Total No. of Questions : 3]

SEAT No. : ____

P8900

[Total No. of Pages : 2

[6110]-481
First Year B. Pharmacy
BP101T : HUMAN ANATOMY AND PHYSIOLOGY - I
(2019 Credit Pattern) (Semester - I)

Time : 3 Hours] ***[Max. Marks : 75***

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.***

Q1) Answer the following (Any 5) **[15]**

a) Distinguish between artery and vein.

b) What are the functions of red blood cells.

c) Define Sagital & Coronal plane.

d) Mention the functions of ribosomes.

e) Draw a well labeled diagram of Cell.

f) Classify different mechanisms of transport across cell membrane.

g) What is Catabolism and Anabolism?

Q2) Answer the following (Any 2) **[20]**

a) Draw a neat labeled diagram of eye. Explain in detail physiology of vision.

b) Describe the outflow and functions of autonomic nervous system with special reference to parasympathetic nervous system.

c) Classify Skeletal system & discuss about the structure of typical vertebra. Add an account on vertebral column.

d) Define and explain in detail cell division. Differentiate between Mitosis and Meiosis.

P.T.O.

Q3) Answer the following (Any 8) **[40]**

a) Discuss the cardiac disorders

b) Discuss the rennin angiotensin system.

c) Write a note on cardiac cycle.

d) Elaborate on origin and functions of spinal nerves.

e) Write about the structure and function of Plasma Membrane.

f) Discuss in detail process of blood coagulation.

g) Explain the structure, types and functions of lymph nodes.

h) Classify connective tissue. Describe the cartilage connective tissue.

i) Define and classify joints. Write a note on synovial joints with its labelled diagram.

j) Write a note on Erythropoiesis.

Total No. of Questions : 3]

SEAT No. : [ ]

P8901

[Total No. of Pages : 2

[6110]-482
First Year B. Pharmacy
BP102T : PHARMACEUTICAL ANALYSIS - I
(2019 Pattern) (Semester - I)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

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

Q1) Objective types Question (Answer any 5 out of 7) **[5×3=15]**

a) Explain Concepts of oxidation and reduction in the redox titration.

b) Give metal ion indicators with example.

c) Explain any one neutralization curve.

d) What are different techniques used in pharmaceutical analysis.

e) Define primary standard. Give example.

f) Define chelating agent, chelate and chelation.

g) Explain Conductivity Cell.

Q2) Long answer (Answer any 2 out of 4) **[2×10=20]**

a) Explain the methods to determine end point of potentiometric titration and its applications.

b) Explain the term errors. Describe types of errors and methods of minimizing errors.

c) Explain the Methods of expressing concentration in the pharmaceutical solution and application of pharmaceutical analysis.

d) Explain Mohr's and Volhard's, method and application of Precipitation titration.

P.T.O.

Q3) Short answer (Answer any 8 out of 10) **[8×5=40]**

a) Explain masking and demasking reagents.

b) Explain the steps involved in gravimetric analysis.

c) Note on preparation and standardization of 0.1 N NaOH.

d) Explain principle, advantages and disadvantages of ceriometry.

e) Explain the construction and working of dropping mercury electrode.

f) Explain acidimetry and alkalimetry titration in non-aqueous titration.

g) Explain co-precipitation and post precipitation.

h) Differentiate between iodimetry and iodometry.

i) Explain theories of acid base indicator.

j) Give details estimation of Sodium Chloride I.P.

Total No. of Questions : 3]

SEAT No. :

P8902

[Total No. of Pages : 2

[6110]-483
First Year B.Pharmacy
BP 103T : PHARMACEUTICES - I
(2019 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Attempt any five out of seven of the following. **[15]**

a) Define

i) Mouthwash

ii) Insufflations

iii) Poultice

b) Give the qualities of a good suspension.

c) List out various steps in handling of prescription.

d) Mention the difference between Lotion and Liniment.

e) Write about calibration of suppository mould.

f) Compare cream and ointment.

g) Give test for identification of emulsion.

Q2) Answer any two out of four of the following. **[20]**

a) Define semisolids. Write about different ointment bases.

b) Write a note on

i) Displacement value

ii) Types and Parts of Prescription

c) Define Posology. Explain factors affecting dose of drug.

d) Define and classify emulsions. Explain in detail stability problems of emulsions and methods to overcome the same.

P.T.O.

Q3) Answer in brief on any eight of the following. **[40]**

a) Write a note on hygroscopic and deliquescent powders.

b) Calculate the volume of each of 90%, 60%, 30% of alcohol and water required to produce 500 ml of 50% alcohol.

c) Write a note on history of pharmacy profession.

d) Write a note on chemical incompatibility.

e) Discuss formulation aspects for Elixir and Linctus.

f) Write about evaluation of semisolid dosage forms.

g) Write a note on physical incompatibility.

h) Discuss different types of suspending agents used to stabilize suspensions.

i) Write a note on Gels.

j) What is the need for dosage form? Classify dosage forms on the basis of site of administration.

Total No. of Questions : 3]

SEAT No. :

P8903

[Total No. of Pages : 2

[6110]-484

First Year B.Pharmacy

BP104T : PHARMACEUTICAL INORGANIC CHEMISTRY

(2019 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to right indicate full marks.***
3) ***Draw neat diagrams and structures wherever necessary.***

Q1) Attempt any five out of seven. **[5×3=15]**

a) Explain Acidifiers.

b) Classify buffers. Give examples of buffers in pharmaceutical systems.

c) Explain the assay of Ammonium chloride.

d) What are dental products?

e) Give importance of antacid combinations. Give the preparation, identification tests and medicinal uses of Aluminum hydroxide gel.

f) Explain in brief about Iodine and its preparations

g) What are the Ideal properties of antacids

Q2) Attempt any two out of four. **[2×10=20]**

a) What are limit test? Explain limit test for Lead and Sulphate.

b) Define antimicrobial agents. Give their classification and mechanism. Add a note on Hydrogen peroxide.

c) Give the preparation, identification tests, assay and medicinal uses of

i) Sodium chloride

ii) Calcium gluconate

d) What is radioactivity? Explain methods for the measurement of radioactivity. Give Storage conditions, precautions & pharmaceutical applications of radioactive substances.

P.T.O.

Q3) Attempt any eight out of ten. **[8×5=40]**

a) Give the preparation, identification tests, assay and medicinal uses of Chlorinated lime.

b) Explain expectorants with example.

c) Give calculations and methods of adjusting isotonicity.

d) Give functions of major extracellular cations and anions.

e) Give the preparation, identification tests, assay and medicinal uses of Sodium Bicarbonate.

f) Describe about Protectives and Adsorbents.

g) Describe Astringents with example.

h) State the official control test for water.

i) Discuss Haematinics with example.

j) Write in detail about Cathartics.

Total No. of Questions : 3]

SEAT No. :

P8904

[Total No. of Pages : 2

[6110]-485
First Year B. Pharmacy
BP201T: HUMAN ANATOMY AND PHYSIOLOGY - II
(2019 Pattern) (Semester - II)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to candidates:

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

Q1) Answer the following (Any 5) **[15]**

a) Explain neuroglia in the central nervous system.

b) Compare and contrast the process of micturition in babies and adult.

c) Explain the following disorders:

i) Hepatitis

ii) Anorexia nervosa

d) How ATP are produced by anaerobic cellular respiration?

e) Define:

i) Vital capacity

ii) Tidal volume

iii) Residual volume

f) How kidney regulates acid - base balance?

g) Write an account on chromosomes.

Q2) Answer the following (Any 2) **[20]**

a) Explain the organization of nervous system. Write in detail anatomy and physiology of brain stem.

b) Draw a neat labelled diagram of respiratory system. Describe in detail pulmonary ventilation. Add a note on physiologial factors affecting respiration.

c) Give anatomy of female reproductive system along with functions of its various organs. Comment on menstrual cycle and its regulation.

d) What are Endocrine glands? Explain why pituitary gland is called as master of all glands. Discuss its secretions and their functions.

P.T.O.

Q3) Answer the following (Any 8) **[40]**

a) Explain different neurotransmitters and their receptions in CNS.

b) Define basal metabolic rate (BMR). Explain different factors affecting BMR.

c) Write a short note on: limbic system.

d) Discuss the renin-angiotensin-aldosterone system and its physiological role.

e) Write a short note on pineal gland.

f) Explain structure and functions of adrenal glands.

g) Discuss structure of the sperm. Write a note on spermatogenesis.

h) Describe the location, gross anatomy and organization of lungs.

i) Write in details about pancreatic hormones.

j) Explain the process of oogenesis and follicular development.

Total No. of Questions : 3]

SEAT No. : ____

P8905

[Total No. of Pages : 3

[6110]-486
First Year B. Pharmacy
BP202T : PHARMACEUTICAL ORGANIC CHEMISTRY - I
(2019 Pattern) (Semester - II)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

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

Q1) Solve any five of the following : **[5×3=15]**

a) Explain Hofmann Elimination mechanism and give its application in synthesis of alkenes.

b) What is ozonolysis and give its application.

c) Draw structures of compounds from following IUPAC names.

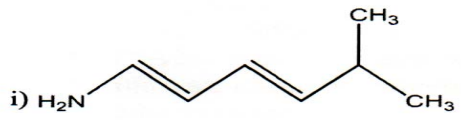
i) Hexachlorobenzene

ii) Cyclohexanecarboxylic acid

iii) 3-Chloro-2-butanone

d) Write IUPAC names for following structures.

i)



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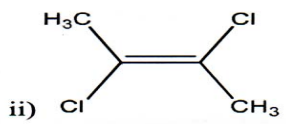

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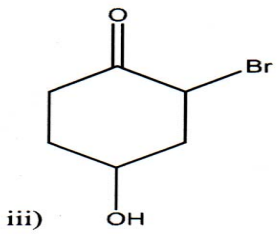

P.T.O.

e) Give structure and uses of tartaric acid and lactic acid.

f) Explain concept of tautomerism with examples.

g) Explain the photohalogenation and thermal halogenations of alkanes.

h) Give structure and uses of ethylchloride and iodoform.

Q2) Solve any two of the following : **[2×10=20]**

a) Illustrate any three methods for preparation of aldehydes and three reactions depicting their chemical reactivity. Add a note on Perkin condensation.

b) Explain E^1 elimination reaction with mechanism, kinetics and factors affecting. Explain Saytzeff orientation.

c) Describe SN^1 and SN^2 reactions of alkyl halides, give mechanism with evidence.

d) Define and classify atomic hybridization. Explain the formation of ammonia and its geometry on the basis of hybridization

Q3) Solve any Eight of the following. **[8×5=40]**

a) Explain any three types of structural isomerisms in organic compounds with one example each.

b) Enlist different nucleophilic addition reactions of carbonyl compounds and explain anyone indetail.

c) Classify amines and describe the reactions for separation of primary, secondary and tertiary amines.

d) State with reason which acid of the following pairs is a stronger acid.

i) CH_3-COOH and $(CH_3)_2$CH-COOH

ii) F_3C-CH_2-COOH and Cl_3C-CH_2-COOH

iii) HCOOH and C_6H_5-COOH

e) Draw structure and give uses of following compounds.

i) Oxalic acid

ii) Cinnamaldehyde

iii) Methyl Salicylate

f) Discuss inductive effect.

g) Illustrate chemical properties of alcohols. Give any three reactions of alcohols with proper examples.

h) Explain the effects of substituents on relative strength of acids and bases.

i) Describe two methods of preparation and reactions of alkynes.

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Total No. of Questions : 3]

SEAT No. :

P-8906

[Total No. Of Pages : 2

[6110]-487
F.Y.B.Pharmacy
BP 203T: BIOCHEMISTRY
(2019 Pattern) (Semester - II) (Theory)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagram whenever necessary.***

Q1) Answer the following (Any 5 out of 7) **:** **[15]**

a) Define carbohydrate classify it with suitable example.

b) Define the term enthalpy and entropy.

c) Define endergonic and exergonic reaction with suitable example.

d) Explain Biological role of Amino acid and protein.

e) Explain Fatty liver.

f) Explain oxidation of pyruvate to acetyl CoA.

g) Write a short note on Co-factors

Q2) Answer the following (Any 2 out of 4) : **[20]**

a) Explain β-Oxidation of fatty acids.

b) Explain Electron transport chain (ETC) and its mechanism.

c) Explain in detail Regulation of enzymes.

d) Discuss in detail the Transcription.

P.T.O.

Q3) Answer the following (Any 8 out of 10) : **[40]**

a) Describe Gluconeogenesis with its significance.

b) Explain concept of free energy.

c) Write a note on hormonal regulation of glucose and Diabetes mellitus.

d) Discuss ketone bodies production and its utilization.

e) Explain Therapeutic and diagnostic applications of coenzymes.

f) Describe Phenylketonuria and alkaptonuria.

g) Define enzyme and add note on enzyme inhibitors with examples.

h) Explain in detail conversion of cholesterol into bile acid and steroid hormone.

i) Discuss synthesis of Dopamine.

j) Write a note on Enzyme kinetics.

Total No. of Questions : 3]

SEAT No. :

P8907

[Total No. of Pages : 2

[6110]-488
First Year B.Pharmacy
BP 204T : PATHOPHYSIOLOGY
(2019 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Answer the following. (Any 5 out of 7): **[5×3=15]**

a) Name the microorganisms which causes urinary tract infection.

b) Define angina pectoris and mention the causes of anginal attack.

c) Mention different types of hepatitis.

d) Define and classify hypertension.

e) Mention signs of inflammation.

f) Enumerate events in cell cycle.

g) What are the clinical features of Parkinson's disease?

Q2) Long Answer. (Any 2 out of 4): **[2×10=20]**

a) What is diabetes mellitus? Discuss the complete pathophysiology of diabetes.

b) Describe the pathophysiology and complications of acute renal failure.

c) Differentiate between seizures, convulsions and epilepsy. Describe the neural basis of epilepsy.

d) Enlist ischemic heart diseases. Explain in detail pathophysiology of angina pectoris.

P.T.O.

Q3) Short Answer. (Any 8 out of 10): **[8×5=40]**

a) Describe the pathophysiology of schizophrenia.

b) Describe the pathogenesis of AIDS and transmission of Human Immunodeficiency Virus.

c) Discuss the pathogenesis of Vitamin B12 and folic acid deficiency anaemia.

d) Explain chronic inflammation.

e) Describe the pathophysiology of cancer.

f) What is the etiology, clinical features and pathogenesis of Crohn's disease?

g) Explain etiopathogenesis of rheumatoid arthritis.

h) Mention pathophysiology of Asthma.

i) Write a note on meningitis.

j) Explain pathogenesis of malaria in detail.

Total No. of Questions : 3]

SEAT No. :

P8908

[Total No. of Pages : 2

[6110]-489

Second Year B. Pharmacy

BP301T : PHARMACEUTICAL ORGANIC CHEMISTRY - II

(2019 Pattern) (Semester - III)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Attempt the following (Any Five). **[5×3=15]**

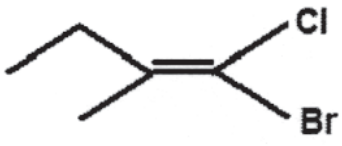
a) Explain Huckel's rule with example.

b) Explain the preparation of diazonium salt.

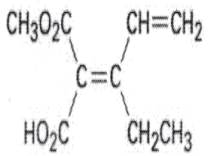
c) Assign E and Z configuration.

i)

ii)



iii)



d) Define saponification value. Give its significance.

e) Draw the structure of resorcinol, α-naphthol and β-napthol.

f) Write qualitative tests for phenols (any 3).

g) Aniline is less basic than ethylamine. Give reason.

P.T.O.

Q2) Attempt the following (Any Two). **[2×10=20]**

a) What is aromatic electrophilic substitution reaction? Mention any three types. Write down the mechanism of friedel craft alkylation.

b) Discuss structure, reactions, synthesis and medicinal uses of following polycyclic compounds.

i) Phenanthrene

ii) Naphthaline

c) Explain the stability of cycloalkanes along with Baeyer's strain theory and Coulson and Moffitt's modification in details.

Q3) Attempt the following (Any Eight) **[8×5=40]**

a) Explain Friedel-Craft's alkylation along with reactivity, limitations.

b) What are amines. Classify with example.

c) Discuss in detail theory of strainless rings.

d) Comment on Basicity of amines with example.

e) Write uses of resorcinol, naphthols, Phenol, Aryl diazonium salts, diphenylmethane.

f) Write Synthesis, reactions and structure and medicinal uses of Anthracene.

g) Write Synthesis, reactions of triphenylmethane.

h) Explain in detail Geometrical isomerism.

i) How will you distinguish primary, secondary and tertiary amines by Chemical test.

j) Explain Nitration and Halogenation of benzene in details.

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Total No. of Questions : 3]

SEAT No. : ____

P8909

[Total No. of Pages : 2

[6110]-490
S.Y. B. Pharmacy
BP302T : PHYSICAL PHARMACEUTICS - I
(2019 Pattern) (Semester - III)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

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

Q1) Answer any five: **[5×3=15]**

a) What are optically active substances?

b) Define critical constants with examples.

c) Explain mechanism of detergency.

d) Explain the Fick's first law of diffusion.

e) State Bragg's equation.

f) What do you understand by buffer capacity?

g) Explain significance of van der Waal's constants for real gases.

Q2) Attempt any two: **[2×10=20]**

a) Elaborate on Raoult's law and its deviations with the help of examples.

b) Explain principle of capillary rise method and drop pipette method for determination of surface tension. Write a note on spreading coefficient.

c) Classify surfactants with examples. Give HLB scale and write a note on micellar solubilisation.

d) Explain Nernst's distribution law and significance of partition coefficient.

P.T.O.

Q3) Answer any eight. **[8×5=40]**

a) Explain phase diagram of phenol water system.

b) Explain about different methods for pH determination.

c) Write a note on dissociation constants and its applications in pharmacy.

d) Write a note on polymorphism.

e) Explain Freundlich & Langmuir's adsorption isotherms.

f) Significance of biological buffers.

g) Enlist factors affecting solubility of gases in liquids.

h) Glass transition temperature.

i) Elaborate on colligative properties.

j) Explain principle of liquefied propellant systems in aerosols.

Total No. of Questions : 3]

SEAT No. :

P8910

[Total No. of Pages : 2

[6110]-491

S.Y. B.Pharmacy

BP303T : PHARMACEUTICAL MICROBIOLOGY

(2019 Pattern) (Semester - III) (Theory)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Answer the following (any five) **[5×3=15]**

a) Differentiate between Gram positive and Gram negative bacterial cell.

b) Define

i) D Value

ii) Z Value

iii) Culture media

c) Write the importance of fungi.

d) Enlist different factors influencing disinfectant action.

e) Enlist different sources of contamination in an aseptic area.

f) Write a function of flagella, pili and cell wall.

g) Comment "Moist heat sterilization is more superior to dry heat sterilization".

Q2) Answer the following (any two) **[2×10=20]**

a) Write in detail the different sources and types of microbial contamination of pharmaceutical products. Write a note on assessment of microbial contamination and spoilage.

b) Write in detail identification of bacteria using different staining techniques.

c) Define culture media and explain different types of culture media.

d) What is microbiological assay? Discuss in detail general methods used for microbial assay of antibiotics as per I.P.

P.T.O.

Q3) Answer the following (any eight). **[8×5=40]**

a) Write working, applications, advantages & limitations of autoclave.

b) Write in detail growth curve of bacteria.

c) Explain the different methods used for isolation of pure cultures.

d) Explain the different methods used for cultivation of human viruses.

e) Describe in detail chemical agents as disinfectants.

f) Explain different branches of microbiology.

g) Write a note on Dark field microscopy.

h) Write a note on laminar air flow equipments

i) Write preservation of pharmaceutical products using antimicrobial agents.

j) Explain in detail the applications of cell culture in Pharmaceutical industry and research.

Total No. of Questions : 3]

SEAT No. :

P8911

[Total No. of Pages : 2

[6110]-492

Second Year B.Pharmacy

BP-304T : PHARMACEUTICAL ENGINEERING

(2019 Pattern) (Semester - III)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Answer the following questions any five. **[15]**

a) Explain the term Entrainment. How it is prevented?

b) What is size reduction? Discuss its objectives.

c) Define evaporation and drying. Give the differences between them.

d) Classify the materials of plant construction. Explain ferrous metals.

e) Define corrosion. List the types of corrosion. What is the effect of pH on corrosion?

f) Name any two mechanisms of size separation. Explain any one.

g) Define mixing. Distinguish solid and liquid mixing.

Q2) Attempt any two from the following questions. **[20]**

a) Categorize the types of filters. Describe principle, construction and working of plate and frame filter press.

b) What do you understand by "multiple effect evaporator"? Describe one such evaporator. How do you feed such evaporator?

c) Explain the principle, construction, working and applications of Hammer mill.

d) Explain principle, construction and operational details of Freeze dryer. Summarize its pharmaceutical applications also.

P.T.O.

Q3) Attempt any eight of the following questions. **[40]**

a) Explain Orifice meter in detail.

b) Classify evaporators. Describe construction and working of Horizontal Tube Evaporator.

c) Describe construction, working and uses of silverson emulsifier.

d) Write a descriptive note on types of stainless steel, composition and its uses.

e) Explain: Rotary Drum Filter.

f) Explain construction, working and uses of Ball Mill.

g) Write about Non-perforated basket centrifuge.

h) What is sieving? Explain official standards of powders.

i) What are filter aids? Discuss in brief.

j) Explain Reynolds's Number with its significance.

Total No. of Questions : 3]

SEAT No. : ____

P8912

[Total No. of Pages : 2

[6110]-493
S.Y. B. Pharmacy
BP401T : PHARMACEUTICAL ORGANIC CHEMISTRY - III
(2019 Pattern) (Semester - IV)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to candidates:

1) ***All questions are compulsory.***
2) ***Write reactions wherever necessary.***
3) ***Figures to the right indicate full marks.***

Q1) Objective Type Questions Any 5 out of 7. **[5×3=15]**

a) Write conditions for optical activity.

b) Discuss stereospecific & stereoselective reactions.

c) Give any three reactions of pyrrole.

d) Discuss any three method of synthesis of Thiophene.

e) Draw the following heterolycles with numbering

i) Quinazoline

ii) Indole

iii) Imidazole

f) Explain two methods for synthesis of Indole.

g) Draw Resonance structure of pyridine & Oxazole.

Q2) Long Answer Any 2 out of 4. **[2×10=20]**

a) Discuss in detail the conformational isomerism in cyclohexane.

b) Eloborate methods of synthesis & reactions of furan.

c) Define Heterocyclic compounds? Discuss their nomenclature and classification with examples.

d) Explain method of synthesis reactions & medicinal uses of Isoquinoline.

P.T.O.

Q3) Short Answer Any 8 out of 10. **[8×5=40]**

a) Asymmetric Synthesis.

b) Discuss about stereoisomerism in biphenyl compounds.

c) Explain synthesis of Pyrrole.

d) Conformational isomerism in n- butane.

e) Discuss synthesis & medicinal use of Purine.

f) What is Dakin reaction? Give it's application.

g) Explain in detail Schmidt rearrangement.

h) Discuss mechanism involved in Claisen - Schmidt condensation.

i) Explain reaction & mechanism involved in Pinacol - Pinacolone rearrangement & Give it's application.

j) Explain in detail on aromaticity of Pyricline.

Total No. of Questions : 3] **SEAT No. :**

P8913 **[Total No. of Pages : 2**

[6110]-494
S.Y. B. Pharm
BP402T : MEDICINAL CHEMISTRY - I
(2019 Pattern) (Semester - IV)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicates full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Answer any five questions out of seven questions. **[5×3=15]**

a) Outline the synthesis of Propranolol.

b) Explain reversible cholinesterase inhibitors with examples.

c) Give an account on adrenergic receptors and their distribution.

d) Explain the SAR, MOA and Uses of Meperidine derivatives.

e) Define Sedative and hypnotics and classify them with examples.

f) Discuss importance of Ionization in relation to biological action.

g) Explain with examples halogenated derivatives as general anaesthetics.

Q2) Answer any two questions out of four questions. **[2×10=20]**

a) Define and give classification of adrenergic antagonists with examples. Discuss in detail structure activity relationship (SAR) and mechanism of action (MOA) of Beta adrenergic blockers.

b) Give classification of parasympathomimetic agents with examples. Explain structure activity relationship (SAR) of parasympathomimetic agents. Write down MOA and uses of Acetycholine.

c) Enlist various classes of anti-inflammatory drugs. Explain SAR of Aryl acetic acid and aryl propionic acid derivatives.

d) What are CNS depressants? Classify drugs used as anticonvulsants with examples. Discuss chemistry and MOA of Gabapentin and Phenytoin.

P.T.O.

Q3) Answer any eight questions out of ten questions. **[8×5=40]**

a) Explain in detail biosynthesis and catabolism of catecholamines.

b) Discuss in detail mechanism of action, chemistry and uses of irreversible cholinesterase inhibitors with examples.

c) Elaborate on chemistry, MOA and uses of Solanaceous alkaloids and analogues as cholinergic blocking agents.

d) Explain with examples oxidative metabolism (Phase I).

e) Explain the Chemistry and MOA of atypical antipsychotics.

f) Write a note on opioid antagonists.

g) Outline synthesis of Diclofenac and Mefenamic acid.

h) Write a note on Benzodiazepine derivatives.

i) Write a note on alpha adrenergic antagonists.

j) Discuss in detail importance of Solubility and Partition coefficient for drug action.

Total No. of Questions : 3]

SEAT No. : ____

P-8914

[Total No. Of Pages : 2

[6110]-495
S.Y.B.Pharmacy
BP403T - PHYSICAL PHARMACEUTICS - II
(2019 Pattern) (Semester-IV)

Time : 3 Hours] ***[Max. Marks : 75***

Instrictions: ***1) Answer all the questions.***
2) Figures to the right indicate full marks

Q1) Answer the following (Any 5 out of 7) **:** **[5 × 3 = 15]**

a) Write classification of colloidal dispersion.

b) Enlist and explain ideal properties of suspension.

c) Write the difference between the order of reaction and the molecularity of a reaction.

d) What is zero order of reaction?

e) Write pharmaceutical importance of particle size determination.

f) What is lyotropic series?

g) Differentiate plastic and elastic deformation.

Q2) Answer the following (Any 2 out of 4) : **[2 × 10 = 20]**

a) Compare shear thickening and thinning system with example.

b) Discuss optical and electric properties of colloidal sol.

c) Describe the derived properties of the powder.

d) Write an integrated rate law equation of first-order and second-order reactions.

Q3) Write a short note on the following (Any 8 out of 10) : **[8 × 5 = 40]**

a) Stability of lyophobic colloids.

b) Cone and plate viscometer.

c) HLB and RHLB.

d) Half-life and shelf-life of Zero-order reaction

e) Fisher sub-sieve size instrument

f) Physical degradation

g) Gold Number.

h) Coulter Counter method.

i) Stability of Emulsion.

j) Capillary Viscometer.

Total No. of Questions : 3]

SEAT No. :

P-8915

[Total No. Of Pages : 2

[6110]-496
S.Y. B. Pharmacy
PHARMACOLOGY- I
(2019 Pattern) (Credit System) (BP404T) (Semester - IV)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions : ***1) All questions are compulsory.***
2) Neat labeled diagram must be drawn whenever necessary.
3) Figures to the right indicate full marks.

Q1) **Objectives Type Questions (Answer 5 out of 7)** **[5 × 3 = 15]**

a) Explain therapeutic index and give its significance.

b) Explain drug addiction with suitable example

c) What is the enteric nervous system?

d) Define agonist, antagonist & partial antagonist.

e) Explain why levodopa is combined with carbidopa.

f) Write in detail sources and active ingredient of drugs.

g) Define anxiety. Write the classification of antianxiety drugs.

P.T.O.

Q2) **Long Answers (Any 2 out of 4)** **[2 × 10 = 20]**

a) Define & classify parasympathomimetic agents with suitable example. Explain the biosynthesis, storage, release and metabolism of acetylcholine.

b) Write in detail the process of drug distribution. Describe the role of plasma protein in the drug distribution.

c) Classify antiepileptic. Discuss mechanism of action, pharmacological action, therapeutic uses and adverse drug reactions of hydantoins.

d) What is receptor? Give different types of receptor and explain G protein couple receptor.

Q3) **Short Answers (Any 8 out of 10)** **[8 × 5 = 40]**

a) Write the pharmacology of dopamine.

b) Write a brief note on barbiturate poisoning.

c) Define & classify local anesthetics. Explain MOA & adverse effects of lignocaine.

d) Write a note on adverse drug reactions.

e) Define & classify antidepressant, add a note on MAO inhibitors.

f) Enumerate opioid analgesics. Describe the therapeutic uses and adverse effects of morphine.

g) Discuss phases of clinical trials

h) Write a note on skeletal muscle relaxant.

i) Define drug metabolism and write a note on Phase-I reaction.

j) What are the different phases of general anesthetics?

Total No. of Questions : 3]

SEAT No. : [ ]

P9704

[Total No. of Pages : 2

[6110]-497A

Second Year B.Pharm.

BP-405T : PHARMACOGNOSY AND PHYTOCHEMISTRY - I

(2019 Pattern) (Semester - IV) (Theory)

Time : 3 Hours] ***[Max. Marks : 75***

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.***

Q1) Answer all the questions (Any 5 out of 7) **[5 × 3 = 15]**

a) Explain methods of collection of barks

b) Write general tests for alkaloids

c) Write general chemical tests for tannins

d) What are proteins and enzymes? Add a note on their applications

e) Enlist the types of vascular bundles

f) Explain therapeutic uses of Papain

g) Write a note on Auxins.

Q2) Long Answers (Any 2 out of 4) **[2 × 10 = 20]**

a) What is polyploidy, mutation and Hybridization. Explain their applications in detail.

b) Define and classify Alkaloids. Explain method of extraction and general chemical tests for Alkaloids.

c) Explain in detail general methods of extraction of lipids. Comment on pharmaceutical applications of lipids.

d) Define and classify Volatile oils. Enlist various properties and application of Volatile oils.

P.T.O.

Q3) Short Answers (Any 8 out of 10) **[8 × 5 = 40]**

a) Write Biological source, chemical constituents & application of Honey. Add a note on Preparation of Honey.

b) Explain Natural allergens.

c) Give nutritional requirements for growth and maintenance of plant tissue culture.

d) Draw well labelled anatomical diagram of leaf.

e) Add a note on Mutation and give its significance.

f) Classify Resins in detail along with examples.

g) Explain on leaf constants in detail.

h) Write a note on Cotton & Jute.

i) Explain flavonoids and their biological importance.

j) Write chemical tests for Gelatin and Tragacanth.

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Total No. of Questions : 3]

SEAT No. :

P 5724

[Total No. of Pages :2

[6110]-498
T.Y. B.Pharmcy
BP501T : Medicinal Chemistry-II
(2019 Pattern) (Semester-V) (Theory)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Attempt the following (Any 5). **[5×3=15]**

a) Write a note on loop diuretics.

b) Discuss mechanism of action and medicinal applications of losartan.

c) Give two examples of thyroid and antithyroid drugs.

d) Explain mechanism of action and medicinal applications of verapamil.

e) Draw structure and write medicinal applications of Amiodarone.

f) Explain in brief anti-coagulants.

g) Write a note on drugs for erectile dysfunction.

Q2) Attempt the following (Any 2). **[2×10=20]**

a) Define autocoids. Write biosynthesis, nomenclature and medicinal applications of prostaglandins.

b) What is Hypertension? Classify antihypertensive agents with suitable examples. Give SAR and MOA of Calcium Channel blockers.

c) Classify antidiabetic agents with suitable examples. Comment on sulphonylureas. Draw synthetic route for Tolbutamide.

d) Classify antihistaminic agents with examples. Describe second generation H1 Antagonists. Write SAR for H1 Antagonists.

P.T.O.

Q3) Attempt the followings (Any 8). **[8×5=40]**

a) Write synthesis of chlorthiazide and Nifedipine.

b) Write mechanism of action and medicinal applications of Ranitidine and omeprazole.

c) Discuss in detail HMG Co-A reductase inhibitors

d) Draw structure write mechanism of action and medicinal applications of Furosemide.

e) Draw structure write mechanism of action and medicinal applications of Promethazine.

f) Explain chemistry, nomenclature and stereochemistry of steroids.

g) Classify estrogens with suitable examples. Add SAR of estrogens.

h) Classify local anesthetics with suitable examples.

i) Discuss antianginal agents with suitable examples.

j) Explain in brief Carbonic anhydrase inhibitors.

Total No. of Questions: 3]

SEAT No. :

P5725

[Total No. of Pages : 2

[6110]-499
Third Year B. Pharmacy
BP502T : INDUSTRIAL PHARMACY-I
(2019 Pattern) (Semester-V)

Time : 3 Hours] ***[Max. Marks : 75***

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.***

Q1) Long Answers (Any 2) **[2×10=20]**

a) Define parenterals. Give formulation considerations of SVP and explain official quality control tests of parenterals in detail.

b) Give the objectives of tablet coating. Discuss excipients used in film coating. Add a note on evaluation of coated tablets.

c) Define aerosols. Discuss in detail the propellants with ideal properties, and containers used in pharmaceutical aerosols.

d) Define Capsules. Explain the manufacturing of empty gelatin capsules. Give quality control tests of gelatin.

Q2) Short Answers (Any 8) **[8×5=40]**

a) Give an account of particulate matter monitoring for parenterals.

b) Explain important physicochemical properties of preformulation.

c) What is pressure filling technique for aerosols? Give its advantages & disadvantages.

d) Describe metal particles and leakage test for ophthalmic ointment.

e) Explain Pyrogen test for parenterals.

f) Describe environmental control zone groupings for parenterals as per cGMP and Gazette of India.

g) Describe water attack test for parenteral glass containers.

h) Discuss formulation aspects of vanishing cream.

i) Describe in brief about evaluation of ophthalmic preparations.

j) Write note on evaluation parameters for aerosols.

P.T.O.

Q3) Short Answers (Any 5) **[5×3=15]**

a) Give significance of isotonicity in ophthalmic.

b) Which propellant is good among liquefied gases and compressed gases?

c) Give the advantages and disadvantages of LAL test.

d) What is sugar coating?

e) Describe about Actuator used in pharmaceutical aerosol.

f) Define Capsule. Describe in brief about capsule size.

Total No. of Questions : 3]

SEAT No. :

P5726

[Total No. of Pages : 2

[6110] - 500

Third Year B. Pharmacy

BP503T - Pharmacology - II

(2019 Pattern) (Semester - V)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

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

Q1) Attempt any five of the following. **[15]**

a) Write the advantages of oral hypoglycaemic agent.

b) Define and classify autocoids.

c) Comment the role of HMG-CoA reductase inhibitors in the treatment of hyperlipidaemia.

d) Write biosynthesis of prostaglandins.

e) Define and classify tocolytics.

f) What are the adverse effects of NSAIDs?

g) Enlist mechanism of actions of anti-gout drug.

Q2) Attempt any two of the following. **[20]**

a) Describe biosynthesis, storage and release of Insulin-Add note on insulin preparations.

b) Classify antihypertensive drugs. Give pharmacological account of ACE inhibitors.

c) Discuss biosynthesis, Mechanism of action, Pharmacological action and therapeutic uses. of progesterone.

d) Classify antihistamines. Describe pharmacological actions of antihistamines.

P.T.O.

Q3) Attempt any eight of the following **[40]**

a) Describe biosynthesis, storage, release and action of thyroid hormone?

b) Justify use of calcium channel blockers for any two cardiovascular diseases.

c) Add note on biassay of Digitalls.

d) Describe physiological effect of glucagon.

e) "Sodium channel blockers are used for treatment of cardiac arrhythmias" Write true or false and justify.

f) Write a note on potassium - sparing diuretics.

g) Explain the calcium homeostasis.

h) Write a note on plasma volume expanders?

i) Define and classify the drug acting on uterus.

j) Explain pharmacological actions of nitrates?

Total No. of Questions : 3]

SEAT No. :

P 5727

[Total No. of Pages :2

[6110] -501

T.Y.B.Pharmacy

BP504T : PHARMACOGNOSY AND PHYTOCHEMISTRY-II

(2019 Pattern) (Semester-V) (Theory)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Objective type questions. (any 5 out of 7) **[5×3=15]**

a) Define secondary plant metabolite with suitable exmples.

b) Give botanical source and Chemical Constituent of Tea.

c) Give the source and uses of eugenol containing crude drug.

d) Write identification test for Sennoside.

e) Give chemical constituents and uses for Liquorice.

f) Utilization of Vinca alkaloids.

g) Write the applications of Microwave assisted extraction.

Q2) Answer the following (any 2 out of 4) **[2×10=20]**

a) Define Alkakoids. Explain Biological source, classification, chemistry and medicinal uses of Vinca and Rauwolfia.

b) Explain in detail about super critical fluid extraction and solid phase extraction.

c) Explain industrial production and estimation of Sennosides and vinblastine.

d) What are cardiac glycosides? Give the Pharmacognosy of Digitalis in detail.

P.T.O.

Q3) Answer the following (any 8 out of 10) **[8×5=40]**

a) Write a note on radio isotopes and their applications in biogenetic studies.

b) Give the biological source, Chemical constituents and uses of any two volatile oil drugs.

c) Write the isolation and estimation of Glycyrhetenic acid.

d) Explain the industrial production and uses of Artemisinin.

e) Explain the role of column chromatography in isolation and purification of phytoconstituents.

f) Write the method of production and identification for Atropine.

g) Write the isolation and identification of Curcumin.

h) Give the chemical constituents and therapeutic uses of Mentha and Fennel.

i) Write about the role of radioactive isotopes in the investigation of biogenetic studies.

j) Explain with a neat labeled microscopic daigram of Fennel.

Total No. of Questions : 3]

SEAT No. :

P5728

[Total No. of Pages : 2

[6110]-502
Third Year B.Pharmacy
BP 505 T : PHARMACEUTICAL JURISPRUDENCE
(2019 Pattern) (Semester - V)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

SECTION - I

Q1) Answer all the questions (Objectives) (Answer 5 out of 7) **[5×3=15]**

a) Objectives of CPCSEA

b) What are Cannabis (Hemp), Coca leaf, Poppy Straw

c) What are schedule G and H

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

e) Differentiate between state Pharmacy Council & Joint state Pharmacy council.

f) What are Geographical indications?

g) Write the forms used for licence for retail drugs, restricted licence and wholesale?

Q2) Long Answers (Any 2 out of 4) **[2×10=20]**

a) Give the constitution, functions and working of Pharmacy Council of India according to Pharmacy Act, 1948.

b) Discuss constitution and functions of DTAB, CDL and DCC under Drugs & Cosmetics Act 1940.

c) What are the objectives of DPCO, 1995? Explain in detail prices of bulk drugs and retail price of formulation.

d) Discuss in detail the objectives and salient features of Medical Termination of Pregnancy Act, 1971 and Rules 1975.

P.T.O.

Q3) Short Answers (Any 8 out of 10) **[8×5=40]**

a) Animal Welfare Board of India, Offences and penalties under prevention of cruelty to animals act, 1950.

b) Explain power of central Government to permit, control and regulate operations under Narcotics & Psychotropic substances act.

c) Explain Bonded factory

d) Schedule M

e) Qualification and duties of Government Analyst under D & C act.

f) Write and explain the classification of medicinal and toilet preparations containing alcohol.

g) What is the objective of Drugs & magic remedies act? Write classes of prohibited advertisement.

h) Pharmaceutical code of ethics in relation to Job and Trade.

i) Write Short Note on Loan License.

j) Hathi Committee and Mudaliar Committee.

Total No. of Questions : 3]

SEAT No. :

P-5729

[Total No. of Pages : 2

[6110]-503

T.Y. B.Pharmacy

BP601T : MEDICINAL CHEMISTRY - III

(2019 Pattern) (Semester - VI)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Objective Type Questions (Answer 5 out of 7) : **[5 × 3 = 15]**

a) What is β-lactam drugs? Classify beta lactam antibiotics with suitable examples.

b) Define and classify anti-tubercular agents with suitable examples.

c) Define and classify sulphonamides with suitable examples.

d) Which strain produces cephalosporin and streptomycin antibiotics?

e) Which are the parasites species of malaria can infect to humans?

f) Draw structures and give IUPAC names of any two anti-HIV agents.

g) Write MOA and medicinal uses of macrolide antibiotics.

Q2) Long Answer (Answer 2 out of 4) : **[2 × 10 = 20]**

a) Discuss Hansch QSAR analysis with all parameters in detail and write a note on ferguson principle.

b) Classify antifungal agents with suitable examples and describe the SAR and MOA of antifungal azoles.

c) Describe the chemistry, SAR and MOA of penicillin antibiotics.

d) Describe the chemistry and MOA of alkylating agents and antimetabolites used as anti-neoplastic agents.

P.T.O.

Q3) Short Answer (Answer 8 out of 10) : **[8 × 5 = 40]**

a) Discuss various approaches used in drug design.

b) Write a note on tetracycline antibiotics.

c) Describe the chemistry and MOA of sulphonamides.

d) Describe the MOA and SAR of quinolines antimalarials.

e) Describe chemistry and MOA of aminoglycoside antibiotics.

f) Write a note on quinolones anti-infective agents.

g) Write a note on anthelmintics agents.

h) Write a note on plant product use as anticancer agents.

i) Draw the scheme of synthesis for ciprofloxacin.

j) Draw the scheme of synthesis for chlorambucil.

Total No. of Questions : 3]

SEAT No. : ____

P-5730

[Total No. of Pages : 2

[6110]-504

T.Y. B. Pharmacy

BP602T : PHARMACOLOGY - III

(2019 Pattern) (Semester - VI)

Time : 3 Hours] ***[Max. Marks : 75***

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.***

Q1) **Answer the following (Any 5 out of 7) :** **[5 × 3 = 15]**

a) Classify Antiemetics with MOA of Ondansetron.

b) Define Analeptics of classify it.

c) Differentiate between expectorants & antitussives.

d) Write clinical symptoms & management of lead poisoning.

e) Write a note on proton pump Inhibitors.

f) Define Laxatives classify drugs used for constipation.

g) Give a note on pharmacotherapy of COPD.

Q2) **Answer the following (Any 2 out of 4) :** **[2 × 10 = 20]**

a) Define peptic ulcer, classify anti-ulcer drugs. Give MOA, pharmacological actions, adverse effect & therapeutic uses of omeprazole.

b) Create general principles of treatment of poisoning.

c) Classify Cephalosporin. Write mechanism of action, adverse effect & uses of cephalosporin.

d) Define tuberculosis, classify anti-tubercular drugs. Give MOA, Pharmacological action adverse effect & therapeutic uses of Isoniazide in detail.

P.T.O.

Q3) **Answer the following (Any 8 out of 10) :** **[8 × 5 = 40]**

a) Write the note on 420 oral acute toxicity studies in Rodent.

b) Classify anti-asthmatic drugs. Explain pharmacology of bronchodilator drugs.

c) Give detail account on cancer chemotherapy.

d) Explain in detail Genotoxicity.

e) Give Rational use of antibiotics.

f) Define Biological Rhythm & give application of chronopharmacotherapy.

g) Discuss drug treatment of amoebiasis.

h) Write pharmacological account of drugs for treating candiasis.

i) Give MOA and antibacterial spectrum of sulfonamide.

j) Classify macrolide antibiotics. Give phasmacolor of Erythromycin.

▽▽▽▽

Total No. of Questions : 3]

SEAT No. :

P-5731

[Total No. of Pages : 2

[6110]-505

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

BP603T : HERBAL DRUG TECHNOLOGY

(2019 Pattern)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) **Objective type (Answer 5 out of 7).** **[5 × 3 = 15]**

a) Write a note on Spirulina as Neutraceutical.

b) Explain in detail possible side effects and interaction of Garlic.

c) Describe Carotenoids as Nutraceuticals.

d) ICH guidelines for stability of herbal drugs.

e) Write a note on natural colorants.

f) Give the advantages of Novel dosage forms in herbal formulation.

g) Explain the role of antioxidants in Skin care products with e.g.

Q2) **Long Answer (Answer 2 out of 4)** **[2 × 10 = 20]**

a) Give sources and description of raw materials for hair cosmetics. Explain preparation and evaluation of Herbal Shampoo preparation.

b) Describe Bhasma. Explain in detail method of preparation and evaluation of Bhasma and Give marketed preparation.

c) Describe the role of nutraceuticals in ailment of different disease conditions with e.g. Explain in detail omega-3-fatty acids and proanthocyanidins.

d) Discuss Natural Pesticides. Classify the biopesticides with e.g. Write in detail Pharmacognostic account of Neem as Natural pesticide.

P.T.O.

Q3) **Short Answer (Answer 8 out of 10)** **[8 × 5 = 40]**

a) Explain preparation and standardisation of Asava and Aristha.

b) Explain basic principles involved in Ayurveda.

c) Describe Good Agriculture Practices for Medicinal plants.

d) Classify the Herbal Excipients with e.g. Discuss in detail Natural Sweetners.

e) Write a note on scope of Herbal Drug Industry.

f) Discuss in detail Good Manufacturing practice of Indian System of medicine.

g) Write a note on Homeopathic system of medicine.

h) Describe natural perfumes.

i) Write a note on Herbal Drug Interaction. Describe interaction and toxicity of Hypericum.

j) Write a note on Avaleha.

Total No. of Questions : 3]

SEAT No. :

P 5732

[Total No. of Pages :2

[6110] -506

T.Y. B.Pharmacy

BP 604T : BIOPHARMACEUTICS & PHARMACOKINETICS

(2019 Pattern) (Semester-VI)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Answer the following (any 5 out of 7) **[15]**

a) Discuss the significance of protein binding of drugs.

b) Write a note on facilitated diffusion.

c) What is multi compartment model?

d) Explain with significance the study parameters used in bioavailability determination.

e) What is the effect of particle size on the rate of drug dissolution?

f) The absorption rate of paediatric and geriatric differ from that of adults, why?

g) Define bioavailability, absolute bioavailability and relative bioavailability.

Q2) Answer the following (any 2 out of 4) **[20]**

a) What do you understand by pharmacokinetic model? Classify the pharmacokinetic models, give their salient features, advantages and disadvantages.

b) Define bioavailability. Explain pharmacokinetic methods for assessment of bioavailability.

c) Describe the factors influencing protein binding of drug. Give significance of proteing binding.

d) Discuss P^H partition hypothesis of drug absorption.

P.T.O.

Q3) Answer the following (any 8 out of 10) **[40]**

a) Write a detail note on Kinetics of protein binding.

b) Write a note on drug displacement interactions.

c) Enlist different pharmacokinetic models. What is compartment model? mention advantages and disadvantages of the same.

d) Differentiate between active transport and a facilitated diffusion?

e) What is biotransformation? What are phase I and phase II reactions?

f) Define bioequivalence. How bioequivalence study can be performed by latin square crossover Design?

g) Explain a drug transport across the blood-brain barrier with the help of a diagram.

h) Explain the factors affecting drug distribution.

i) Explain the signifecance of absorption window?

j) Liver is considered as a major organ involved in defoxification, justify.

Total No. of Questions : 3]

SEAT No. :

P-5733

[Total No. of Pages : 2

[6110]-507
T.Y. B. Pharmacy
BP605T : PHARMACEUTICAL BIOTECHNOLOGY
(2019 Pattern) (Semester-VI)

Time : 3 Hour] ***[Max. Marks : 75***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn whenever necessary.***
3) ***Black figures to the right indicates full marks.***

Q1) Answer in brief (Solve any 5) **[15]**

a) Explain enzyme Immobilization

b) What are restriction endonuclease enzymes? Give two examples.

c) Define immunity. List the types of immunity.

d) What is ELISA, write any two applications of ELISA.

e) Discuss storage conditions and stability of official vaccines.

f) Describe the principle of southern blotting.

g) Write any four properties of Immunoglobulin G.

Q2) Answer the following questions in detail. (Solve any 2) **[20]**

a) What are biosensors? Explain working and applications in pharmaceutical industries.

b) What is Recombinant DNA Technology. Write in detail the production of Insulin by genetic engineering method.

c) Discuss general method of the preparation of bacterial vaccines and toxoids.

d) What is Fermentation? Describe the production of Penicilin by fermentation technology with a neat labelled flow chart.

P.T.O.

Q3) Answer the following questions (Solve any 8). **[40]**

a) What are applications of biotechnology with reference to pharmaceutical sciences.

b) Describe the structure and functions of MHC

c) Describe the production of monoclonal antibodies by hybridoma technology.

d) Write a note on Polymerase Chain Reaction (PCR).

e) Explain the general method of the preparation of viral vaccine.

f) Explain different types of mutations.

g) What is microbial biotransformation? Give two examples.

h) Explain briefly, transformation, transduction and conjugation.

i) List out different blood products and their applications.

j) Write uses of microbes in Pharmaceutical industry.

Total No. of Questions : 3]

SEAT No. :

P-5734

[Total No. of Pages : 2

[6110]-508

T.Y. B. Pharmacy

BP606T : PHARMACEUTICAL QUALITY ASSURANCE

(2019 Pattern) (Semester-VI)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates :

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

Q1) Attempt any five of the following. **[15]**

a) What are the quality control tests for secondary packaging materials?

b) Write down the waste disposal procedure in pharmaceutical industry?

c) What is the importance of training in pharmaceutical industry.

d) Differentiate between validation and calibration.

e) Give the full forms for : CDSCO, USFDA, WHO, PIC/S, TQM, ISO.

f) State the meaning of ICH QSEM.

g) Write down the benefits of ISO 9000 and ISO 14000.

Q2) Attempt any two of the following. **[20]**

a) Explain in detail CPCSEA guidelines for the conduct of preclinical studies.

b) Write down the importance of document maintenance in pharmaceutical industry. Discuss batch formula record with suitable example.

c) Elaborate the types of validation.Write down the importance of Validation.

d) Write down the guidelines for the design, construction and plant layout of sterile areas in pharmaceutical industry.

P.T.O.

Q3) Attempt any eight of the following. **[40]**

a) Write down the requirements of effective closure. What are quality control tests for rubber closures.

b) Discuss the importance and responsibilities of quality Assurance unit as per GLP guidelines.

c) Explain in brief procedure for handling and evaluation of complaints about product quality in the pharmaceutical industry.

d) What is SOP?Write down the guidelines for writing SOP? Give a representative format for SOP.

e) Enlist and explain the parameters considered for analytical method validation.

f) Discuss raw meterial management in pharmaceutical industry.

g) Write down the guidelines for maintenance of stores in pharmaceutical industry.

h) Write in brief procedure for NABL accreditation.

i) Write down criteria for selection and purchase of equipments.

j) What is Quality by design? Give the overview of QBD elements.

Total No. of Questions : 3]

SEAT No. :

P5735

[Total No. of Pages :2

[6110]-509

Fourth Year B.Pharmacy

BP701T : INSTRUMENTAL METHODS OF ANALYSIS

(2019 Pattern) (Semester-VII)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Draw a neat, labeled diagram wherever necessary.***
3) ***Figures to the right indicate full marks.***

Q1) Attempt the followings (Any 5). **[5×3=15]**

a) Differentiate between TLC and HPTLC.

b) Explain in detail account on chromophore and auxochrome.

c) Discuss the various types of transitions involved in UV-V is spectrophotometry.

d) Discuss the principle and applications of nephelometry.

e) Discuss the importance of fingerprint region in IR spectoscopy.

f) Explain the concepts of singlet, doublet and triplet electronic states.

g) Describe various development techniques used in paper chromatography.

Q2) Answer the followings (Any 2). **[2×10=20]**

a) Describe in detail the theory, instrumentation and applications of GC.

b) Draw a neat labeled diagram of double beam UV-Visible spectrophotometer. Explain the functioning of each part. Write applications of UV-Visible spectrophotometry.

c) Describe in detail the theory, instrumentation and applications of HPTLC.

d) Discuss the phenomenon of fluorescence. Explain in detail the factors affecting fluorescence.

P.T.O.

Q3) Attempt the followings (Any 8). **[8×5=40]**

a) Write a note on

i) Spectrophotometric titrations

ii) Multi component Analysis.

b) Give a detail account on detectors used in IR spectroscopy.

c) Discuss the different types of interferences encountered in AAS and the ways to minimize them.

d) Discuss about theory and applications of ion exchange chromatography.

e) State Beer-Lamberts law. Explain the deviations leading from it.

f) Discuss rate theory and plate theory in detail.

g) Give a brief account on columns and pumps used in HPLC.

h) What is quenching of fluorescence? Explain the different types of quenching.

i) Write a note on

i) Ion exchange resins

ii) Importance of degassing of solvents in HPLC.

j) Discuss the importance of

i) Rf value

ii) Retention time

Total No. of Questions: 3]

SEAT No. :

P5736

[Total No. of Pages : 2

[6110]-510
Fourth Year B. Pharmacy
BP702T : INDUSTRIAL PHARMACY - II
(2019 Pattern) (Semester-VII)

Time : 3 Hours] ***[Max. Marks : 75***

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.***

Q1) Answer the following (Any Five) **[15]**

a) What are the elements of QbD?

b) List out the significance of NABL accreditation.

c) Define validation? Explain benefits of validation.

d) Enlist methods of risk management.

e) Describe different levels of scale up changes as per SUPAC.

f) Define clinical trial and explain Phase II.

g) What are critical quality attributes?

Q2) Answer the following (Any two) **[20]**

a) Explain the regulatory approval process for New Drug Application.

b) Explain the concept of Quality and Total Quality Management.

c) Explain the elements of ISO 9000:2000.

d) Describe documentation required in technology transfer.

P.T.O.

Q3) Answer the following (Any Eight) **[40]**

a) Write a note on Platform Technology.

b) Explain the responsibilities of regulatory affairs professionals.

c) Explain the requirements for pilot plant scale up of Liquid Orals.

d) Write note on Certificate of Pharmaceutical Product (COPP).

e) Discuss the objectives and scope of GLP in Pharmaceutical industry.

f) Describe the Organization of CDSCO with flow diagram.

g) Write a note on Drug Technical Advisory Board (DTAB) and its functions.

h) Write a note on Clinical research protocol.

i) Explain the applications of Biostatistics in Pharmaceutical Product Development.

j) Explain the concepts of Six Sigma for Quality Improvement.

Total No. of Questions : 3]

SEAT No. :

P5737

[Total No. of Pages : 2

[6110] - 511

Fourth Year B. Pharmacy

BP - 703 - T : PHARMACY PRACTICE

(2019 Pattern) (Semester - VII)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

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

Q1) Objective Type Questions (Answer 5 out of 7) **[15]**

a) Classify hospitals and give their functions.

b) Illustrate synergistic type of drug interactions with examples.

c) Discuss the duties and responsibilities of hospital pharmacists.

d) Summarize advantages and disadvantages of satellite pharmacy service.

e) Explain the floor ward stock system.

f) Describe the fundamental requirements for the sale of over-the-counter (OTC) medications.

g) Give an explanation of therapeutic drug monitoring (TDM) and its necessity.

Q2) Long Answers (Answer 2 out of 4) **[20]**

a) Describe the adverse drug reaction monitoring and reporting mechanism in India.

b) Explain the various techniques utilised for hospital in-patient drug distribution.

c) Discuss in detail the organization and functions of Pharmacy and Therapeutic Committee.

d) Discuss the code of ethics for community pharmacy.

P.T.O.

Q3) Short Answers (Answer 8 out of 10) **[40]**

a) Explain with examples how pharmacokinetic type of drug interactions affects drug's efficacy.

b) Discuss the process for selecting new medicines in formulary.

c) Elucidate the pharmacist's role in ensuring patient medication adherence.

d) What is an investigational drug? Explain the procedures for control of investigational drug use in the hospital.

e) Discuss the types of resources for drug information and steps for approaching drug information enquiries.

f) Discuss the role and responsibilities of community pharmacist.

g) Describe the arrangement of drugs in drug store.

h) Desribe the stages of patient counseling.

i) Explain the various lipid profile test parameters and their clinical relevance.

j) Discuss techniques used for inventory control.

Total No. of Questions : 3]

SEAT No. : ____

P-5738

[Total No. of Pages : 2

[6110]-512

F.Y. B.Pharmacy

BP704T : NOVEL DRUG DELIVERY SYSTEM

(2019 Pattern) (Semester - VII)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

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

Q1) Answer the followings (Solve any 5 out of 7) : **[5 × 3 = 15]**

a) Describe nanoparticles along with it's general properties.

b) Explain ideal properties of bioadhesive polymer.

c) Summarize the different factors affecting designing of modified drug delivery system.

d) Define controlled drug delivery system. Write it's advantages & disadvantages.

e) Define & Differentiate between active & passive targeting.

f) Enlist factors affecting the formulation of pulmonary drug delivery system.

g) Write short note on nebulizers.

Q2) Answer in detail (Solve any 2 out of 4) : **[2 × 10 = 20]**

a) Discuss in detail floating drug delivery system in GRDDS with it's evaluations.

b) Explain in detail various methods of preparation of liposomes.

c) Discuss in detail types of occular drug delivery system.

d) Define microencapsulation & Explain any three techniques of microencapsulation.

P.T.O.

Q3) Answer the following in brief (Answer 8 out of 10) : **[8 × 5 = 40]**

a) Explain permention enhancers with example in Transdermal Drug Delivery System (TDDS).

b) Explain the different theories of mucoadhesion.

c) What are the evaluation parameters of polymers write a note on DSC.

d) What are ion-exchange resin? Give their mechanism.

e) Describe vapour pressure activated implantable device.

f) Explain Evaluation parameters of transdermal patches.

g) What are temperature & pH responsive polymer? Explain it.

h) Explain the classification of intrauterine drug delivery with suitable example.

i) Write an account on metered dose inhalers.

j) What are the advantages & disadvantages of implantable drug delivery system?

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Total No. of Questions : 3]

SEAT No. : ____

P-5739

[Total No. of Pages : 2

[6110]-513

Final Year B. Pharmacy

BP801T : BIOSTATISTICS AND RESEARCH METHODOLOGY

(2019 Pattern) (Semester - VIII)

Time : 3 Hours] ***[Max. Marks : 75***

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.***

Q1) **Answer the following (Any Five) :** **[15]**

a) What is descriptive and inferential statistics?

b) What are the general rules for constructing and labeling a graph?

c) Explain in brief about response surface plot.

d) Write a note on "Random Sampling".

e) What is 2^2 factorial design?

f) Weights of 10 tablets in mg in a sample data are 110, 112, 115, 120, 124, 115, 118, 120, 125 and 121. Find out the sample mean.

g) A first aid box contains 10 tablets of Paracetamol and 20 tablets of Aspirin. What is the probability of picking a Paracetamol tablet from the box?

Q2) **Answer the following (Any Two) :** **[20]**

a) Discuss briefly about designing the methodology for clinical studies. Describe how a sample size is determined for simple comparative experiments.

b) What do you understand by measures of central tendency? Describe the types of measures and their characteristics.

c) What is hypothesis testing? What are different types of hypothesis? Explain in detail the procedure for hypothesis testing.

d) Explain principle and steps involved in experimental design. Write in detail about factorial design.

P.T.O.

Q3) **Answer the following (Any Eight) :** **[40]**

a) Explain about report writing.

b) What is ANOVA? Explain the method of one way ANOVA.

c) What is Type I and Type II errors in hypothesis testing?

d) Write a note on Binomial distribution.

e) Write a note on Plagiarism.

f) Write note on MINITAB®.

g) Define optimization. Add a note on optimization techniques.

h) Write a note on 'Student's t test'.

i) Write in brief about statistical analysis using Excel.

j) Find the mean, median and mode for the following data for amount of drug in mg present in 12 tablets:

X: 50, 52, 53, 54, 54, 52, 50, 55, 53, 54, 55, 56.

▽▽▽▽

Total No. of Questions : 3]

SEAT No. :

P-5740

[Total No. of Pages : 2

[6110]-514

Final Year B. Pharmacy

BP802T : SOCIAL AND PREVENTIVE PHARMACY

(2019 Pattern) (Semester-VIII)

Time : 3 Hour] ***[Max. Marks : 75***

Instructions to the candidates :

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***

Q1) Answer any five (5 out of 7) **[15]**

a) Explain the significance of social and mental health.

b) Write the mode of transmission and symptoms of pneumonia.

c) What are indicators of health?

d) Explain "National health intervention programme for mother and child".

e) What is health care for elderly?

f) Explain in brief "Health promotion in schools"

g) What is malnutrition? Explain its prevention

Q2) Answer any Two. (2 out of 4) **[20]**

a) Define public health. Explain its concept and evaluation.

b) Describe the general principles for prevention and control of malaria

c) Write a note on General principles and control of Hypertension.

d) What are national health programs, write in detail about national AIDS control program

P.T.O.

Q3) Answer any eight. (08 out of 10) **[40]**

a) Explain the impact of urbanization on health and disease.

b) What are the causes of influenza? Add note on its treatment and prevention.

c) Write functions of PHC in health care system.

d) Explain how to improve in rural sanitation.

e) Write a note on drug addiction and its prevention

f) Explain pulse polio programme

g) Explain the universal immunization program.

h) Explain prevention and control of Dengue

i) Explain role of WHO in Indian national health program

j) Explain the impacts of Tobacco addiction. Explain methods for its control

Total No. of Questions : 3]

SEAT No. : ____

P-5741

[Total No. of Pages : 2

[6110]-515

F.Y. B.Pharmacy

BP803ET : PHARMA MARKETING MANAGMENT

(2019 Pattern) (Semester - VIII)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw neat diagrams and structures wherever necessary.***

Q1) **Answer all the questions (Objectives) (Any 5 out of 7) :** **[5 × 3 = 15]**

a) Discuss in detail about global marketing of pharmaceutical product.

b) Conclude the quantitative aspects of Pharmaceutical market.

c) Justify the key criteria's for selection of channel members.

d) Design the various tasks in physical distribution management.

e) Evaluate the current trends in compensation of Professional sales representative

f) Demonstrate the importance of vertical marketing

g) Write note on determinants of price.

Q2) **Long Answers (Any 2 out of 4) :** **[2 × 10 = 20]**

a) Explain in detail about methods & determinants of promotional mix.

b) Elaborate on Product line & Product mix decisions.

c) Demonstrate the journey of ordinary product to become a Brand.

d) Discuss in detail demographic descriptions & socio-psychological characteristics of consumer.

P.T.O.

Q3) **Short Answer (Any 8 out of 10) :** **[8 × 5 = 40]**

a) Write about the marketing environment in pharmaceuticals.

b) Discuss the prescribing habits of the physician.

c) Generalize the statement that product positioning is important in Pharma marketing.

d) Discuss packaging & Labelling decisions.

e) Write down in detail about promotional budget.

f) Explain the various online promotional techniques for OTC Products.

g) Classify the tasks in physical distribution management

h) Describe the current selection & training process for (PSR) Professional sales representative.

i) Write a note on Industrial marketing.

j) Distinguish between vertical & horizontal marketing.

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Total No. of Questions : 3]

SEAT No. :

P 5742

[Total No. of Pages :2

[6110] -516

Fourth Year B.Pharmacy

BP 804ET : PHARMACEUTICAL REGULATORY SCIENCE

(2019 Pattern) (Semester-VIII)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagram whenever necessary.***

Q1) Answer the following (any 5 out of 7) **[15]**

a) Give brief account on monitoring patient safety during clinical trials.

b) Explain about generic drug.

c) Give importance of regulation.

d) Explain the role of regularty affairs professionals.

e) What is NDA?

f) What is orange book?

g) What is clinical trial protocol?

Q2) Answer the following (any 2 out of 4) **[20]**

a) Explain in detail drug development process of preclinical study.

b) Explain organization structure and application of regulatory authorities of India.

c) Explain procedure for development of protocol.

d) Give a brief account on approval process and timeline involved in investigational new drugs (IND).

P.T.O.

Q3) Answer the following (any 8 out of 10) **[40]**

a) What is federal register? Give code of federal regulatory.

b) Explain Australian regulatory authority.

c) Explain non-clinical activities in drug development.

d) What is DMF? Give brief account on CTD (Common Technical Document).

e) Give application of regulatory authority of US.

f) Give summary of regulatory authorities of European Union.

g) Explain regulation and regulatory concept.

h) Define law and act, Explain in detail purple book.

i) Explain procedures of GCP (Good Clinical Practices) of investigators, sponsors and monitors.

j) Give structure and function of ethics committee.

Total No. of Questions : 3]

SEAT No. :

P-5743

[Total No. of Pages : 2

[6110]-517

Final Year B. Pharmacy (Semester - VIII)

BP805ET : PHARMACOVIGILANCE

(2019 Pattern)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

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

Q1) **Solve any FIVE.** **[5 × 3 = 15]**

a) Define adverse reaction, unexpected adverse reaction and side effect.

b) Define vaccine. Write the reasons for vaccination failure.

c) What is PSUR and DSUR?

d) Write about drug and disease classification in pharmacovigilance.

e) What is under reporting of ADRs?

f) Explain Cross-sectional study.

g) Write the role and responsibilities of CDSCO?

Q2) **Solve any TWO.** **[2 × 10 = 20]**

a) Classify ADRs? Discuss the causality assessment of ADRs.

b) What are different pharmacovigilance methods? Explain in detail different types of pharmacovigilance methods used for passive and active surveillance.

c) Discuss in detail the setting of a pharmacovigilance system in hospital.

d) Explain different pharmacovigilance methods.

P.T.O.

Q3) **Solve any EIGHT.** **[8 × 5 = 40]**

a) Describe effective communication in Pharmacovigilance elaborately.

b) Explain expedited reporting and post approval expedited reporting.

c) Discuss about establishment of national pharmacovigilance program.

d) Write about MedDRA and standardized MedDRA.

e) Write a note on information resources in pharmacovigilance.

f) Write a note on Schedule Y.

g) Explain Vaccine safety surveillance.

h) Write a short note on ICH guidelines.

i) Discuss WHO drug dictionary and coding in pharmacovigilance.

j) Write a short note on WHO causality assessment.

Total No. of Questions : 3]

SEAT No. :

P-5744

[Total No. of Pages : 2

[6110]-518

Final Year B. Pharmacy (Semester - VIII)

BP806ET : QUALITY CONTROL & STANDARDIZATIONS OF HERBALS (Theory)

(2019 Pattern)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate fulll marks.***
3) ***Draw well labelled diagram whenever necessary.***

Q1) **Solve the following (Answer 5 out of 7)** **[5 × 3 = 15]**

a) Write in short application of TLC for standardization of herbal products.

b) Brief communication step while safety monitoring of herbal medicines.

c) Write about basic tests of secondary metabolites for herbal materials.

d) Short note on 'Water supply' as per Schedule T for herbal industry.

e) Brief microscopical evaluation of crude drugs.

f) Brief note on American Herbal Pharmacopoeia.

g) Note on 'determination of Water matter' as per WHO for quality control of herbals.

Q2) **Solve long answers (Answer 2 out of 4)** **[2 × 10 = 20]**

a) Write comparison of various herbal pharmacopoeia.

b) Write in detail research guideline for evaluating safety and efficacy of herbal drugs.

c) Explain HPTLC & HPLC application for standardization of herbals with examples.

d) Elaborate cGMP for quality assurance in herbal drug industry.

P.T.O.

Q3) **Solve Short answers (Answer 8 out of 10)** **[8 × 5 = 40]**

a) Explain 'Identification/authentication' of medicinal plants as per GAP.

b) How reporting for adverse drug reaction documented while safety monitoring of herbals as per WHO guideline.

c) Explain in detail 'Tannin Estimation' as per WHO guideline for quality control of herbal drugs.

d) Write in detail procedure for export registration of herbals.

e) Write a note on 'Buildings' under general requirement of Schedule T in part I.

f) Write 'Reference substances' as per GLP.

g) Brief parameters of quality control of herbal drugs as per ICH guidelines.

h) Brief parameters of testing frequency & storage condition for stability testing of herbals.

i) Explain regulation of ASU drugs for manufacture for sale as per D & C rules.

j) Write 'Laboratory storage facilities' as per GLP.

Total No. of Questions : 3]

SEAT No. :

P-5745

[Total No. of Pages : 2

[6110]-519

Final Year B.Pharmacy

BP807ET : COMPUTER AIDED DRUG DESIGN (Theory)

(2019 Pattern) (Semester - VIII)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) **Objective Type Questions (Answer 5 out of 7) :** **[5 × 3 = 15]**

a) Explain Bioisosterism. Classify with examples.

b) Define Bioinformatics. Mention applications of bioinformatics.

c) Explain Pharmacophore mapping and its applications.

d) Discuss the role of molecular and quantum mechanics in drug discovery.

e) Write a note on chemoinformatics in the drug discovery process.

f) Differentiate molecular mechanics and Quantum mechanics.

g) Write a note on Pharmacophore-based screening.

Q2) **Long Answers questions (Answer 2 out of 4) :** **[2 × 10 = 20]**

a) What do you mean by Drug Discovery & Development? Explain various steps & approaches to lead discovery.

b) What is QSAR? Explain in detail the history and development of QSAR. Explain the electronic and steric parameters to be considered in QSAR analysis.

c) Explain in detail Ligand-based & Structure-based drug design by taking suitable examples.

d) Discuss classical and non-classical bioisosteric replacement strategies in Analogue based design of drugs with examples.

P.T.O.

Q3) **Short Answers questions (Answer 8 out of 10) :** **[8 × 5 = 40]**

a) Explain different methods in the determination of energy minimization.

b) Explain Hansch analysis and Free Wilson's analysis along with its advantages and disadvantages.

c) Discuss various databases used in drug design and discovery.

d) Explain in detail Quantum mechanics.

e) Explain rigid & flexible docking.

f) Define the term virtual screening. Explain the concept.

g) Discuss COMFA & COMSIA.

h) Write a note on molecular mechanics.

i) Write a note on docking and explain about docking-based virtual screening.

j) 2D-QSAR

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Total No. of Questions : 3]

SEAT No. : ____

P-5746

[Total No. of Pages : 2

[6110]-520

Final Year B. Pharmacy

BP808ET : CELL AND MOLECULAR BIOLOGY

(2019 Pattern) (Semester - VIII)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw well labeled diagrams wherever necessary.***

Q1) Attempt any FIVE: **[15]**

a) What happens during G2 of cell cycle?

b) What is the process of a mutation?

c) Why is catabolism important?

d) What is cell adaptation and why it is so important?

e) What is the important property of the cell membrane?

f) Define molecular biology.

g) What is the function of the protein kinase enzyme?

Q2) Attempt any TWO: **[20]**

a) What are the steps of the GPCR signal transduction pathway?

b) What are the events and regulators of apoptosis?

c) What are the stages of translation and transcription?

d) What is cell signaling and its types?

P.T.O.

Q3) Attempt any EIGHT: **[40]**

a) What are the processes of meiosis?

b) Enlist cell organelles and its functions in eukaryotic cell

c) What is the difference between G1 checkpoint and G2 checkpoint?

d) What are the different types of receptor pathways?

e) Writ the differences between apoptosis and necrosis?

f) What are the applications of proteomics?

g) Why is it important to regulate protein synthesis?

h) What is the role of second messengers in signaling pathways?

i) What is the mechanism of DNA transcription?

j) What are the mechanisms of gene expression control?

Total No. of Questions :3]

SEAT No. :

P5747

[Total No. of Pages : 2

[6110]-521

Fourth Year B.Pharmacy
COSMETIC SCIENCE
(2019 Pattern) (Semester-VIII) (BP809ET)

Time : 3 Hours] ***[Max. Marks : 75***

Instructions to the candidates:

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

Q1) Attempt any five out of seven of the following **[15]**

a) Explain the Principles & Mechanism of tensile strength measurement for hair.

b) What are quasi drugs?

c) Enlist in brief cosmetic applications of turmeric.

d) What is sun protection factor? Write its applications.

e) Describe in brief the BIS specification.

f) What are cosmeceutical products? How they differ from cosmetics.

g) Write the advantages and disadvantages of vanishing cream.

Q2) Answer any two out of four of the following **[20]**

a) Discuss different types of hair care products. Elaborate on principle, formulation aspects and building blocks of shampoos.

b) Discuss the principle, formulation aspects and evaluation of sunscreen preparations.

c) Describe in detail Cosmetic problems associated with skin.

d) Summarize the role of Henna and amla in different hair care products.

P.T.O.

Q3) Answer in brief on any eight of the following. **[40]**

a) Write a note on surfactants in cosmetics.

b) Describe the features of toothpaste formulation for bleeding gums and sensitive teeth.

c) Explain the Principles & Mechanism of corneometer.

d) Discuss in detail on formulation and evaluation of soaps.

e) Explain the concept of skin penetration enhancers and their use in cosmetic formulations.

f) Discuss in brief formulation of mouthwash,

g) Write a note on antiacne cream.

h) Discuss the mechanism of action of antiperspirant and also elaborate on role of each component in it.

i) Elaborate on evaluation of skin creams.

j) Write a note on face wash.

Total No. of Questions : 3]

SEAT No. :

P-5748

[Total No. of Pages : 2

[6110]-522

Final Year B. Pharmacy

BP810ET : EXPERIMENTAL PHARMACOLOGY

(2019 Pattern) (Semester - VIII)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Draw neat and well labelled diagram wherever necessary.***
3) ***Figures to the right side indicates full marks.***

Q1) **Solve any five out of seven questions :** **[15]**

a) Write objectives of CPCSEA guidelines.

b) Explain Preclinical screening of Alzheimer's disease.

c) Discuss Preclinical screening for anti-ulcer agents.

d) Explain carrageenan induced Paw edema test for anti- inflammatory drugs.

e) Illustrate the principle of actophotometer apparatus in determination of CNS activity.

f) Explain preclinical evaluation of anti-epileptic agents.

g) Discuss rationale for selection of animal species and sex for research study.

Q2) **Solve any two out of four questions.** **[20]**

a) Discuss in-vivo and in -vitro models for anti cancer activity.

b) Explain preclinical evaluation of anti-hypertensive agents.

c) Describe screening methods for coagulants & anti-coagulant agents.

d) Elucidate preclinical screening of anti-diabetic activity.

P.T.O.

Q3) **Solve any Eight out of ten questions :** **[40]**

a) Discuss students 't' test and ANOVA test.

b) Explain importance of hypothesis and review of literature.

c) Discuss screening models for nootropic activity.

d) Elaborate preclinical screening of anti-arrythmic activity.

e) Explain any two methods of evaluation of anti-asthmatic activity.

f) Explain Preclinical screening models for sympathomimetics.

g) Discuss screening methods for anti-psychotic activity.

h) Discuss grouping of animals, sham negative and positive control groups.

i) Describe screening methods for local anesthetics.

j) Write a note on acute oral toxicity as per OECD guidelines.

Total No. of Questions : 3]

SEAT No. :

P5749

[Total No. of Pages : 2

[6110]-523

Fourth Year B. Pharmacy

BP811ET : ADVANCED INSTRUMENTATION TECHNIQUES

(2019 Pattern) (Semester - VIII)

Time : 3 Hours] *[Max. Marks : 75*

Instructions to the candidates:

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

Q1) Answer following questions : (Any five) **[15]**

a) Explain NMR spectrum of Propane.

b) Define the term Larmor Frequency, Chemical Shift and Coupling Constant.

c) Write in brief about characteristics of 13C-NMR Spectroscopy.

d) Explain principle behind Solid Phase Extraction.

e) Discuss method to evaluate theparameter 'Column Oven Temperature' with reference to calibration of HPLC.

f) Explain 'Nitrogen Rule' with suitable example with reference to recognition of molecular ion peak in Mass Spectroscopy.

g) What are Pharmaceutical applications of XRD'?

Q2) Answer following questions in detail : (Any Two) **[20]**

a) Discuss in detail about calibration of UV spectrophotometer.

b) Suggest suitable chemical structure for following spectroscopic data:

Molecular Formula C_8H_8O

IR : 3100 cm^{-1}, 2900 cm^{-1}, 1700 cm^{-1}, l600 cm^{-1}, 1400cm^{-1}, 1300cm^{-1}

Proton NMR: δ 7.2 (m, 5H), δ 0.9 (s, 3H)

Mass (m/z): 120, 105, 77

c) Elaborate on instrumentation of Mass Spectroscopy with labelled diagram.

d) Explain in detail about principle and components of Capillary Electrophoresis.

P.T.O.

Q3) Write short notes on following (Any Eight) : **[40]**

a) Electrospray Ionization

b) Applications of LC-MS

c) Paper Electrophoresis

d) Calibration of Electronic Balance

e) Liquid-Liquid Extraction

f) Components of RIA

g) Fast Atom Bombardment

h) Applications of Differential Scanning Calorimetry

i) Calibration of Fluorimeter

j) MS-MS

Total No. of Questions: 3]

SEAT No. :

P5750

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[6110]-524
Fourth Year B.Pharmacy
BP812 ET : DIETARY SUPPLEMENTS & NUTRACEUTICALS
(2019 Pattern) (Semester-VIII)

Time : 3 Hours] ***[Max. Marks : 75***

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.***

Q1) Objective Type Questions (Answer 5 out of 7) **[3×7=15]**

a) Define Nutraceuticals.

b) Role of dietary fibres in maintaining gut health.

c) Enlist sources of sulphides.

d) Enlist factors that reduce endogenous antioxidant enzymes.

e) What is the full form of FSSAI?

f) Enlist types of common food adulterants.

g) Write the uses of oats as functional food.

Q2) Long Answers (Any 2 out of 4) **[2 ×10=20]**

a) Explain the significance of nutrition education in the community. Add a note on source, chemistry, medicinal applications and health benefits of Ginseng and Gingko.

b) Explain in detail about the source. chemistry and medicinal benefits of any four phytoestrogens.

c) Explain the causes and measures to avoid degradation of nutraceuticals during processing, storage and from environmental factors.

d) Explain in detail the role of free radicals in Diabetes. Comment on the role of α Lipoic acid and tocopherol in management of free radicals.

P.T.O.

Q3) Short Answers. (Any 8 out of 10) **[8×5 =40]**

a) Explain the biological source, phytoconstituents and medicinal benefits of Broccoli.

b) Add a note on Biological Source, chemical composition, and medicinal application of flavonoids.

c) Explain in detail the damaging effects of free radicals on carbohydrates.

d) Explain in detail the mechanism of kidney damage caused by free radicals.

e) Explain role of regulatory agencies in maintaining safety and prevention of adulteration of food products.

f) Add a note on Biological Source, chemical composition, and medicinal application of sea foods.

g) Explain the biological source, phytoconstituents and medicinal benefits of Carotenoids.

h) Explain in detail the damaging effects of free radicals on DNA.

i) Role of free radicals in inflammatory diseases.

j) Write a note on the health benefits of Rutins.