (Semester - VIII)

QUALITY ASSURANCE TECHNIQUES

(2013 Pattern)

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

Instructions to the candidates:

1) ***All question 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

Q1) Discuss the concept of QA and QC. Write the difference between QA and QC. **[10]**

OR

Explain prospective, concurrent, retrospective and revalidation.

Q2) Attempt any five of the following : **[15]**

a) Write significance of QBD.

b) Explain DQ.

c) Discuss sources of variation.

d) Write the advantages of VMP.

e) Discuss the importance of statistical quality control.

f) Explain stages of validation.

g) Discuss guidelines for cleaning method validation.

P.T.O

Q3) Write short notes on any two of the following : **[10]**

a) Validation of tray dryers

b) Quality control of finished products.

c) Quality Audits

d) PQ

SECTION - II

Q4) What is change control? Explain and design documents for change control.**[10]**

OR

Elaborate on master production and control records.

Q5) Attempt any five of the following. **[15]**

a) Explain requirement of qualification and experience of personnel in cGMP.

b) Explain Design, size and location for equipment.

c) Explain accelerated testing in stability testing of new drug.

d) Discuss about Principal area of manufacturing plant.

e) Elaborate on Handling of rejected material.

f) Explain Expiration dating.

g) Explain Sewage disposal in manufacturing plant.

Q6) Write short notes on any two of the following : **[10]**

a) Measure for controlling contamination in clean room

b) GMP issues for personnel

c) Management of rejected and recovered material in pharmaceutical processing

d) Reference standards

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