Total No. of Questions : 6]

SEAT No. : ____

PA-2605

[Total No. of Pages : 2

[5940]-51
B. Pharmacy
351 : INDUSTRIAL PHARMACY - I
(2015 Pattern) (Semester - V)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figure to the right indicate full marks.***
3) ***Draw neat and well labeled diagrams wherever necessary.***
4) ***Do not write anything on question paper except seat number.***

SECTION - I

Q1) **Solve any 1 :** **[10]**

a) Explain various excipients used in tablet manufacturing.

b) Explain need, mechanism & method of preparation for granules.

Q2) **Answer the following (Any Four) :** **[12]**

a) Discuss coprocessed excipients in detail.

b) Give schedule M requirements.

c) Explain Fluidized bed granulation process.

d) Discuss weight variation test for tablets.

e) Explain motteling defect in tablet manufacturing & remedies to over come them.

f) Discuss need of Dosage form Design.

g) Give role of lubricant & Glidant in tablet manufacturing.

Q3) **Write short note on (Any 2) :** **[8]**

a) Defects in tablet manufacturing.

b) Drug related factor for dosage form design.

c) Formulation of mouth dissolving tablet.

d) Concept of technology transfer & scale up.

P.T.O.

SECTION - II

Q4) **Solve any One :** **[10]**

a) Define Soft gelatin capsules. Summarize the various manufacturing process employed in production of Soft gelatin capsules.

b) Discuss in detail the causes and remedies of various defects in tablet coating.

Q5) **Answer the following (Any Four) :** **[12]**

a) What is objectives of tablet coating?

b) Give a note on base adsorption factor.

c) Give a note on size and volumes of hard gelatin capsules.

d) What is impact of bloom strength on capsule shell?

e) Discuss the various polymers used in enteric coating.

f) Diagrammatically explain the process of manufacture of gelatin.

g) Explain in brief the tablet coating process.

Q6) **Write short note on (Any Two) :** **[8]**

a) Perforated coating Pans.

b) Process of filling of hard gelatin capsules.

c) Packaging and storage of soft gelatin capsules.

d) Evaluation of capsules.

Total No. of Questions : 6]

SEAT No. :

PA-2606

[Total No. of Pages : 2

[5940] - 52

Third Year B. Pharmacy

352 : PHARMACEUTICAL ANALYSIS - III

(2015 Pattern) (Semester - V) (Theory)

Time : 3 Hours] *[Max. Marks : 60*

Instructions to the candidates:

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

SECTION-I

Q1) Explain theory of UV spectroscopy. Give instrumentation of UV-visible spectrophotometer. **[10]**

OR

Explain in detail single and multi component analysis methods. **[10]**

Q2) Attempt any four of following. **[12]**

a) What is line spectra?

b) What are various types of detectors in fluorimetry?

c) What is monochromator?

d) What is hyperchromic and hypochromic effect?

e) What are applications of flame photometry?

f) What is photometry?

g) What is simultaneous equation method?

Q3) Write note on any two of following. **[8]**

a) Optimum conditions required for spectrophotometric measurement.

b) Atomization in flame photometer.

c) Draw neat and labelled diagram for photo multiplier tube.

d) Instrumentation of flame photometer.

P.T.O.

SECTION-II

Q4) Explain in detail principle, instrumentation and application of atomic absorption. **[10]**

OR

Explain in detail principle, instrumentation and applications of flame photometry. **[10]**

Q5) Attempt any four of following. **[12]**

a) What is quenching?

b) What are factors affecting fluorescence?

c) What are applications of nephloturbidi metry?

d) What is synchronous fluorescence?

e) What is doppler effect?

f) What is line broadning?

g) What is molecular luminescence?

Q6) Write note on any two of following. **[8]**

a) Fluorescence quenching.

b) Inter ference and their corrections.

c) Nephloturbidi metry.

d) Atomic emission spectroscopy instrumentation.

✡ ✡ ✡

Total No. of Questions : 6]

SEAT No. :

PA-2607

[Total No. of Pages : 2

[5940]-53

T. Y. B.Pharmacy

353 : MEDICINAL CHEMISTRY - I

(2015 Pattern) (Semester - V)

Time : 3 Hours] *[Max. Marks : 60*

Instructions to the candidates :

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

SECTION - I

Q1) Explain the concept of partition coefficient, Protein binding and ionization of drug. Add a note on ADME of drugs. **[10]**

OR

What are adrenergic agonists. Give a detailed SAR for adrenergic agonists with help of suitable examples. Add a note on adrenergic receptor subtypes.

Q2) Attempt any four questions. Each question carries 3 marks. **[12]**

a) Outline the importance of solubility in drug action

b) Define bioisosterism with suitable examples

c) Classify antiadreneric drugs with examples

d) Discuss forces involved in drug receptor interaction

e) Draw a schematic rout for synthesis of Prazosin

f) Explain signal transduction in drug-receptor mechanism

g) Discuss the stereochemistry of acetylcholine.

P.T.O.

Q3) Solve any two questions. Each question carried 4 marks. **[8]**

a) Write a note on acetylcholinesterase inhibitors

b) Explain biosynthesis and metabolism of noradrenaline

c) Write the structure and uses of carbonic anhydrase inhibitors

d) Draw a schematic rout for synthesis of Atenolol

SECTION - II

Q4) What do you mean by cholinomimetics? Discuss in detail the SAR for cholinomimetics. **[10]**

OR

Classify anti-hypertensive agents with examples. Write about Calcium Channel Blockers. Give SAR of 1, 4-dihydropyridines.

Q5) Attempt any four questions. Each question carries 3 marks. **[12]**

a) Explain Fibrates as antihyperlipidemic agents.

b) Outline the classification of anti-arrythmic agents.

c) Write the steps involved in synthesis of clofibrate.

d) What are statins? Discuss any one such drug in detail.

e) Explain Loop Diuretics with examples.

f) Discuss Nitrates as anti-anginal agents.

g) Draw any two structures of cardiotonic drugs.

Q6) Solve any two questions. Each question carried 4 marks. **[8]**

a) Discuss ACE inhibitors with structures & chemistry.

b) Write a note on Angiotensin-II receptor antagonists

c) Write a note on high ceiling diuretics.

d) Write a note on Blood Brain Barrier

Total No. of Questions :06]

SEAT No. :

PA-52

[Total No. of Pages :2

[5940]-54
Third Year B. Pharmacy
PHARMACOLOGY-II
(2015 Pattern) (Semester-V) (354T)

Time : 3 Hours] *[Max. Marks : 60*

Instructions to the candidates:

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

SECTION-I

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

a) Classify symphathomimetic drugs and discuss biosynthesis mechanism of action, pharmacological actions and therapeutic uses of catecholamines.

OR

b) Classify Parasympathomimetic drug. Discuss the mechanism of action,pharmacological actions, adverse drug reactions, therapeutic uses of atropine.

Q2) Attempt any four of the following **[12]**

a) Why is adrenaline used as anaphylactic shock.
b) How Myasthenia crisis and cholinergic crisis differentiated.
c) Explain mechanism of action of ganglionic blocker.
d) Explain atropine as pre-anisthetic agent.
e) Classify skeletal muscle relaxant with suitable examples.
f) Explain biosynthesis and degradation of acetylcholine.
g) Give muscarinic receptor subtypes with their locations.

Q3) Attempt any two of the following. **[8]**

a) Describe pharmacotherapy of myasthenia gravis
b) Pharmacotherapy of glaucoma.
c) Write a note anticholinesterase.
d) Write a note on treatment of organophosphate poisoning.

P.T.O.

SECTION-II

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

a) Classify antihyper tensive agents. Write pharmacology of calcium channel Blockers.

OR

b) Classify bronchodilator drugs. Explain pharmacotherapy of Bronchial asthma.

Q5) Attempt any four of the following. **[12]**

a) Explain mechanism of action of Vasopressin
b) Write the treatment of cough
c) Write the mechanism of action of beta blockers in cardiac arrhythmia
d) Explain the role of salbutamol in treatment of status asthmatics
e) Explain mechanism of action and adverse effects of clonidine
f) Justify the role of cardiac glycosides in treatment of CCF.
g) Classify anti-arrhythmic agents with suitable examples.

Q6) Attempt any two of the following. **[8]**

a) Write a note on Spironolactone
b) Write a detailed note on digitalis toxicity
c) Describe the therapeutic utility as vasodilator in angina pectoris
d) Define astherosclerosis. Give in brief management of astherosclerosis

Total No. of Questions : 6]

SEAT No. :

PA-53

[Total No. of Pages : 2

[5940]-55
T.Y. B.Pharmacy
ANALYTICAL PHARMACOGNOSY AND EXTRACTION TECHNOLOGY
(2015 Pattern) (Semester - V)

Time : 3 Hours] *[Max. Marks : 60*

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

Solve any one of the following : **[10]**

Q1) Explain principle, working, merits, demerits and applications of supercritical fluid extraction.

OR

Explain the principle and application of HPLC Differentiate between HPLC and HPTLC.

Q2) Attempt any four of the following : **[12]**

a) Explain Soxhlet apparatus.

b) Write source, properties, isolation and tests of citral.

c) Add a note on ash value.

d) Explain determination of foaming index.

e) What is enfleurage method? Explain with reference to isolation of Rose oil.

f) Ellaborate on Froth flotation technique.

g) Write source and structure of

i) Curcumin

ii) Strychnine

P.T.O.

Q3) Write short note on (any 2) : **[8]**

a) Paper chromatography

b) Proximate Phytochemical Analysis

c) Steam distillation of Peppermint oil.

d) Fractional distillation.

SECTION - II

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

a) Explain DNA finger printing as current method of standardization.

OR

b) Explain principle, procedure of determination of moisture content and swelling index.

Q5) Attempt any four of the following : **[12]**

a) Explain-haemolytic activity.

b) Add a note on pesticide residue.

c) Write about the difficulty encountered in herbal drug standardization.

d) Explain the quality control parameters of aflatoxin contamination.

e) Write about the principle and application of TLC.

f) Elaborate on microwave assistate extraction.

g) Write source and structure of

i) Atropine

ii) Diosgenin

Q6) Write note on any two : **[8]**

a) Podophyllotoxin

b) Bitterness value

c) Good laboratory practices

d) Principle and procedure of sampling

Total No. of Questions : 6]

SEAT No. : [ ]

PA-54

[Total No. of Pages : 2

[5940]-56

Third Year B. Pharmacy

356 : PHARMACEUTICAL BUSINESS MANAGEMENT & DISASTER MANAGEMENT

(2015 Pattern) (Semester-V)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Use of non-programmable calculator is allowed.***
3) ***Assume suitable data if necessary.***
4) ***Figures to the right indicate full marks.***

SECTION-I

Q1) Define decision making? Give its process, types along with importance in Pharmaceutical industry. **[10]**

OR

Give detail account of purchasing along with EOQ & ABC methods.

Q2) Answer any four (Each 03 Marks). **[12]**

a) Explain line and staff organization in QC department.

b) Describe functions and responsibilities of manager.

c) Differentiates between marketing and selling.

d) Suggest various types of planning.

e) What do you mean by management audit.

f) Explain various channels of distribution.

g) Define objective. Give importance of objective.

Q3) Write short note on any two (Each 04 marks). **[8]**

a) Role of drug store & hospitals in patient care management.

b) Budgetary control.

c) Departmentalization.

d) PERT & CPM technique.

P.T.O.

SECTION-II

Q4) "Sale forcasting is important tool". Justify. **[10]**

OR

Explain in details about different techniques of sales promotion.

Q5) Answer any four (Each 03 Marks). **[12]**

a) Concept of Maslow's theory.

b) Give importance and functions of communication.

c) Give details about managerial grid.

d) Explain Reinforcement theory.

e) Describe various methods of advertising.

f) Define price. What are the different factors affecting on price.

g) Explain disaster mitigation strategies.

Q6) Write short note on any two (Each 04 marks). **[8]**

a) PLC with example.

b) Inventory control.

c) Excellent in customer service.

d) The disaster management cycle.

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Total No. of Questions : 6]

SEAT No. :

PA-55

[Total No. of Pages : 2

[5940]-57
T.Y. B.Pharmacy
357 : ACTIVE PHARMACEUTICAL INGREDIENT TECHNOLOGY
(2015 Pattern) (Semester - V)

Time : 3 Hours] *[Max. Marks : 60*

Instructions to the candidates:

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

SECTION - I

Q1) Define nitration. Discuss various nitrating agents. Describe the manufacture of any one active pharmaceutical ingredient by nitration process. **[10]**

OR

What is sulphonation. Describe and enlist sulphating agents. Give Details of any one API manufactured by sulphonation.

Q2) Answer the following (Any 4) : **[12]**

a) Explain hydrolysis with suitable example.

b) Explain flow chart for synthesis of metformin.

c) Enlist the factors affecting chemical processes. Explain any 2 in detail.

d) What is esterification? Explain types of esterification.

e) Define active pharmaceutical ingredient. Bulk drug & fine chemical with e.g.

f) Write about flow chart of amoxicillin trihydrate.

g) What is continuous process in API manufacturing.

P.T.O.

Q3) Write short note on (Any 2) : **[8]**

a) Manufacturing process of API esterification.

b) Reactors used in API industry.

c) Manufacturing method and flow chart for synthesis of Ranitidine.

d) Oxidation as unit process.

SECTION - II

Q4) Explain types of health hazards in API manufacturing unit and their prevention using green chemistry approaches. **[10]**

OR

What is asymmetric synthesis? Give various approaches of asymmetric synthesis.

Q5) Answer the following (Any 4) : **[12]**

a) Discuss selection of reagents in process of API synthesis

b) Discuss any two process variables in API manufacturing.

c) Enlist tools for purification and products isolation. Discuss any one.

d) Describe types of safety hazards in API manufacturing.

e) Discuss equipment in API manufacturing.

f) Define polymorphism and reaction mixture.

g) Give asymmetric synthesis of (s) propranolol.

Q6) Write short note on (Any 2) : **[8]**

a) What is MSDS? Describe its contents.

b) IPCs in API manufacturing.

c) Explain steps involved in implementation of efficient cost effective scale up.

d) Strategies for route selection in API manufacturing.

□□□

Total No. of Questions : 6]

SEAT No. :

PA-56

[Total No. of Pages : 2

[5940]-61
T.Y. B.Pharmacy
3.6.1 (T) : INDUSTRIAL PHARMACY - II
(2015 Pattern) (Semester - VI)

Time : 3 Hours] *[Max. Marks : 60*

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) Solve any one : **[1 × 10 = 10]**

a) Explain formulation of flocculated suspension based on DLVO theory. Define and differentiate between flocculated and deflocculated suspensions.

b) Give an account of excipients used in emulsion manufacture.

Q2) Answer the following (Any four) : **[4 × 3 = 12]**

a) Signify phase inversion temperature.

b) Give classification of dispersions.

c) Define cloud point and give its significance in emulsion formulation.

d) Differentiate between floccule and cake.

e) Write a note on deflocculated suspension.

f) Explain sedimentation volume for suspension.

g) Discuss role of globule diameter in stability of suspension.

P.T.O.

Q3) Write short note on (Any two) : **[2 × 4 = 8]**

a) Factors determining emulsion type.

b) Stress conditions used to test stability of suspensions.

c) Mechanism of controlled flocculation in structured vehicle.

d) Draw layout for manufacture of suspension with workstation listing.

SECTION - II

Q4) Solve any one : **[1 × 10 = 10]**

a) Discuss evaluation parameters for ointment, paste, gel & cream.

b) Describe anatomy & physiology of skin in relation to percutaneous absorption. Explain mechanism of percutaneous absorption and factors affecting onit.

Q5) Answer the following (Any four) : **[4 × 3 = 12]**

a) Describe concept of scale up and technology transfer for dispersed system.

b) Discuss formulation and manufacturing of cream.

c) Discuss layout of manufacturing facility for semisolids as per schedule M.

d) Enlist and explain criteria for selection of equipment for manufacturing of semisolids.

e) Discuss applications of gel.

f) Describe any two manufacturing equipment for suspension.

g) Describe any two bases used in preparation of pastes.

Q6) Write short note on (Any two) : **[2 × 4 = 8]**

a) Ointment bases with examples

b) Classification of gelling agents with examples

c) Penetration enhancers

d) HET cam Test

□□□

Total No. of Questions : 6]

SEAT No. : ____

PA-57

[Total No. of Pages : 2

[5940]-62

Third Year B. Pharmacy

362 : PHARMACEUTICAL ANALYSIS - IV

(2015 Pattern) (Semester - VI)

Time : 3 Hours] ***[Max. Marks : 60***

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 principle. Classification. Instrumentation and various types of developments of Electrophoresis. **[10]**

OR

Write theory of paper chromatography. Discuss various stationary phase used in it. Explain the different types of paper chromatography.

Q2) Attempt any four of the following. **[12]**

a) Explain principle of TLC.

b) Explain Resolution and Capacity factor.

c) Discuss the applications of HPTLC.

d) Discuss the pharmaceutical applications of paper chromatography.

e) What are column packing techniques?

f) Explain the factors influencing HPTLC Separation.

g) Discuss efficiency of column.

Q3) Write a note on any two of the following. **[8]**

a) Rate and plate theory of chromatography.

b) Advantages and disadvantages of HPTLC.

c) Partition paper Chromatography.

d) Solvents selection for planer chromatography.

P.T.O.

SECTION-II

Q4) Discuss the principle and instrumentation of TGA. **[10]**

OR

Describe in brief different techniques of measurement of Radioactivity.

Q5) Attempt any four of the following. **[12]**

a) What are the factors affecting DTA results?

b) What are the analytical method validation parameters?

c) How to determine precision.

d) Application of X-ray diffraction method.

e) Write about powder method in X-ray diffraction method.

f) Tagging of compound.

g) How to determine LOD and LOQ?

Q6) Write a note on any two of the following. **[8]**

a) Characteristic of Thermobalance of TGA.

b) Instrumentation for DSC.

c) Analytical Method validation as per USP guideline.

d) Applications of radiochemical methods.

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Total No. of Questions :

SEAT No. :

PA-58

[Total No. of Pages : 2

[5940]-63
T.Y. B.Pharmacy
363 : MEDICINAL CHEMISTRY - II
(2015 Pattern) (Semester - VI)

Time : 3 Hours] *[Max. Marks : 60*

Instructions to the candidates:

1) ***All questions are compulsory, Internal choices are given.***
2) ***Figures to the right indicate full marks.***
3) ***Draw neat diagram and structures wherever necessary.***

SECTION - I

Q1) Define and classify anticonvulsant agent. Discuss chemistry, SAR and MOA of barbiturates. **[10]**

OR

Discuss Phase - I and Phase - II drug metabolism with suitable examples.

Q2) Answer any FOUR : **[12]**

a) Define and classify local anesthetic
b) Outline the synthesis of phenytoin
c) Define and classify general anesthetics with suitable examples.
d) Draw synthesis of diazepam.
e) Define and classify sedatives and hypnotics with suitable examples.
f) Discuss inhalation type of general anesthetics.
g) Write IUPAC name and structure of procain and sodium valproate.

Q3) Answer any TWO : **[8]**

a) Explain SAR and MOA of benzodiazepines.
b) Write a note on succinimide class of anticonvulsant agent.
c) Discuss ester-based local anesthetic agents.
d) Discuss applications of drug metabolism studies in new drug discovery.

P.T.O.

SECTION - II

Q4) Discuss chemistry, SAR and MOA of phenothiazines antipsychotics. **[10]**

OR

What are CNS stimulants? Classify them with suitable examples, Add a note on methylxanthines class of CNS stimulants.

Q5) Answer any Four : **[12]**

a) Define and classify antidepressant agents with suitable examples.

b) Define and classify antipsychotics agents with suitable examples.

c) Discuss chemistry and MOA of butyrophenones class of antipsychotics.

d) Outline the synthesis of chlorpromazine.

e) Outline the synthesis of Warfarin.

f) Give the structure, IUPAC name of carbamazepine and metformin.

g) Explain chemistry and MOA of peripheral dopa decarboxylase inhibitors.

Q6) Write note on any TWO : **[8]**

a) Anticoagulants agents

b) MAO inhibitors

c) Selective serotonin reuptake inhibitors (SSRIs).

d) Drugs used in the treatment of Alzheimer's disease.

Total No. of Questions :6]

SEAT No. :

PA-59

[Total No. of Pages :2

[5940]-64
Third Year B. Pharmacy
PHARMACOLOGY-III
(2015 Pattern) (Semester-VI) (364T)

Time : 3 Hours] *[Max. Marks : 60*

Instructions to the candidates:

1) ***All questions are compulsory.***

2) ***Figures to the right indicate full marks.***

SECTION-I

Q1) Classify antipsychotic drugs. Explain the Mechanism of Action, Pharmacological Action, Adverse effect and therapeutic uses of chlorpromazine. **[10]**

OR

Classify benzodiazepines. Discuss Mechanism of Action. Pharmacological Action, Adverse effect and therapeutic uses of diazepam. **[10]**

Q2) Answer the following (Any Four) **[12]**

a) Give detail Pharmacological Action of ethanol.

b) Classify General Anesthetics.

c) Write down Pharmacotherapy of Alzeimer.

d) Give techniques of administration of local Anesthetics.

e) Classify anti anxiety drugs.

f) Explain needed cyclic analogue of or treatment of Epilepsy.

g) Define the following .

i) General Anesthetics

ii) Sedatives

iii) Hypnotics

Q3) Write a short note on. (Any two) **[8]**

a) Drug used in treatment of Mania.

b) Pharmacotherapy of Parkinson Disease.

c) Treatment of Alcohol Dependence.

d) Antidepressant drugs.

P.T.O.

SECTION-II

Q4) What is the Mechanism of Action, the Pharmacological Actions, Adverse effect and therapeutic uses of Ranitidine. **[10]**

OR

Calssify antiemetic drug. Explain Pharmacology of 5HT3 Antagonist and Prokinetic drugs. **[10]**

Q5) Answer the following (Any four) **[12]**

a) Write the note on acute inflammation (NSAID)

b) Classify drugs used in the treatment of Peptic ulcer

c) Write the note on Pharmacotherapy of Asthma

d) Explain Pharmacological details of Proton pump Inhibitors.

e) Pharmacotherapy of Rheumatoid Arthritis.

f) Write MoA and Adverse effect of Morphine.

g) Pharmacotherapy of Constipation.

Q6) Write a note on (Any two) **[8]**

a) Emetics

b) Barbiturate poisoning

c) Pharmacotherapy of Diarrhea

d) Pharmacotherapy of COPD.

Total No. of Questions : 6]

SEAT No. : ____

PA-60

[Total No. of Pages :2

[5940] - 65
Third Year B. Pharmacy
365 : NATURAL PRODUCT CHEMISTRY
(2015 Pattern) (Semester - VI)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates :

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

SECTION - I

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

a) Define trace technique. Describe steps involved in tracer technique.

b) Write the classification of natural sweetners with examples. Describe liquonce as sweetner.

Q2) Attempt any four of the following: **[12]**

a) Explain gelatin as natural polymer.

b) Explain in detail about Stevia.

c) Write a note on receptor binding properties.

d) Explain isolated organ, tissue & cells for biosynthetic study.

e) Define dye. Write chemical classification of dyes

f) Explain the role of Annatto.

g) Write a note on natural polymers.

P.T.O.

Q3) Write a note on (any two): **[8]**

a) Anticancer agents from marine source.

b) Contribution of natural products in New Drug Discovery.

c) Cardiovascular active agents from marine source.

d) Grafts and mutant strains for biosynthetic studies.

SECTION - II

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

a) Classify herbal dietary supplements. Discuss in detail Garlic and spirullina as herbal supplement.

b) What are plant pesticides? Write a note on pyrethrum in detail.

Q5) Attempt any four of the following: **[12]**

a) What are methods of pest control?

b) What is the significance of biofuel in national economy?

c) Give the importance of digestive enzymes.

d) Comment on inorganic mineral supplements.

e) Brief on natural products used in wound recovery.

f) What is the role of curcuma longa in Radiation protection.

g) Explain Rotenone as natural pesticides.

Q6) Attempt any two : **[8]**

a) Comment on natural products used as skin permeation enhancers

b) Give significance of Turmeric & Garlic in dietary supplement.

c) Write a note on prebiotics & probiotics.

d) Give a role of Omega - 3 fatty acids & Proanthocyanidins as herbal dietary supplements.

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Total No. of Questions : 6]

SEAT No. :

PA-2608

[Total No. of Pages : 2

[5940]-66

T.Y. B.Pharmacy

366 : Bioorganic Chemistry and Drug Design

(2015 Pattern) (Semester - VI)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates:

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

SECTION - I

Q1) Explain physiological role of cyclooxygenase 1 and 2 and its relevance in drug design. Comment on their inhibitors. **[10]**

OR

What is molecular recognition? Explain the process of molecular recognition emphasizing the interactions involved in molecular recognition.

Q2) Attempt any four of the following : **[12]**

a) Explain biochemical role of DOPA carboxylase and its relevance in drug design.

b) Write note on molecular recognition.

c) Write a note on DHA strand breaking.

d) Explain the structure of GABA a receptor.

e) Write a note on targets in protein synthesis.

f) Explain the term proximity effect.

g) Write a note on antisense therapy.

P.T.O.

Q3) Attempt any two of the following : **[8]**

a) Explain the physiological role of MAO. Give detailed note on its inhibitors.

b) Explain the structure of acetyl cholinesterase enzymes. Add a note on anticholinesterase drugs.

c) Write a note on DMA and RMA as drug target. Explain mechanism of intercalation.

d) Explain the structure and add note on tyrosine kinase inhibitors.

SECTION - II

Q4) Explain lead discovery and methods of lead optimizations. **[10]**

OR

How molecular modelling is useful in new drug discovery and development.

Q5) Attempt any four of the following : **[12]**

a) Write a note on 2D - QSAR.

b) Give names of Quantum mechanical calculation methods. Explain any one in detail.

c) Explain pharmacophore modelling.

d) Explain Hansch Analysis.

e) Write about programs used in molecular docking.

f) Give applications of prodrug.

g) Write about COMFA.

Q6) Attempt any two of the following : **[8]**

a) Write the physicochemical parameters in QSAR.

b) Explain carrier linked prodrug.

c) Compare the traditional approaches of drug design with rational approaches. Give the advantages of QSAR.

d) Write about success stories of SBDD.

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Total No. of Questions : 6]

SEAT No. : ____

PA-61

[Total No. of Pages :2

[5940] - 67
Third Year B. Pharmacy
367 : PHARMACEUTICAL BIOTECHNOLOGY
(2015 Pattern) (Semester - VI)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates :

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

SECTION - I

Q1) Define cloning vector. Enlist different types of cloning vectors and explain expression vector in detail. **[10]**

OR

Discuss different methods of gene transfer in detail.

Q2) Answer the following: (Any 4) **[12]**

a) What is RFLP?

b) Explain applications of different enzymes used in r- DNA technology.

c) Explain genomic DNA library in short.

d) Explain the principle of gel electrophoresis.

e) Give an account of host system in genetic engineering.

f) Write in short importance of Biotechnology in field of pharmacy.

g) Explain site directed mutagenesis.

P.T.O.

Q3) Write short notes on: (any 2) **[8]**

a) Southern blotting.

b) DNA fingerprinting and its importance.

c) Ti plasmid.

d) Gene sequencing.

SECTION - II

Q4) Define fermentation. Discuss in detail down stream processing. **[10]**

OR

What do you mean by hybridoma technology? Discuss in detail production and applications of monoclonal antibodies.

Q5) Answer the following: (Any 4) **[12]**

a) Explain in detail production of interferon by r - DNA technology.

b) Define and classify different types of fermenters.

c) Write a note on germ plasm storage.

d) Explain enzyme immobilization by entrapment.

e) Explain in short production of any one vitamin.

f) Draw structural aspects of typical fermenter.

g) What is cryopreservation?

Q6) Write short notes on: (Any 2) **[8]**

a) Production of Insulin by r - DNA.

b) Transgenic animals.

c) Applications of enzyme immobilization.

d) Human gene therapy.

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Total No. of Questions : 6]

SEAT No. : ____

PA-62

[Total No. of Pages : 2

[5940] - 71

Fourth Year B. Pharmacy
471 : STERILE PRODUCTS
(2015 Pattern) (Semester - VII)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer book.***
2) ***Draw a neat labelled diagram wherever necessary.***
3) ***Figures to the right indicate full marks.***

SECTION-I

Q1) Explain in detail about various air class zones in sterile parenteral manufacturing facility. Write about positive pressure and air lock system. **[10]**

OR

Explain in detail types of vehicles, selection of vehicles and additives used in the formulation of small volume parenterals (SVPs).

Q2) Answer the following (Any Four). **[12]**

a) Describe advantages, disadvantages and applications of sterile parenteral.

b) Discuss blow fill seal technique.

c) Give the principle of working of HEPA and laminas flow.

d) Explain in brief tonicity adjustments in parenterals.

e) What is bacteriostatic WFI and how it is prepared.

f) Explain in brief about various routes of parenteral administration.

g) Describe factors for deciding the types of container and closure system for sterile parenteral products.

Q3) Write notes on (Any Two). **[8]**

a) Water attack test.

b) Quality control tests for SVPs.

c) Antioxidants in parenterals.

d) HVAC.

P.T.O.

SECTION-II

Q4) Explain in detail different steps involved in freeze drying process. Add a note on application of freeze drying. **[10]**

OR

Explain general requirement and formulation development of ophthalmic products.

Q5) Answer the following (Any four). **[12]**

a) Differentiate between LUPs and SVPs.

b) Define and classify ophthalmic products.

c) Explain in short about surgical gauzes.

d) Write about advantages and uses of infusion set.

e) Write about the application of contact lens.

f) Explain different types of sutures and ligatures.

g) Write the uses of TPN.

Q6) Write note on (any two). **[8]**

a) Plasma volume expanders.

b) Quality control testing of sutures and ligatures.

c) Formulation of LVPs.

d) Syringes.

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Total No. of Questions : 6]

SEAT No. : ____

PA-63

[Total No. of Pages :2

[5940] - 72
Final Year B. Pharmacy
472 : PHARMACEUTICAL ANALYSIS - V
(2015 Pattern) (Semester - VII)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates :

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

SECTION - I

Q1) Write characteristics of ideal detector. Give a detailed account on detector used in HPLC. **[10]**

OR

Explain the principle, instrumentation and advantages of flash chromatography.

Q2) Attempt any four of the following. **[12]**

a) Describe the conditions for absorption of IR region.

b) Distinguish between the Phenol & Benzaldehyde by IR spectroscopy.

c) Draw a neat labelled diagram of FID & ECD.

d) Explain IR spectral features of Alcohol & Ether.

e) Discuss the interferometer & its working.

f) Define Fermi resonance & overtone.

g) What are the problems associated to HPLC peak shapes. and how will you resolve it.

P.T.O.

Q3) Write a note on any two of the following. **[8]**

a) Different attachment used in recording FIIR.

b) Important spectral regions of IR.

c) Explain the type of column and packings of column in HPLC.

d) Quantitation techniques in HPLC.

SECTION - II

Q4) Explain the principle, instrumentation and advantages of SFC. **[10]**

OR

Discuss principle, instrumentation and application of NIR.

Q5) Attempt any four of the following. **[12]**

a) Write the advantages & disadvantages of TEM.

b) Describe the theory and principle of Via, chromatography.

c) Define Critical temperature, Critical Pressure & Critical Point.

d) Write down the difference between Isocratic and gradient type eletion.

e) Distinguish between Raman and IR. Spectroscopy.

f) Explain displacement pump with its advantages and disadvantages.

g) What is automation and automated devices?

Q6) Write a note on any two of the following. **[8]**

a) Rate theory and plate theory of HPLC.

b) Classification of HPLC.

c) UPLC.

d) Principle of NIR.

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Total No. of Questions : 6]

SEAT No. : ____

PA-64

[Total No. of Pages : 2

[5940]-73

Fourth Year B. (Pharmacy)

473 : Medicinal Chemistry-III

(2015 Pattern) (Semester - VII)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates:

1) ***Answer to the Two section should be in separate answer books.***
2) ***Neat diagram should be drawn wherever necessary***
3) ***Figures to the right indicate full marks.***

SECTION-I

Q1) Solve any one of the following. **[1×10=10]**

a) Classify Betalactam antibiotics. Discuss the SAR, MoA and uses of cephalosporin derivatives with examples.

OR

b) Define cancer and metastasis. Discuss various antimetaboletes used in cancer treatment.

Q2) Answer any four of the following. **[4×3=12]**

a) Justify 'Amoxycillin is brood spectrum antibiotics as compared to Pen G'

b) Give the cell cycle for cancer cell and classify cell cycle dependent anticancer drugs.

c) Write in brief MoA of polypeptide antibiotics.

d) Outline the synthesis of melphalan and give its MoA.

e) Give the SAR, MoA of Aminoglycosicle antibiotic in brief.

f) Give the chemistry of Lincomycin antibiotics C̄ MoA.

g) Outline the synthesis of amoxycillien

Q3) Solve any two of the following. **[2×4=8]**

a) Purine analogs.

b) Macrolide antibiotics.

c) Beta lactamax Inhibitors

d) Tetracyclanes

P.T.O.

SECTION-II

Q4) Classify synthetic antibacterial agents with examples; Explain chemistry, SAR & mode of action for quinolones; outline the synthesis of ciprofloxacin. **[10]**

OR

Classify antiviral agents with examples; Explain SAR & mode of action for reverse transcriptase inhibitors; outline the synthesis of sequi navir.

Q5) Solve any four **[4×3=12]**

a) Give SAR of 4-aminoquinolines as antimalarial agents.

b) Classify antitubercular agents; Give SAR of ethambutol.

c) Write in brief about Anthelmintic drugs.

d) Outline the synthesis of Albendazole.

e) Give structure, MoA & therapeutic use of-
   i) Halofontrine
   ii) Amodiaquine

f) Write a in short about antileprotics.

g) Give the role of pKa in the development of Sufonamides.

Q6) Write a short notes on. **[4×2=8]**

a) Antifungal agents.

b) Dihydrofolate reductase inhibitors.

c) Treatment of Trypanosomiasis.

d) Antiamoebic agents.

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Total No. of Questions : 6]

SEAT No. :

PA-65

[Total No. of Pages :2

[5940] - 74
Final Year B. Pharm.
(4.7. 4T) PHARMACOLOGY - IV
(2015 Pattern) (Semester - VII)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates :

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

SECTION - I

Q1) Classify penicillin antibiotics and explain mode of action antibacterial spectrum, mechanism of bacterial resistance adverse effects and clinical uses of extended spectrum penicillin. **[10]**

OR

Classify anti - neoplastic agents with example. Explain in detail mode of action, Therapeutic uses and adverse effects of alkylating agents.

Q2) Solve any four : **[12]**

a) Justify rationale of fixed dose drug combination of amoxicillin and β-lactomose inhibitors.

b) Classify sulfonamide antibiotics and give it's mechanism of action.

c) Justify the ineffectiveness of penicillin in the treatment of tuberculosis.

d) Explain mechanism of action & Therapeutic uses of erythromycin.

e) Classify anti - viral agents.

f) Explain mechanism of action and therapeutic uses of Albendazole.

g) Explain mechanism of action and clinical uses of streptomycin.

P.T.O.

Q3) Solve any two : **[8]**

a) Explain mechanism of action, adverse effects & therapeutic uses of Metronidazole.

b) Write a note on DOTS Therapy.

c) Discuss mode of action, adverse effects & Therapeutic uses of tetracycline.

d) Discuss in brief Pharmacotherapy of Malaria.

SECTION - II

Q4) Classify oral hypoglycemic agents and explain pharmacology of sulfonylureas. **[10]**

OR

Discuss in detail pharmacology of glucocorticoids.

Q5) Solve any four : **[12]**

a) Explain mechanism of action of mineralocorticoids.

b) Discuss diabetic complications.

c) Describe types of insulin preparations.

d) Explain therapeutic uses of growth hormone.

e) Discuss in brief about corticosteroid antagonist.

f) Enlist anti - thyroid drugs and give it's clinical uses.

g) Write a note on androgens.

Q6) Solve any two : **[8]**

a) Write a note on oral contraceptives.

b) Explain mechanism of action & therapeutic uses of uterine stimulants.

c) Discuss pharmacological actions of insulin.

d) Explain biosynthesis, storage, release & metabolism of Thyroid hormone.

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Total No. of Questions : 6]

SEAT No. :

PA-1158

[Total No. of Pages : 2

[5940]-75

Final Year B.Pharmacy

475 : NATURAL DRUG TECHNOLOGY

(2015 Pattern) (Semester - VII)

Time : 3 Hours] *[Max. Marks : 60*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***

SECTION - I

Q1) Explain Panchmahabhuta, Tridosha, dhatu and diagnosis methods of Ayurvedic system of medicine. **[10]**

OR

Write note on different types of plant tissue culture. **[10]**

Q2) Answer the following (Any Four) **[12]**

a) Describe in brief primary factors affecting deterioration of crude drugs
b) Write evaluation parameters of Churna
c) Write Principle of DPPH assay
d) Write Principle of Nitric Oxide Scavenging Activity
e) Write note on Unanai System of medicine
f) Composition of culture media
g) How anticancer activity of drug is evaluated by SRB assay?

Q3) Answer the following (Any two) **[8]**

a) Explain biotransformation with example
b) Write Method of preparation and evaluation of Bhasma
c) Write note on Homeopathic system of medicine
d) Write note on transgenic plant

P.T.O.

SECTION - II

Q4) Describe physical and chromatographic methods for natural products characterization. **[10]**

OR

Write in detail herbs used in hair care cosmetics. **[10]**

Q5) Answer the following (Any Four) **[12]**

a) Write note on anti-wrinkle creams

b) Write note on herbal shampoo

c) Describe structural elucidation of Morphine by spectroscopic methods

d) Write note on applications of Phytosomes

e) Classify herbal cosmetics with example

f) Write note on combustion analysis

g) Write note on liposome

Q6) Answer the following (Any two) **[8]**

a) Write note on Novel vasicular herbal formulations

b) Write principle and working of IR spectroscopy

c) Write note on Cold cream

d) Write note on Anti-acne creams

Total No. of Questions : 6]

SEAT No. : ____

PA-66

[Total No. of Pages : 2

[5940]-76

Final Year B.Pharmacy

4.7.6. : BIO-PHARMACEUTICS & PHARMACOKINETICS

(2015 Pattern) (Semester - VII)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Figures to right indicates marks assigned.***
3) ***Write each section in separate answer book.***

SECTION - I

Q1) Define Drug Absorption. Enlist the factors influencing G1 absorption of drugs. Discuss pharmaco-Technical Factors in detail. **[10]**

OR

What is one Compartmental Open Model? Give Assessment of pharmacokinetic parameters from plasma and urine data after I.V. bolus.

Q2) Answer Any Four. (Each 3 Marks) **[4 × 3 = 12]**

a) Write ideal properties of dissolution test apparatus.

b) What is apparent volume of distribution?

c) Explain Surface Renewal theory of drug dissolution.

d) What is Non-compartmental analysis?

e) Justify how polymorphism affect drug dissolution.

f) Enlist phase I & phase II reactions.

g) Explain Pulmonary excretion of drugs.

P.T.O.

Q3) Write short note on Any TWO : **[8]**

a) pH partition Hypothesis.

b) Bioactivation and Tissue Toxicity.

c) First Pass Effect.

d) Concept of Clearance.

SECTION - II

Q4) Solve any one out of two : **[10]**

a) Explain the single dose bioavailability studies with requirements to be followed. Write about statical design to be followed in these studies.

b) Mention the reasons for non-linear kinetics. Explain Michaelis - menten kinetics.

Q5) Solve any Four out of seven. **[12]**

a) What is Km & Vmax?

b) State the objectives in developing vitro-in-vivo correlation.

c) Explain the relative bioavailability.

d) Discuss in detail regulatory requirements for bioavailability study.

e) Explain the methods to determine Area Under Curve (AUC).

f) Discuss the limitations of bioequivalence.

g) Explain plasma level time curve.

Q6) Solve any two out of Four : **[8]**

a) Write the significance of Noyes - Whitney equation in dissolution testing.

b) How to determine bio-availability through urinary extraction studies.

c) Write note on statistical moment theory.

d) Discuss factors affecting dissolution.

Total No. of Questions : 6]

SEAT No. :

PA-67

[Total No. of Pages : 2

[5940]-77

Final Year B. Pharmacy

4.7.7 (T) : PHARMACEUTICAL JURISPRUDENCE

(2015 Pattern) (Semester-VII)

Time : 3 Hours] *[Max. Marks : 60*

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) Give the constitution Functions of Drug Technical Advisory Board (DTAB) & Drug Consultative Committee (DCC) as per drugs and cosmetics Act. & Rules. **[10]**

OR

Give the constitution. Functions & working of pharmacy council of India according to pharmacy Act. 1948.

Q2) Answer the following (Any 4) **[12]**

a) Differentiate between the state pharmacy council & joint state pharmacy council.

b) Define :

i) Schedule Y

ii) Schedule G

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

d) Define “Magic Remedies” under Drugs & Magic Remedies Act. 1954.

e) Explain any two offences and its corresponding penalties applicable for import of drugs under the drugs and cosmetic Act.

f) Give the objective of food safety and standards Act. 2011.

g) Give the objective of prevention of cruelty to Animal Act. 1960.

P.T.O.

Q3) Write short note on (any 2) **[8]**

a) Loan Licenses

b) Illict traffic under nareutic drugs & psychotropic substances Act. 1985.

c) Constitution and functions of central consumer protection councils as per the consumer protection Act. 1986.

d) Powers and duties of Drug Inspector appointed under drugs & cosmetics Act.

SECTION-II

Q4) Explain the various types of intellectual properties. Add a note on product & process. **[10]**

OR

What are the criterias of patenting an invention? Which type of inventions are note patentable as per Indian patent Act. 1970.

Q5) Answer the following (Any 4) **[12]**

a) What is Hatch waxman Act.? Explain its advantage to the generic pharma companies.

b) What are exclusive marketing rights?

c) Explain patent Infringement with one example.

d) What is oppositions to the grant of patent? Explain.

e) Write short note on Orange Book.

f) What are the sailent features of central drug standard control organisation (CDSO).

g) State the content of ANDA filling.

Q6) Write short note on (any 2) **[8]**

a) Compulsory licensing.

b) What is the significance of para I, II, III, and IV certification.

c) Geographical Indications

d) T.G.A.

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Total No. of Questions : 6]

SEAT No. : ____

PA-68

[Total No. of Pages : 2

[5940] - 81

Final Year (B. Pharmacy)
481 : ADVANCED DRUG DELIVERY SYSTEM
(2015 Pattern) (Semester - VIII)

Time : 3 Hours] ***[Max. Marks : 60***

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 side indicate full marks.***

SECTION-I

Q1) Explain in detail the factors affecting the design and performances of controlled Release Dosage forms. **[10]**

OR

Discuss in detail the properties for selecting the polymers for pharmaceutical purposes.

Q2) Attempt any Four of the following questions. **[12]**

a) Classify modified release delivery system.

b) Enumerate potential advantages and disadvantages of controlled drug therapy.

c) Evaluation tests for adhesives used in transdermal drug delivery systems.

d) Role of solubility and partition coefficient in the design of sustained release products.

e) Classification of liposomes.

f) Advantages and disadvantages of iontophosetc drug delivery systems.

g) Probiotics and prebiotics.

Q3) Answer any two of the following questions. **[8]**

a) Fabrication and types of Osmotic pumps.

b) Application of chitosans in pharmacy.

c) Rate preprogrammed drug delivery system.

d) Polymers characterization techniques.

P.T.O.

SECTION-II

Q4) a) Explain the different types of propellants used in pharmaceutical aerosols.

b) Describe the mode of operation for aerosols containing liquefied gases.

[10]

OR

Describe the methods for microencapsulation and its applications. **[10]**

Q5) Attempt any Four of the following questions. **[12]**

a) Discuss role of propellants in inhalation aerosols.

b) Describe the different types of containers used for aerosol preparations.

c) Explain the need for microencapsulation.

d) Describe the two level factorial design.

e) Explain the polymer-polymer incompatiability method for microencapsulation.

f) Explain the principle behind foam type of pharmaceutical aerosols.

g) What are merits of optimization techniques?

Q6) Answer any two of the following questions. **[8]**

a) Write a note on evaluation of aerosol formulations.

b) Explain one optimization technique with suitable example.

c) Describe the phase separation method for microencapsulation.

d) What are the concept of design of experiment?

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Total No. of Questions : 6]

SEAT No. :

PA-69

[Total No. of Pages : 2

[5940]-82

Fourth Year B.Pharmacy (Semester - VIII)

482 : COSMETIC SCIENCE

(2015 Pattern)

Time : 3 Hours] *[Max. Marks : 60*

Instructions to the candidates :

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

SECTION - I

Q1) Define and classify cosmetics. Give an account of various additives used in manufacturing of cosmetics. **[10]**

OR

Define cosmetics. Classify skin cosmetics. Give an account of formulation and evaluation aspects of Vanishing cream.

Q2) Answer the following (Any Four) : **[12]**

a) Explain in brief about bath oils.

b) Differentiate between cosmetics and drug formulation.

c) Discuss about the formulation of after shave lotions.

d) Describe in brief about face powders.

e) Describe about deodorants.

f) Discuss about perfumes in cosmetics.

g) Discuss formulation aspects of moisturizing cream.

P.T.O.

Q3) Write short note on (Any Two) : **[8]**

a) Sunscreen preparations

b) Lipsticks

c) Cake Makeup

d) Emollients in cosmetics

SECTION - II

Q4) What are cosmeceuticals? Describe the importance of various cosmeceutical agents. **[10]**

OR

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

Q5) Answer the following (Any Four) : **[12]**

a) Discuss the quality control of eye products.

b) What are depilatories? Write about ingredients used in depilatories.

c) How skin of infant is different from that of adult skin. Thus enlist functional requirements for baby product.

d) Write about baby oils.

e) Explain hair tonics in detail.

f) Discuss the formulation aspect of eye liner.

g) Explain significance of diluent : solvent ratio in nail lacquer.

Q6) Write short note on (Any Two) : **[8]**

a) Mouth washes

b) Eye mascara

c) Anti-seborrhic preparations

d) Tooth pastes

Total No. of Questions : 6]

SEAT No. : ____

PA-70

[Total No. of Pages : 2

[5940]-83
Fourth Year B.Pharmacy
483 : PHARMACEUTICAL ANALYSIS - VI
(2015 Pattern) (Semester - VIII)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates:

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

SECTION - I

Q1) Attempt any one question:

Discuss principle Instrumentation application of Electron Spin Resonance (ESR). **[10]**

OR

Discuss principle Instrumentation application of Nuclear Magnetic Resonance (NMR) Spectroscopy.

Q2) Attempt any four questions: **[12]**

a) What are equivalent and non-equivalent protons? Explain with suitable example.

b) Explain shielding-deshielding of nuclei giving suitable example.

c) Discuss factors affecting chemical shift.

d) Explain n+1 rule with suitable example.

e) Differentiate between acetaldehyde and propionaldehyde by 1H - NMR.

f) Why TMS is used as internal standard in NMR spectroscopy.

g) Explain chemical and magnetic equivalence.

P.T.O.

Q3) Write shorts on any two: **[8]**

a) Anisotropy.

b) Application of Ion exchange chromatography.

c) Spin-spin coupling (splitting).

d) Double resonance.

SECTION - II

Q4) Explain principle of mass spectroscopy. Discuss TOF and Quadrapole mass analyzer. **[10]**

OR

Discuss in detail principle, Instrumentation and application of flash chromatography.

Q5) Answer the following (Any Four): **[12]**

a) Draw well diagram of double focusing mass spectrometer.

b) Application of mass spectroscopy.

c) Mc-Lafferty rearrangement in mass spectroscopy.

d) Discuss electron Impact Ionisation in mass spectroscopy.

e) What is molecular ion peak of Base Peak.

f) Explain fragmentation pattern of alcohol in mass spectroscopy.

g) Why high vaccum maintained throughout the mass spectrometer?

Q6) Write short note on (Any 2): **[8]**

a) Write in brief theory and application of super critical fluid chromatography.

b) Chemical Ionization in mass spectroscopy.

c) General rules for interpretation of mass spectra.

d) Discuss LC-MS.

Total No. of Questions : 6]

SEAT No. : [ ]

PA-71

[Total No. of Pages : 2

[5940]-84

Final Year B.Pharmacy

484 : MEDICINAL CHEMISTRY - IV

(2015 Pattern) (Semester - VIII)

Time : 3 Hours] ***[Max. Marks : 60***

Instructions to the candidates :

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

SECTION - I

Q1) What are Narcotics? Give chemical classification of Narcotic agents with example & Mechanism of action. **[10]**

OR

What are Antihistaminic Agents? Give chemical classification of Antihistaminic agent with example & mechanism of action.

Q2) Attempt any four questions. **[12]**

a) Sketch synthetic route for Ranitidine.

b) Explain mechanism of Protein Pump Inhibitors.

c) Sketch synthetic route for Ibuprofen.

d) Explain with examples role of Autocoids.

e) Sketch synthetic route for cetrizine.

f) Give brief account on Analgesics with structure of drugs.

g) Sketch synthetic route for paracetamol.

P.T.O.

Q3) Attempt any two questions : **[8]**

a) Explain the chemistry of prostaglandin & their analogues.

b) Explain SAR of Salicylates & Anthranillic acid.

c) Write a note on Antipyretics.

d) Write a note on Prostanoids.

SECTION - II

Q4) What are diagnostic agents? Write elaborative note on diagnostic agents. **[10]**

OR

What are antidiabetic agents? Classify oral hypoglycemic agents along with examples. Comment on their mode of actions.

Q5) Attempt any four from the following : **[12]**

a) Write note on Insulin.

b) Outline schemes of reactions used in synthesis of tolbutamide.

c) Draw synthetic route for synthesis of metformin.

d) Explain serotonergic agents.

e) Note on antithyroid agents.

f) Note on thyroid hormones.

g) Explain chemistry of steroids.

Q6) Write short notes on any two of the following : **[8]**

a) Non-steroidal estrogen.

b) Synthetic analogues of sex hormones.

c) Explain steroidal anti-inflammatory drugs.

d) SAR of sulphonyl urea oral hypoglycemic agents.

Total No. of Questions : 6]

SEAT No. :

PA-1159

[Total No. of Pages : 2

[5940]-85

Final Year B. Pharmacy (Including Biostatistics)

PHARMACOLOGY - V

(2015 Pattern) (Semester - VIII)

Time : 3 Hours] *[Max. Marks : 60*

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 :** **[10]**

a) Define Pharmacovigilance. Explain the role of Pharmacovigilance in ADR monitoring and reporting.

OR

b) Define hospital Pharmacy. Explain the role of hospital pharmacist in hospital committees.

Q2) **Attempt any four :** **[12]**

a) "Penicillin is administered with probenicid for better therapeutic efficacy" state true/false. Justify your answer.

b) What are the causes of Patient noncompliance.

c) Classify ADR with examples.

d) Explain strategies to avoid drug interactions.

e) Explain the factors responsible for ADR.

f) Write a note on Serious Adverse Reaction.

g) What are Pharmacodynamic drug interactions.

P.T.O.

Q3) **Write note on any two :** **[8]**

a) Safety Pharmacology.

b) Rational drug therapy.

c) Drug food interaction.

d) Strategies to improve patient compliance.

SECTION - II

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

a) Define Clinical research. Write and explain phases of clinical research.

OR

b) Write a brief note on ICH-GCP guidelines for clinical trial.

Q5) **Attempt any four :** **[12]**

a) Write composition and responsibilities of IRB.

b) What is Clinical Trial Monitoring?

c) What is Placebo effect?

d) What is cross over design in Clinical research?

e) Explain the significance of palliative care.

f) Elaborate history of clinical trials.

g) Write importance of Belmont report.

Q6) **Write note on any two :** **[8]**

a) Clinical Data Management.

b) Inclusion and Exclusion Criteria in clinical trials.

c) Role of Sponsor in Clinical trials.

d) Clinical Trial Audits.

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Total No. of Questions : 6]

SEAT No. :

PA-72

[Total No. of Pages : 2

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Final Year B.Pharmacy (Semester - VIII)

4.8.6 : NATURAL PRODUCTS, COMMERCE, INDUSTRY & REGULATIONS

(2015 Pattern)

Time : 3 Hours] *[Max. Marks : 60*

Instructions to the candidates :

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

SECTION - I

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

Explain GMP applicable to manufacturing of medicines of traditional system.

OR

Explain global and domestic trading market of Nutraceuticals.

Q2) Solve any four of the following : **[12]**

a) Discuss importance and market of biofuel.

b) Brief about funding schemes of AYUSH.

c) Describe importance of hygine in herbal drug industry.

d) Describe the domestic market potential of crude drugs.

e) Discuss about herbal drug industry of OTC and Non-prescription products.

f) Comment on working space required for herbal solid dosage forms.

g) What procurements are required to obtain herbal drug manufacturing licence.

P.T.O.

Q3) Solve any two of the following : **[8]**

a) Discuss the bottlenecks of herbal drug industry.

b) Explain regulations of herbal products storage.

c) Write note on Biopyracy.

d) Describe scope and career opportunities in herbal drug industry.

SECTION - II

Q4) Solve any one of the following. **[10]**

Describe method of diagnosis and treatment of allergy.

OR

Write down side effects and interactions of Liquorice and cinnamon with drug and food.

Q5) Solve any four of the following : **[12]**

a) Describe significance of pharmacovigilance.

b) Write method of preparation of allergenic extract.

c) Discuss about drug & food interactions of cinchona.

d) Describe the plants causing hay fever.

e) Describe working of National pharmacovigilance centre.

f) Define and classify allergens. Discuss primary exposure.

g) Brief about contactant allergens.

Q6) Solve any two of the following : **[8]**

a) Describe inhalant allergens.

b) Write WHO guidelines of pharmacovigilance.

c) Focus on drug & food interactions of ginseng.

d) Describe responsibilities of health professionals in pharmacovigilance.

Total No. of Questions : 6]

SEAT No. :

PA-862

[Total No. of Pages : 2

[5940]-87

Fourth Year B. Pharmacy

487T : QUALITY ASSURANCE TECHNIQUES

(2015 Pattern) (Semester-VIII)

Time : 3 Hours] *[Max. Marks : 60*

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) Describe the concept of quality assurance and quality control. Explain in detail IPQC in pharmaceutical industry. **[10]**

OR

Define GMP and explain in detail about its components.

Q2) Attempt any four of the following. **[12]**

a) Write on "responsibility and frequency of calibration".

b) Explain in brief "Good Laboratory Practices".

c) Write on the responsibilities of QA department.

d) Explain in brief calibration of dissolution test apparatus.

e) What is DQ, IQ, OQ and PQ?

f) Define documents & records. Add a note on importance of documentation in pharma. industry.

g) Write on calibration of pH meter?

Q3) Write short notes on any two of the following. **[8]**

a) Quality risk management

b) BPCR

c) GDP

d) Calibration Master Plan

P.T.O.

SECTION-II

Q4) Explain prospective, concurrent, retrospective and revalidation. **[10]**

OR

Explain the concept of Quality by Design (QbD). Explain in detail "steps in QbD".

Q5) Attempt any four of the following. **[12]**

a) Describe the organization and functions of USFDA.

b) Enlist the scope of validation.

c) Write storage conditions of stability testing of new drug as per ICH guidelines.

d) What is the significance of Quality by Design (QbD)?

e) Name the medicine regulatory agency in Australia and explain its role.

f) Define cleaning validation and give its importance.

g) What is ICH? Explain its role.

Q6) Write short notes on any two of the following. **[8]**

a) MHRA

b) USFDA

c) Validation Master Plan

d) Need and benefits of validation