Total No. of Questions : 3]

SEAT No. : [ ]

P3674

[Total No. of Pages : 2

[6019]-1011

F.Y. B.Pharmacy

BP101 T : HUMAN ANATOMY & PHYSIOLOGY-I

(2019 Credit Pattern) (Semester-I)

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

Instructions to the candidates:

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

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

a) Define the terms- cardiac output, blood pressure and stoke volume.

b) What is electrocardiogram. Mention its significance.

c) Mention the functions of mitochondria.

d) Define the directional terms with example:

i) Medial and lateral

ii) Deep and superficial

e) Classify different mechanisms of transport across cell membrane.

f) Write important features of muscle tissue.

g) Discuss about reticuloendothelial system.

Q2) Answer the follwoing (any 2) **[20]**

a) Draw a neat labeled diagram of heart. Explain physiology of cardiac blood circulation.

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

c) Define and classify tissue. Discuss in detail epithelial tissue.

d) Describe structure and functions and formation of erythrocytes. Add an account on hemoglobin.

P.T.O.

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

a) What is blood pressure. Explain role of kidney in blood pressure regulation.

b) Discuss the physiology of vision.

c) Elaborate on spinal and cranial nerves.

d) Give an account on blood vessels.

e) Describe the structure and functions of skin.

f) Explain the physiology of muscle contraction.

g) Describe in detail the structure and functions of spleen.

h) Write an account on divisions of human skeleton.

i) Describe the structure, types and functions of bones.

j) Explain ABO and Rh blood grouping. Comment on blood transfusion.

Total No. of Questions : 3]

SEAT No. :

P3675

[Total No. of Pages :2

[6019]-1012
F.Y.B.Pharmacy
PHARMACEUTICAL ANALYSIS - I
(2019 Pattern) (Semester-I)(Theory)(BP102T)

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 labelled diagram wherever necessary.***

Q1) Answer ANY FIVE objective type questions out of the following. **[5×3=15]**

a) Explain concepts of oxidation and reduction.

b) Discuss three metal ion indicators with the examples.

c) Explain the methods of expressing concentration in the pharmaceutical solution.

d) What are different techniques used for analysis?

e) Write the scope of Pharmaceutical analysis.

f) Classify Complexometric titrations with suitable example.

g) Explain the working of Conductivity cell.

Q2) Answer ANY TWO questions out of the following. **[2×10=20]**

a) Write the methods to determine end point of potentiometric titrations and discuss various applications of potentiometric titrations.

b) Explain the following terms: Sources of errors, types of errors and methods of minimizing errors.

c) Explain the neutralization curves of Weak Acid with Strong Base and Weak Base with Strong Acid.

d) Discuss in detail Mohr's method and Volhard's Modified method.

P.T.O.

Q3) Answer ANY Eight questions out of the following. **[8×5=40]**

a) Explain masking and demasking reagents.

b) Discuss the steps involved in gravimetric analysis.

c) Discuss the procedure for estimation of barium sulphate in gravemetric analysis.

d) Write a note on Cerimetry.

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

f) Discuss the solvents used in Non aqueous titrations.

g) Discuss co-precipitation.

h) Explain working of Abbe's refractometer.

i) Discuss the principle of Polarography.

j) Write the principle and procedure for estimation of Sodium Chloride I.P.

Total No. of Questions : 3]

SEAT No. :

P3677

[Total No. of Pages : 2

[6019]-1014

First Year B. Pharmacy

BP - 104T : 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 the right indicate full marks.***
3) ***Draw neat diagrams structures wherever necessary.***

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

a) Give a detailed account of the history of Pharmacopoeia.

b) Explain Different type of official waters and official control test for water.

c) Give assay for Potassium chloride.

d) What are electrolytes?

e) Describe Acidifiers with Example.

f) What are Expectorants? How do they work?

g) Define Desensitizing agents with examples.

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

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

b) Describe the various sources of impurities present in pharmaceutical substances.

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

i) Magnesium sulphate ii) Magnesium hydroxide

d) Explain the principle and procedure involved in the limit test of arsenic with a neat Labeled diagram of Gutziet's apparatus.

P.T.O.

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

a) Give the preparation, identification tests, assay and medicinal uses of ferrous sulphate.

b) Define Radio activity and measurement of radioactivity with units.

c) Give the uses of Sodium iodine^{131}, Indium^{111}, Calcium^{47}, Chromium^{51}.

d) Define buffer capacity and give calculations and methods of adjusting isotonicity.

e) Write a note on Emetics.

f) Define antidote and uses of Sodium thiosulphtate, Activated charcoal, Sodium nitrite.

g) Give properties of α, β, γ radiations precautions & pharmaceutical applications of radioactive substances.

h) Give modified limit test for Chloride and Sulphate.

i) Explain the role of fluoride in the treatment of dental caries.

j) Write in detail about Astringents.

Total No. of Questions : 3]

SEAT No. :

P-3678

[Total No. of Pages : 2

[6019]-2011

F.Y. B. Pharmacy

BP201T: HUMAN ANATOMY AND PHYSIOLOGY - II

(2019 Pattern) (Semester - II)

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

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

a) Give composition of bile and explain its functions in digestive system.

b) What are meninges in the brain and spinal cord.

c) What is ATP? explain its role in muscle metabolism.

d) Define and explain vital capacity.

e) Write the role of renin-angiotensin-aldosterone system in the kidney.

f) Enlist the disorders of adrenal gland. Discuss Cushing's syndrome.

g) Enlist organs of male reproductive system. Add a note on prostate gland.

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

a) Define internal and external respiration. Explain the gaseous exchange at lung and tissue level.

b) Enumerate parts of brain and write a note on cerebrum.

c) Explain the structure of thyroid gland. Discuss in detail thyroid hormones.

d) Describe the structure of nephron. Explain the physiology of urine formation.

P.T.O.

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

a) Enlist organs involved in digestive system and give functions of each organ.

b) Write a short note on menstrual cycle.

c) Explain the process of neurotransmission in the CNS.

d) Explain the process of digestion in small intestine.

e) Give composition of gastric juice and explain phases of secretion of gastric juice.

f) Discuss in detail calcium homeostasis.

g) Explain Oogenesis.

h) Write an account on physiology of micturition.

i) Define genetics. Write in detail about chromosomes.

j) Describe the surface anatomy of lungs with suitable diagram.

Total No. of Questions : 3]

SEAT No. : ____

P-3679

[Total No. of Pages : 2

[6019]-2012

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 the different types of bonds and compare sigma and pi bond.

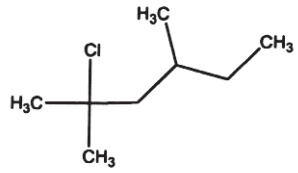
b) Draw structures of compounds from following IUPAC names.

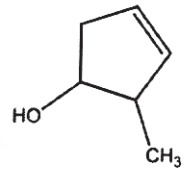
i) 3, 5-Dimethylhexane 1, 3-, 5-triol

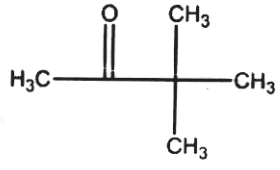
ii) Cyclohex-3-en-1-ol

iii) 4-Chloro-3-ethylbutan-1-ol

c) Write IUPAC names for following structures.

i) 

ii) 

iii) 

P.T.O.

d) Give structure and uses of ethanolamine and ethylene diamine.

e) Explain hyperconjugation with examples.

f) Describe in brief about Structural isomerism in organic compounds.

g) Give structure and uses of chloral hydrate and vanillin.

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

a) Define Elimination Reactions. Add an elaborate note on the mechanism, Stereochemistry, kinetics and orientation involved in Elimination reaction.

b) Classify carbonyl compounds and explain any three methods of preparation and any three nucleophilic addition reactions of aldehydes.

c) What is Substitution nucleophilic Bimolecular reaction? Illustrate with help of examples the mechanism, kinetics and stereochemistry of SN_2 reactions.

d) Classify organic compounds on the basis of elemental constituents with suitable examples. Give the preparation methods for alcohols, aldehydes and carboxylic acids.

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

a) Define atomic hybridization and describe it in detail with respect to carbon.

b) Explain the order of basicity of aliphatic amines elaborating the effect of substituent with examples and its impact on their reactivity.

c) Illustrate the electrophilic addition reactions of alkenes with examples explaining the rules governing it.

d) Explain in detail Cannizzaro and cross Cannizzaro reaction of aldehydes.

e) Describe the qualitative tests for alcohols and state the structure and uses of glycerol and chlorobutanol.

f) Explain electrometric & steric effect.

g) What are conjugated dienes? Explain Stability of conjugated dienes.

h) Explain Aldol condensation.

i) Discuss in detail Diels-Alder reaction and its mechanism.

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Total No. of Questions : 3]

SEAT No. :

P-3680

[Total No. Of Pages : 2

[6019]-2013
First Year B.Pharmacy
BP 203T: BIOCHEMISTRY
(Semester-II) (2019 Pattern)

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

Instructions to the candidates :

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

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

1) Define and classify protein

2) Give energetic involved in glycolysis

3) Explain structure and function of RNA

4) Describe biosynthesis dopamine

5) Explain properties of enzymes.

6) Define carbohydrate. Classify and give biological role of carbohydrates.

7) Write a short note on Gout.

P. T. O

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

1) Explain Krebs cycle in detail. Add a note on its energetic and amphibolic nature.

2) Discuss different factors affecting enzyme activity? Explain Michaelis Menton's equation in detail.

3) Explain transcription in detail. Add a note on its inhibitors

4) Explain metabolism of amino acid, Explain urea cycle in detail.

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

1) Explain enzyme inhibition

2) Define and classify lipids. Explain beta oxidation of palmitic acid

3) Write a note on Ketogenesis and Ketoacidosis

4) Add a note on ETC

5) Describe semi conservative model of DNA replication

6) Explain HMP shunts.

7) Give biological significance of ATP and cyclic AMP

8) Explain catabolism of Tyrosine.

9) Describe structure of DNA. Write a note on genetic code.

10) Write a note on purine metabolism.

Total No. of Questions : 3]

SEAT No. :

P-3681

[Total No. of Pages : 2

[6019]-2014

First Year B.Pharmacy

BP - 204T : PATHOPHYSIOLOGY

(2019 Pattern) (Semester - II) (Theory)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat labeled 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) Discuss Etiology and symptoms of hemophilia.

b) Describe the mediators of inflammation.

c) Define and enlist the types of epilepsy.

d) Describe the outline of jaundice.

e) Enlist and explain the types of hypertension.

f) Compare reversible and irreversible cell injury.

g) Explain signs and symptoms of hypothyroidism.

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

a) Describe chronic obstructive airway diseases in detail.

b) Define cancer. Explain the pathophysiology of cancer.

c) Define diabetes mellitus and explain pathophysiology of diabetes mellitus.

d) Define and classify hepatitis, discuss in detail pathophysiology of hepatitis.

P.T.O.

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

a) Describe etiology and pathogenesis of goitre.

b) Explain the basic principles of skin wound healing.

c) Describe the pathophysiology of chronic renal failure.

d) Describe pathogenesis of malaria.

e) Explain polycystic ovarian syndrome in detail.

f) Discuss the signs, symptoms and pathogenesis of depression.

g) Write a short note on urinary tract infections.

h) Explain etiology and clinical symptoms of stroke.

i) Discuss pathophysiology of gout.

j) Describe causes and enlist the types of angina.

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Total No. of Questions : 3]

SEAT No. :

P-869

[Total No. of Pages : 2

[6019]-3011

Second Year B. Pharmacy

BP-301 T : 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) Answer any 5 (3 marks each) : **[15]**

a) Apply Huckel's rule of aromaticity and differentiate following compounds into aromatic and non-aromatic or anti-aromatic compound.

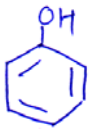
i) 

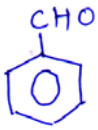
ii) 

iii) 

b) Explain basicity of amines.

c) Draw resonating structures of the following :

i) 

ii) 

d) Write any three methods of preparation of amines.

e) Define rancidity. Give its significance.

f) Explain acidity of phenols.

g) Define Aromaticity with suitable examples.

P.T.O.

Q2) Answer any 2 (10 marks each) **[20]**

a) Classify ortho / para and meta directing groups (mono substituted benzene) from the following :

i) $-NH_2$ ii) $-CH_3$

iii) $-CHO$ iv) $-NO_2$

Justify any one ortho / para / meta directing group with resonance.

b) Define and classify stereoisomerism. Write in detail about Geometrical isomerism.

c) Write synthesis, reactions and structure & medicinal uses of Naphthalene.

d) Explain the stability of cycloaltanes in detail.

Q3) Answer the any 8 (5 marks each) : **[40]**

a) Write structure, synthesis and medicinal uses of phenanthrene.

b) Explain structure, synthesis and medicinal uses of Triphenylmethane.

c) Explain sulphonation and halogenation of benzene.

d) Explain the effect of hydroxyl and chlorine substituent on nitration of benzene.

e) Define polynuclear hydrocarbons. Give any two synthesis of anthracene.

f) Explain in detail Saches Mohr's theory.

g) Write any two methods of synthesis of cyclobutane and cyclopropane.

h) Write a note on structure and uses of phenol, cresol and resorcinol.

i) Explain Hinsberg test for amines.

j) Explain hydrolysis and hydrogenation of fats and oils.

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Total No. of Questions : 3]

SEAT No. :

P-870

[Total No. of Pages : 2

[6019]-3012

S.Y. B. Pharmacy

BP 302T : 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) Objective Type Questions (Answer Any Five) : **[15]**

a) Give application of distribution law.

b) Write in brief about solubility expressive.

c) What you know about soresens pH scale?

d) Define Buffer capacity. Enlist the methods to determine it.

e) Define surface tension. Enlist the factors affecting on it.

f) Write pharmaceutical application of protein drug binding.

g) Application of gases in liquid in pharmacy.

Q2) Long Answer Question (Any Two) : **[2 × 10 = 20]**

a) Liquification of gases. Factors & methods.

b) Factors affecting on solubility of solid in liquids.

c) Describe crystals in details along with different method for determination.

d) Discuss in details methods for complex formation and its stability constant.

P.T.O.

Q3) Short Answer Question (Any Eight) : **[8 × 5 = 40]**

a) HLB scale - Application & methods.

b) Eutetic mixture.

c) Aerosols preparation.

d) Polymorphism.

e) Solubility Parameters

f) Complexation in Pharmacy.

g) Measurement of surface tension.

h) Tonisity adjustment.

i) Gibbs phase Rule.

j) Surface active agent.

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Total No. of Questions : 3]

SEAT No. : ____

P-871

[Total No. of Pages : 2

[6019]-3013

Second Year B. Pharmacy

BP-303T : Pharmaceutical Microbiology

(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 any 5 out of 7 : **[5 × 3 = 15]**

a) Explain 'Whittaker's five kingdom concept".

b) Enlist different techniques used for preservation of bacterial culture.

c) Differentiate between gram positive and gram negative bacteria.

d) Explain importance of fungi.

e) Enlist factors affecting microbial spoilage.

f) Give ideal properties of disinfectant.

g) Define probiotic & give its examples.

Q2) Attempt any 2 out of 4 : **[2 × 10 = 20]**

a) Write in detail different sources & types of microbial contaminants in aseptic area. How will you assess microbial contamination & spoilage?

b) Give classification & mode of action of disinfectants. Discuss different factors influencing disinfection.

c) Write in detail identification of bacteria by biochemical test.

d) Discuss lytic & lysogenic cycle of bacteriophage.

P.T.O.

Q3) Attempt any 8 out of 10 : **[8 × 5 = 40]**

a) Write a note on MLT.

b) Write a note on dark field microscopy.

c) Explain growth curve of bacteria.

d) Write a note on autoclave.

e) Discuss different methods of cultivation of human viruses.

f) Write a note on laminar air flow equipment.

g) Discuss applications of cell culture in pharma industry.

h) Discuss various physical parameters required for growth of bacteria.

i) Write a note on culture media.

j) Write a note on sterility indicators.

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Total No. of Questions : 3]

SEAT No. :

P872

[Total No. of Pages : 2

[6019]-3014
S.Y.B.Pharmacy
PHARMACEUTICAL ENGINEERING
(2019 Pattern) (Semester - III) (BP304T)

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 the following questions any five. **[15]**

a) Ball mill is not useful for size reduction of fibrous material. Explain.

b) What are manometers? What different types of manometers do you know?

c) Give statement for, along with equation (final), for fourier's law and stefan - Boltzmann law.

d) Define centrifugation. Give applications of centrifugation.

e) Draw neat and labelled diagram for plate & frame filter used in filtration process.

f) In short explain size separation and its importance in pharmacy.

g) Explain advantages and disadvantages of plastic as materials.

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

a) What do you mean by fluid flow, fluid statics and fluid dynamics? Differentiate between orifice meter and venturimeter. Describe venturimeter in detail.

b) Derive fourier's law. Explain in detail; Heat exchangers.

c) Define distillation. Explain the principle and working of steam distillation.

d) Classify equipments used for mixing of semisolids. Describe the principle, construction and working of ribbon blender.

P.T.O.

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

a) Explain the Reynold's experiment, give its significance.

b) Explain principle, construction & Working of Ball mill.

c) Explain principle, construction & working of cyclone separator.

d) Differentiate between evaporation, distillation and drying. Explain the factors affecting evaporation.

e) Explain the principle of molecular distillation.

f) Explain principle, construction, working & uses of planetary mixer.

g) Explain principle, construction, working & uses of fluidized bed dryer.

h) Explain theory & factors affecting filtration.

i) Explain principle, construction, working of perforated basket centrifuge.

j) Write a note on ferrous metal as material for plant construction.

Total No. of Questions : 3]

SEAT No. :

P873

[Total No. of Pages : 2

[6019]-4011
S.Y. B. Pharmacy
PHARMACEUTICAL ORGANIC CHEMISTRY - III
(2019 Pattern) (Semester - IV) (BP401T)

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

Instructions to the 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) Asymmetric synthesis.

b) Draw the following heterolycles with numbering

i) Pyrazine

ii) Isoxazole

iii) Benzthiazole

c) Explain basic & acidic character of pyrrole.

d) Write two methods for synthesis of Acridine.

e) What is hetero atom? Name the compounds containing 2 hetero atoms.

f) Draw the structure of Azepine derivatives & give it's medicinal uses.

g) Discuss medicinal uses of Oxazole & Indole.

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

a) Give a detail account of methods of synthesis & reactions of furan.

b) Describe various method of resolution of racemic, mixture.

c) Elaborate method of synthesis, reactions & medicinal uses of Thiazole.

d) Discuss reaction, mechanism & applications of Wolf rearrangement & schmidt rearrangement.

P.T.O.

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

a) Write methods of synthesis & medicinal uses of Thioplene.

b) Conformational isomerism in n-butane.

c) Stereospecific & stereoselective reactions.

d) Atropisomerism with examples.

e) Optical activity.

f) Write two methods for synthesis of imidazole.

g) Compare the structure & reactivity of quinoline & pyridine.

h) Explain the reacton & mechanism involved in Baeyer-villiger oxidation.

i) Discuss the mechanism & synthetic application of Beckman rearrangement.

j) Explain Paal-knorr synthesis of Pyrrole.

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

P-1462 **[Total No. of Pages : 2**

[6019]-4012

S.Y. B.Pharmacy

BP - 402T : MEDICINAL CHEMISTRY - I

(2019 Pattern) (Semester - IV)

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

a) Outline the synthesis of Salbutamol.

b) Give an account on cholinergic receptors and their distribution.

c) Explain the mechanism of action (MOA) and uses of Atropine sulphate and Scopolamine hydrobromide.

d) Define metabolism and enlist factors affecting metabolism.

e) Discuss chemistry, ?MOA and Outline synthesis of Halothane.

f) Discuss the Butyrophenone derivatives with examples.

g) Explain the SAR and chemistry of Morphinan derivatives.

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

a) Define and give classification of sympathomimetic agents with examples. Explain the structure activity relationship (SAR) and MOA of sympathomimetic agents.

P.T.O.

b) Classify antipsychotic agents. Elaborate in detail phenothiazine derivatives as antipsychotics.

c) Elaborate on chemistry of Morphine, SAR and its MOA. Discuss with examples how the Morphine structure was modified for better analgesic activity.

d) Define sedatives and hypnotics. Explain SAR and MOA of Barbiturates and Nonbenzodiazepine analogues as sedatives and Hypnotics.

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

a) Discuss the chemistry, MOA and uses of Beta adrenergic blockers with examples.

b) Explain biosynthesis of catecholamines. Outline the synthesis of Phenylephrine.

c) Discuss in detail mechanism of irreversible cholinesterase inhibitors. Write down MOA and uses of Parathion and Malathion.

d) Explain chemistry, MOA and uses of Dicyclomine hydrochloride and outline its synthesis.

e) Discuss importance of Stereochemistry for drug Action with examples.

f) Explain the SAR and MOA of Anthranilic acid derivatives as Analgesics.

g) Write a note on anticonvulsants.

h) Explain the Phase II metabolism with examples.

i) Outline the synthesis Diclofenac and Ibuprofen with its MOA.

j) Write a note on General Anaesthetics.

Total No. of Questions : 3]

SEAT No. : ____

P-874

[Total No. of Pages : 2

[6019]-4013

S.Y. B. Pharmacy

BP - 403T : PHYSICAL PHARMACEUTICS - II

(2019 Pattern) (Semester - IV)

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 following (any 5 out of 7) : **[5 × 3 = 15]**

a) Define zeta potential and write its pharmaceutical importance.

b) Differentiate micro emulsion and emulsion.

c) Define and write the application of multiple emulsion.

d) Why high molecularity of reaction is rare?

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

f) Define porosity and write it's application.

g) Write the equation of elastic modulus and explain its parameters.

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

a) Write a note on the instability and preservation of the emulsion.

b) Describe particle size determination methods.

c) Explain in detail the formulation of suspension.

d) Enumerate the derived properties of the powder.

P.T.O.

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

a) Protective and sensitization of colloids.

b) Air Adsorption method.

c) Physical degradation.

d) Instability of lyophobic colloids.

e) First order reaction.

f) Cup and Bob viscometer.

g) Lyophilic and lyophobic colloids.

h) Capillary viscometer.

i) Emulsifying agent.

j) Rheology of suspension.

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Total No. of Questions : 3]

SEAT No. : ____

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[Total No. Of Pages : 2

[6019]-4014
S.Y.B.Pharmacy
BP404T: PHARMACOLOGY - I
(Semester-IV) (2019 Pattern) (Credit System)

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

Instructions to the candidates :

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

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

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

b) Define drug, pharmacokinetics and pharmacodynamics.

c) Enlist the difference between sympathomimetic & parasympathomimetic agents.

d) Explain drug addiction with suitable example.

e) Define efficacy, affinity and therapeutic index.

f) Explain the importance of pharmacovigilance.

g) What is mean by drug antagonism?

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

a) Explain in detail various routes of administration with their advantages and disadvantages.

b) Define & classify adrenergic drugs with suitable example on the basis of their therapeutic uses. Expalin pharmacological details of adrenaline.

c) Define & classify drug interaction. Explain pharmacokinetic & Pharmacodynamic drug interaction with example.

d) Classify opioid analgesic & write pharmacological details of morphine.

P. T. O

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

a) Write a note on transport of drug across plasma membrane.

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

c) Explain G-protein coupled receptor with example.

d) Discuss phases of clinical trials

e) Discuss the term anxiety and add note on anxiolytics.

f) Write a note on adverse drug reactions.

g) Write a note on Dale's vasomotor reversal.

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

i) Pharmacotherapy of Myasthenia gravis.

j) Define & classify antiepileptic, Write MOA & therapeutic uses of phenytoin.

Total No. of Questions : 3]

SEAT No. :

P-876

[Total No. of Pages : 2

[6019]-4015

S.Y. B. Pharmacy

BP-405T : PHARMACOGNOSY AND PHYTOCHEMISTRY - I

(2019 Pattern) (Semester - IV)

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

Instructions to the candidates :

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

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

a) Write different chemical tests for identification of castor oil.

b) Add a note on coppicing and felling method.

c) Differentiate between organised and unorganised crude drugs with examples.

d) Give biological source and chemical tests for bromelain.

e) Explain the growth curve of plant tissue culture.

f) Add a note on wool fat and Chaulmoogra oil.

g) Define Acid value and saponification value.

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

a) Define Pharmacognosy. Explain in detail history, scope and development of Pharmacognosy.

b) Define and classify lipids with examples. Describe method for extraction of shark liver oil.

c) Explain factors affecting the cultivation of Medicinal plants.

d) Define and classify essential oils. Explain general chemical tests for essential oils.

P.T.O.

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

a) Define and classify carbohydrates with example.

b) Define and classify enzymes. Write a note on Gelatin.

c) Classify various marine drugs. Explain marine anticancer drugs.

d) Describe types of adulteration and methods to detect adulteration.

e) Explain in detail Lycopodium spore method.

f) Write a note on abscisic acid and gibberellins. Give their applications.

g) Enlist plant hormones with their applications.

h) Comment on general nutrition requirements of plant tissue culture.

i) Add a note on flavonoids.

j) Explain chemical test for Cardiac glycosides and Anthraquinone glycosides.

Total No. of Questions : 3]

SEAT No. : ____

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[Total No. of Pages : 2

[6019]-5011

T.Y. B. Pharmacy

BP-501 T : Medicinal Chemistry - II

(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.***

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

a) Write a note on progesterones.

b) Write mechanism of action & medicinal applications of ranitidine.

c) Write a note on second generation H_1 receptor antagonist.

d) Give the scheme of synthesis for atenolol.

e) Write about coagulant agents.

f) Discuss thyroid & anti thyroid drugs.

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

a) Classify anti-arrhythmic agents with suitable examples. Explain chemistry & MoA of any one class.

b) Define diuretics, classify diuretics with examples & write mechanism of action & medicinal applications of drugs belonging to class thiazides.

c) Classify oral hypoglycemic agents with suitable examples. Comment in detail on sulphonylureas. Draw synthetic route for tolbutamide.

d) Write biosynthesis of histamine. Classify antihistaminic agents with examples. Write SAR for H_1 antagonists.

P.T.O.

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

a) Discuss in detail antihyperlipidemic agents.

b) Write mechanism of action & medicinal applications of nifedipine & verapamil.

c) Write mechanism of action & medicinal applications of bumetanide & spiranolactone.

d) Define Autocoids. Explain biosynthesis & physiological role of prostaglandins.

e) Draw structure, write mechanism of action & medicinal applications of diphenhydramine.

f) What are sex hormomes? Classify estrogens with suitable examples.

g) Explain in detail proton pump inhibitors.

h) Discuss in brief ACE inhibitors.

i) Classify antianginal agents with suitable examples.

j) Classify local anaesthetics with suitable examples.

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Total No. of Questions : 3]

SEAT No. :

P-878

[Total No. of Pages : 2

[6019]-5012

T.Y. B. Pharmacy

BP 502-T : 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) Attempt the following (Any 2) : **[20]**

a) Define tablets. Discuss IPQC tests of tablets.

b) Discuss defects in tablet with its remedies.

c) Give advantages of parenteral. Discuss in detail official pharmacopelal evaluation parameter of paranterals.

d) Give complete account of environmental control zones in slerle parenteral manufacturing facilities. Add note on HVAC system.

Q2) Answer the following (Any 8) : **[40]**

a) Discuss filling of hard gelatin capsule by volumetric principle and explain uniformity of weight test.

b) Give an account of various materials used in film coating of tablets.

c) Write a note on tooth pastes.

d) What is entering coating? Discuss in brief about non enteric film forming polymers.

e) Explain formulation aspects of lipsticks.

f) Write a note on sunscreen and SPF.

g) Explain method of preparation of Eye drops.

h) Add a note on equipments of manufacture of pellets.

i) Give an account of various materials used in film coating of tablets.

j) What is HLB? Its application in formulation of biphasic liquid orals.

P.T.O.

Q3) Write a short note on (Any 5) : **[15]**

a) Type A and Type B gelatin.

b) Physicochemical properties involved in performulation studies.

c) Vanishing cream.

d) Stability of suspension.

e) Evaluation of opthalmic preparations.

f) Orange peel effect and haziness.

g) IPQC test for tablets.

Total No. of Questions : 3]

SEAT No. :

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[Total No. of Pages : 2

[6019]-5013

T.Y. B.Pharmacy

PHARMACOLOGY-II

(2019 Pattern) (Semester-V) (Theory) (BP503T)

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

Instructions to the candidates:

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

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

a) Define and classify tocolytics.

b) Enlist the functions of posterior pituitary hormone.

c) Define oxytocic agents and give mechanism and uses of oxytocin.

d) Comment on role of beta blockers in angina pectoris.

e) Justify role of digitalis in congestive heart failure.

f) Define fibrinolytics. Give mechanism of action of streptokinase.

g) Classify anti-arrhythmic agents.

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

a) Discuss biosynthesis, mechanism of action, pharmacological actions and Therapeutics uses of progesterone.

b) Write principles and types of the bioassay. Add a note on bioassay of d-tubocurarine.

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

d) Classify diuretics. Explain mechanism of action, adverse effect and therapeutic uses of furosemide.

P.T.O.

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

a) Classify antithyroid drugs. Explain pharmacological action of any one anti thyroid drug.

b) Add note on therapeutic effects of corscosteriod.

c) Add note on SERM.

d) Explain the clinical significance of COX-2 inhibitors.

e) Write the mechanism of action and uses of quinidine.

f) Discuss pharmacotherapy of rheumatoid arthritis.

g) Discuss the bioassay of histamine.

h) What are the advantages of angrotensin receptors blockers over ACE inhibitors?

i) Write a note on calcium channel Blockers.

j) Explain pharmacological action of Aspirin.

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Total No. of Questions : 3]

SEAT No. :

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[Total No. of Pages : 2

[6019]-5014

Third Year B. Pharmacy

BP504T : PHARMACOGNOSY AND PHYTOCHEMISTRY - II

(2019 Pattern) (Semester - V)

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 questions (Answer 5 out of 7) :** **[5 × 3 = 15]**

a) Explain in brief Competitive feeding.

b) Write a note on umbelliferous fruits.

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

d) Identification test for Aloes.

e) Write Source and uses of Podophyllotoxin.

f) Write a note on UV and visible speetroscopy.

g) Write the applications of Microwave assisted extraction.

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

a) Define Alkaloids. Explain Biological source, classification, chemistry and medicinal uses of Belladonna and Opium.

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

c) Write the Pharmacognostical study of Senna

d) Explain industrial method of production and estimation of Vincristine and Atropine.

P.T.O.

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

a) Explain Tracer technology and its significance in biogenetic studies

b) Describe the microscopy of Clove with a neat labelled diagram.

c) Give the Pharmacognosy of Vinca

d) Write the isolation and identification of Quinine

e) Explain the industrial production of digoxin.

f) Describe HPTLC with its advantages and applications

g) Give biological source and active constituents of Podophyllum and Vinca.

h) Write isolation and analysis of Glycyrrhizin.

i) Differentiate between Pale Catechu and Black Catechu.

j) Give biosources, chemical constituents and uses of Coriander and Belladonna.

Total No. of Questions : 3]

SEAT No. : ____

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[Total No. of Pages : 2

[6019]-5015

T.Y. B. Pharmacy

BP505T : 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.***

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

a) What is copyright?

b) What are spurious drugs and adulterated drugs?

c) What are schedule G and H?

d) What is cannabis, coca derivative and coca leaf?

e) Write the composition of committee constituted by central Government to control and supervise the experiments performed on animals.

f) According to Narcotic Drugs and Psychotropic Substances Act, 1985. What are the functions of Narcotic commissioner?

g) Write the constitution of pharmacy council of India.

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

a) Define "Illicit traffic". Discuss in detail the powers of Central Government to prohibit, control and regulate certain operations under Narcotic Drugs and psychotropic substances Act, 1985.

b) Write in detail different administrative bodies under Drugs and Cosmetics Act, 1940.

c) Write the constitution and composition of the central and state pharmacy councils, also state the registration procedure of pharmacist.

d) Discuss in detail objectives and salient features of the prevention of cruelty to Animals Act, 1960.

P.T.O.

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

a) Retail price of formulations.

b) Conditions for license for manufacture of drugs other than schedule X.

c) Hathi committee and Mudaliar committee.

d) Code of Pharmaceutical ethics in relation to medical profession and pharmacy profession.

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

f) Write the circumstances under which the pregnancies may be terminated by Registered Medical Practitioner.

g) Write the qualification, duties & responsibilities of Drug inspector.

h) Criteria for patentable inventions.

i) Good manufacturing practices for requirements of premises for pharmaceutical products.

j) Write the objectives of Medicinal and Toilet Preparation Act, 1955 and rules there under 1976 and explain bonded manufactory.

Total No. of Questions : 3]

SEAT No. : ____

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[Total No. of Pages : 2

[6019]-6011
T.Y. B. Pharmacy
BP 601T : 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 diagram and structures wherever necessary.***

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

a) Define and classify anti-tubercular agents.

b) Explain numbering systems of penicillins, Penam and Cepham.

c) Give the name and structure of antibiotics whose use for the treatment of malaria is limited to prophylaxis against strain of P. Falciparum resistant to chloroquine and suphadoxine - Pyrimethamine.

d) Give structure, MOA and therapeutic use of

i) Griseofulvin ii) Ethambutol

e) Give structure, IVPAC name and uses of any three drugs from cephalosporins class.

f) Define and classify antineoplastic agents.

g) Multiple choice questions :

i) Hansen's disease is also known as _____.

a) Tuberculosis b) Maleria

c) HIV d) Leprosy

ii) Erythromycin is which class of antibiotics

a) Macrolide b) Tetracycline

c) Beta lactam d) Aminoglycoside

iii) One of the following is reverse transcriptase inhibitor

a) Idoxuridine b) Amantidine

c) Acyclovir d) Zidovudine

P.T.O.

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

a) Discuss the chemistry, SAR and MOA of sulphonamides. Add note on synthesis of metronidazole.

b) Classify antimalarial agents based on life cycle of malaria parasites with examples. Discuss the chemistry, SAR and MOA of amino quinolines.

c) Classify antiviral agents with suitable example. Give detail account of purine and pyrimidine analogues as antivirals.

d) Discuss chemistry, SAR and MOA of alkylating agents and antimetabolites classes of antineoplastic agents.

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

a) Explain antineoplastic agents from plant products.

b) Discuss chemistry and MOA of polyene antibiotics.

c) Write a note on Hansch QSAR analysis and Ferguson-principle.

d) Outline the synthesis of chloramphenicol.

e) Write chemistry, SAR and MOA of macrolide antibiotics.

f) Elaborate about antileprotic agents.

g) Elaborate about antitubercular agents.

h) Discuss chemistry, SAR and MOA of aminoglycoside antibiotics.

i) Classify anthelmintics with their MOA and suitable examples.

j) Write a note on azole antifungal agents.

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Total No. of Questions : 3]

SEAT No. :

P-1463

[Total No. of Pages : 2

[6019]-6012

T.Y. B. Pharmacy

BP-602T : Pharmacology - III

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

a) Define leprosy classify antileprotic drugs.

b) Justify why sulphamethoxazole is given in combination with trimethoprim.

c) Give pharmacotherapy of cough.

d) Define acute, subacute & chronic toxicity.

e) Give clinical symptomst management of barbiturate poisoning.

f) Elaborate the term antibiotics & chemotherapy with examples.

g) Define peptic ulcer & classify antiulcer drugs.

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

a) Explain mechanism of action, antibacterial spectrum, adverse effect & uses of penicillin G.

b) Define asthma. Discuss mechanism of action pharmacological actions, therapeutic uses & adverse effect of salbutamol.

c) Classify antiemetic drugs. Explain pharmacology of 5HT-3 antagonist & prokinetic drugs.

d) Classify antimalarial drugs & Explain Radical cure of malaria with different strategy of antimalarial drugs.

P.T.O.

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

a) Classify anti-tubercular drugs describe mechanism of action, resistance adverse effect & uses of INH & rifampicin.

b) Discuss drug treatment of amoebiasis.

c) Explain in detail Teratogenicity & carcinogenicity.

d) Write a short note on pharmacotherapy of diarrhoea.

e) Define Broad spectrum antibiotics. Explain mechanism of action of tetracycline.

f) Brief the application of monoclonal antibodies.

g) Write a short note on Immunostimulout & Immuno-depressants.

h) Describe the approaches to canser chemotherapy.

i) Write a note on carminatives.

j) Give pharmacotherapy of UTI.

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Total No. of Questions : 3]

SEAT No. : ____

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[Total No. of Pages : 2

[6019]- 6013
T. Y. B. Pharmacy
HERBAL DRUG TECHNOLOGY
(2019 Pattern) (Semester - VI) (BP603T)

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) Explain basic principles involved in Ayurveda.

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

c) Write Brief note on natural flavors and perfumes.

d) Write a note on natural binders and disintegrants.

e) Give the four e.g. of natural API's with their uses.

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

g) Write a note on Ashwagandha as Neutraceutical.

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

a) Define Nutraceuticals. Classify the nutraceuticals in detail with e.g. Explain in detail Omega-3-fatty acids and Resveretrol.

b) Explain Pest and Pest Management. Describe in detail Good Agricultural Practices in cultivation of medicinal plants.

c) Describe any one Principle of Ayurveda. Explain preparation and evaluation of Asava and Aristha.

d) Define biopesticides. Classify the biopesticides with e.g.. Write in detail Pharmacognostic account of Pyrethrum as Natural pesticide.

P.T.O.

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

a) Write a note on Preparation and Evaluation of Herbal Shampoo.

b) Give the advantages of Novel dosage forms in herbal formulation. Describe Phytosomes with e.g.

c) WHO Guidelines for Herbal Drugs Stability.

d) Write a note on Homeopathic system of medicine.

e) Define Bhasma. Explain in detail preparation and evaluation of Bhasma.

f) Write a note on traditional knowledge and explain case study of Neem or Turmeric.

g) Explain in detail regulatory issues-regulation in India (ASU DTAB, ASU DCC) provisions relating to Ayurvedic, Siddha and Unani system of medicine.

h) Describe in detail Proanthocyanidins and Carotenoids.

i) Explain interaction and side effects of Ephedra.

j) ICH guidelines for stability of herbal drugs.

Total No. of Questions : 3]

SEAT No. : ____

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[Total No. of Pages : 2

[6019]- 6013
T. Y. B. Pharmacy
HERBAL DRUG TECHNOLOGY
(2019 Pattern) (Semester - VI) (BP603T)

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

Instructions to the candidates:

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

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

a) Explain basic principles involved in Ayurveda.

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

c) Write Brief note on natural flavors and perfumes.

d) Write a note on natural binders and disintegrants.

e) Give the four e.g. of natural API's with their uses.

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

g) Write a note on Ashwagandha as Neutraceutical.

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

a) Define Nutraceuticals. Classify the nutraceuticals in detail with e.g. Explain in detail Omega-3-fatty acids and Resveretrol.

b) Explain Pest and Pest Management. Describe in detail Good Agricultural Practices in cultivation of medicinal plants.

c) Describe any one Principle of Ayurveda. Explain preparation and evaluation of Asava and Aristha.

d) Define biopesticides. Classify the biopesticides with e.g.. Write in detail Pharmacognostic account of Pyrethrum as Natural pesticide.

P.T.O.

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

a) Write a note on Preparation and Evaluation of Herbal Shampoo.

b) Give the advantages of Novel dosage forms in herbal formulation. Describe Phytosomes with e.g.

c) WHO Guidelines for Herbal Drugs Stability.

d) Write a note on Homeopathic system of medicine.

e) Define Bhasma. Explain in detail preparation and evaluation of Bhasma.

f) Write a note on traditional knowledge and explain case study of Neem or Turmeric.

g) Explain in detail regulatory issues-regulation in India (ASU DTAB, ASU DCC) provisions relating to Ayurvedic, Siddha and Unani system of medicine.

h) Describe in detail Proanthocyanidins and Carotenoids.

i) Explain interaction and side effects of Ephedra.

j) ICH guidelines for stability of herbal drugs.

Total No. of Questions : 3]

SEAT No. : ____

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[Total No. of Pages : 2

[6019]-6014

T.Y. B. Pharmacy

BP-604T : BIOPHARMACEUTICS AND PHARMACOKINETICS

(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 needed.***

Q1) Answer the following (any 5) : **[15]**

a) What are displacement interactions? Give Example.

b) Explan in short about an active transport of drug.

c) What is the difference between absolute & effective surface area? How it can be improved for hydrophobic drug.

d) What are the limitations of pH - partition Hypothesis?

e) Discuss briefly factors affecting gastric emptying of drug.

f) Define the term biotransformation. List the factors affecting biotransformation of drug.

g) Write in short about non renal route of Excretion.

Q2) Answer the following (any 2) : **[20]**

a) Discuss the mechanism of dissolution with the help of various theories.

b) Define distribution of drug. Discuss various factors affecting distribution of drug.

c) What is BCS classification? Give its significance. Add a note on bio waivers?

d) What are pharmacokinetic models? Explain various types with their significance.

P.T.O.

Q3) Answer the following (any 8) : **[40]**

a) Write a note on causes of Non-linear pharmacokinetics.

b) How are sink conditions maintained at the site of absorption?

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

d) Write a note on In-Vitro and In-Vivo co-relation.

e) What are the advantages and limitations of randomized, balanced, cross-over design in BE studies?

f) Explain what dose-dependent kinetics is? Give methods of detection.

g) Liver is considered as the major organ involved in detoxification, Justify.

h) Write detailed note on Blood Brain Barrier.

i) Write a note on method of residuals.

j) Volume of distribution and its importance.

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Total No. of Questions : 3]

SEAT No. :

P885

[Total No. of Pages : 2

[6019]-6015
T.Y. B. Pharmacy
PHARMACEUTICAL BIOTECHNOLOGY
(2019 Pattern) (Semester - VI) (BP605T)

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

Instructions to the candidates:

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

Q1) Answer 5 out of 7: **[5×3=15]**

a) Explain basic principle of genetic engineering.

b) What is biotechnology? Enlist applications of biotechnology with reference to pharmaceutical sciences.

c) Discuss production of enzymes.

d) Explain working of biosensor.

e) Give the example of micro organisms used for production of amylase, penicillinase and lipase.

f) Discuss aeration process used in fermentation.

g) Describe the principle of southern blotting.

Q2) Answer 2 out of 4: **[2×10=20]**

a) What is cloning vector? Discuss ideal properties of cloning vectors and write a note on types of cloning vectors in detail.

b) What are hypersensitivity reactions? Classify hypersensitivity reactions and explain them in detail.

c) What is hybridoma technology? Discuss production of monoclonal antibodies by hybridoma technology and their applications.

d) What is fermentation? Highlight general requirments of fermentation and discuss production of penicillins by fermentation technology.

P.T.O.

Q3) Answer 8 out of 10: **[8×5=40]**

a) Explain the methods of enzyme immobilization.

b) Write a note on polymerase chain reaction (PCR).

c) Discuss production of recombinant insulin.

d) Write a note on ELISA.

e) Explain humoral and cellular immunity.

f) Illustrate microbial genetic transformation and conjugation.

g) Discuss design of large scale production fermenter.

h) Describe collection, processing and storage of whole human blood.

i) What is mutation? Summarize types of mutation.

j) Write a note on microbial biotransformation.

Total No. of Questions : 3]

SEAT No. :

P886

[Total No. of Pages : 1

[6019]-6016
T.Y.B.Pharmacy
PHARMACEUTICAL QUALITY ASSURANCE
(2019 Pattern) (Semester - VI) (BP606T)

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

Instructions to the candidates:

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

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

a) What is CDS Co responsible for?

b) What is PIC/s Guidelines? State its importance.

c) Define quality costs. Give the obstacles associated with TQM implementation.

d) State importance of distribution record.

e) Explain PQ.

f) Define calibration. State the purpose of calibration.

g) What is method validation? Why is method validation necessary?

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

a) What are QA and QC? Elaborate on purchase specifications and maintenance of stores for raw materials.

b) Explain the concept of QbD. Write in detail about steps in QbD approach.

c) Discuss cGMP requirements regarding premises, sanitation and maintenance of sterile area.

d) Discuss the principles and process of handling market complaints in pharmaceutical industry.

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

a) What does QSEM stand for? Summarize ICH QSEM guidelines.

b) State principle and procedure for NABL Certification.

c) What is ISO? Provide benefits and limitations of ISO.

d) Write a note on GMP issues for personnel.

e) What is CPCSEA? Give role and responsibilities of CPCSEA.

f) What is primary and secondary packing material? Give quality control tests for secondary packing material.

g) State importance and scope of validation.

h) Explain accuracy and precision.

i) Provide guidelines for waste disposal.

j) What are precautions to avoid mix up and cross contamination?

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Total No. of Questions : 3]

SEAT No. :

P-887

[Total No. of Pages : 2

[6019]-7011

Final Year B. Pharmacy

BP - 701T : INSTRUMENTAL METHODS OF ANALYSIS

(2019 Pattern) (Semester - VII)

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

Instructions to the candidates:

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

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

a) Discuss the principle of fluorescence with the help of Jablonski diagram.

b) Discuss about various pumps used in HPLC.

c) Discuss the term normal phase and reverse phase chromatography.

d) Explain fingerprint region in IR spectroscopy.

e) Discuss Van-Deemter equation in detail.

f) Discuss the comparative aspects of nephelometry and turbidometry.

g) What are the methods for quantitation by UV-Visible spectro photometry?

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

a) Describe the principle, instrumentation and applications of Gas chromatography.

b) Discuss in detail theory and instrumentation of double beam UV-Visible spectrophotometer.

c) Explain the construction and working of flame emission spectrometry with neat labelled diagram and discuss various types of interferences occurred in atomic spectroscopy.

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

P.T.O.

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

a) Draw a block diagram and explain the instrumentation of HPLC.

b) Explain the concept of plate theory and rate theory for increasing the efficiency of column in chromatography.

c) Discuss various types of transitions involved in UV-Visible spectroscopy.

d) Write a note on :

   i) Concept of molecular luminescence

   ii) Applications of thin layer chromatography.

e) Discuss the various steps involved in HPTLC.

f) Write the principle, theory and applications of ion exchange chromato graphy.

g) Write a note on :

   i) Quenching of fluorescence

   ii) System suitability parameters

h) Write the instrumentation of Atomic absorption spectroscopy in detail.

i) Discuss the factors affecting fluorescence spectroscopy.

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

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Total No. of Questions : 3]

SEAT No. :

P888

[Total No. of Pages : 1

[6019]-7012
Fourth Year B. Pharmacy
BP-702(T) : INDUSTRIAL PHARMACY - II
(2019 Pattern) (Semester - VII)

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

Instructions to the candidates:

1) ***Answer all questions.***
2) ***Figures to the right indicates full marks.***
3) ***Assume suitable data, if necessary.***

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

a) What is platform technology.
b) What is qualification?
c) Explain role of various ICH guidelines useful in tech transfer.
d) What are the elements of QbD?
e) Define clinical trial and explain Phase II
f) List out the significance of NABL accreditation.
g) Describe in brief about State licensing authority?

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

a) Describe SUPAC guidance for all levels of changes in batch size.
b) Describe various technology readiness levels.
c) Explain the stages in the development of new drug.
d) Explain the concepts of Total Quality Management and Quality by Design (QbD).

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

a) Explain risk management in technology transfer.
b) Describe which post approval specification changes don't require permission?
c) Explain failure mode effect analysis.
d) Explain process validation.
e) What is confidentiality agreement?
f) What is platform technology?
g) Explain the organization and functions of CDSCO.
h) Explain the concepts of six sigma for Quality Improvement.
i) Write short note on various phases of clinical trials.
j) Explain the terminology QTPP and CPP with suitable example.

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Total No. of Questions: 3]

SEAT No. :

P889

[Total No. of Pages : 2

[6019]-7013
Fourth Year B.Pharmacy
PHARMACY PRACTICE
(2019 Pattern) (Semester-VII) (BP703T)

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

Instructions to the candidates:

1) ***Answer all questions.***
2) ***Fingures to the right sside indicate full marks.***
3) ***Assume suitable data if necessary.***

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

a) What is VED analysis.

b) Diffentiate between hospital formulary and drug list.

c) Define over the counter (OTC) medications Explain advantages of OTC Product.

d) Explain causes of medication non-adherance.

e) Discuss responsibilities and functions of hospital pharmacist.

f) Describe Significance of drug information centre.

g) Discuss types of medication orders.

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

a) Explain need and components of patient medication history interview.

b) Define drug interactions Explain various drug interactions with examples.

c) Discuss role of pharmacist in medication odherance.

d) Give a brief review on drug theropy based on pharmacokinetic and disease pattern.

P.T.O.

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

a) Explain functions and objectives of financial planning in community Pharmacy.

b) Define patient counseling and discuss about the steps and barriers involved in patient counselling.

c) Explain methods of labeling of drugs in hospital.

d) Define Adverse drug reactions. Write a note on hypersensitiviry reactions.

e) Discuss factors to be considered during therapeutic drug monitering.

f) Discuss in brief significance of different clinical laboratory tests.

g) Discuss policies of Pharmacy and Therapeutic Committee (PTC) in including drugs into hospital formulary.

h) Define budget. Discuss in brief about contents of budget.

i) Discuss role of clinical Pharmacists in word round.

j) Write a note on ABC analysis used for drug expenditure analysis.

Total No. of Questions : 3]

SEAT No. :

P-890

[Total No. of Pages : 2

[6019]-7014

Final Year B. Pharmacy

BP-704T : 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 right indicate full marks.***

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

a) Write a short note on propellants.

b) Define and compare active & passive targeting.

c) Describe nanoparticles along with their general properties.

d) Explain ideal properties of bioadhesive polymer.

e) What factors affect the designing of modified drug delivery system.

f) What is targeted drug delivery? Give its applications.

g) Write note on conservation method of microencapsulation.

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

a) Explain in detail different methods for formulation of TDDS along with evaluation.

b) Explain the preparation & application of monoclonal antibiotics.

c) Explain in detail formulation methods for nanoparticles along with advantages of nanoparticulate delivery.

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

P.T.O.

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

a) Write a short note on biodegradable polymers.

b) Explain the different theories of mucoadhesion.

c) Explain the evaluation parameters for transthermal patches.

d) Write a short note on contact- lens.

e) What are advantages & disadvantages of implantable drug delivery system.

f) Explain glass transition temperature & TGA of polymer.

g) Explain metered dose inhaler.

h) Explain the different barriers in occular drug delivery.

i) Describe vapour pressure activated implantable device.

j) Describe DSC & TGA studies of evaluation of polymer.

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Total No. of Questions : 3]

SEAT No. :

P-1409

[Total No. of Pages : 2

[6019]-8011

Final Year B. Pharmacy

BP 801T : 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) Explain different types of errors in hypothesis testing.

b) Discuss in brief about Mean as a measure of central tendency.

c) What is the need for research design?

d) Enumerate the steps needed to condense raw data to grouped data.

e) What is 2^3 factorial design?

f) Weights of 10 tablets in mg in a sample data are 210, 212, 215, 220, 224, 215, 218, 220, 225 and 221. Find out the sample mean.

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

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

a) Discuss about designing of clinical trials and phases of clinical trials.

b) What is hypothesis testing? Explain in detail the procedure for hypothesis testing.

c) What is optimization? Explain principle and steps involved in experimental design.

d) What is statistical data? Explain in detail about collection, organization and presentation of data.

P.T.O.

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

a) Define statistics. Write applications of statistics.

b) Enlist the steps for constructing a frequency distribution.

c) Write about Pie chart.

d) Explain in brief about ANOVA.

e) Write note on MINITAB.

f) Write short note on Central Composite Design.

g) Write a note on Plagiarism.

h) What is statistical data? Explain in brief about types of data.

i) Write a note on 'Student's test'.

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

X : 500, 520, 530, 540, 540, 520, 500, 550, 530, 540, 550, 560.

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Total No. of Questions : 3]

SEAT No. :

P-1464

[Total No. of Pages : 2

[6019]-8012

Final Year B. Pharmacy

SOCIAL AND PREVENTIVE PHARMACY

(2019 Pattern) (Semester - VIII) (BP802T)

Time : 3 Hours] *[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 (05 out of 07) :** **[15]**

a) What is Marasmus?

b) Explain community services for health promotion.

c) Explain Prevention and control of deafness.

d) Write significance of Health education in schools.

e) Write the objectives of National Tuberculosis Programme

f) What is Cholera? Write the measures for prevention of it.

g) Explain the methods for diagnosis of Diabetes mellitus?

Q2) **Answer any Two. (02 out of 04) :** **[20]**

a) Elaborate on need of nutrition and balanced diet. Explain the causes, and symptoms of malnutrition and its prevention.

b) Explain prevention and control of Cancer.

c) Explain Integrated disease surveillance programme (IDSP).

d) What is SARS write its symptoms, prevention and control.

P.T.O.

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

a) What is influenza? Write its prevention and control.

b) Explain prevention, and control of hypertension.

c) What are the Socio cultural factors related to health and disease

d) What is chicken guinea? Explain its treatment and prevention

e) What are the objectives of the national family welfare program?

f) Explain measures for improvement in rural sanitation.

g) Write a note on drug addiction and drug substance abuse

h) Write a note on relation of nutrition and health.

i) Write objectives and implementation of the national tobacco control program.

j) Define diabetes. Write its treatment and management

Total No. of Questions : 3]

SEAT No. :

P-891

[Total No. of Pages : 2

[6019]-8013

F.Y. B. Pharmacy

BP803ET : PHARMA MARKETING MANAGEMENT THEORY

(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates :

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

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

a) Discuss the consumer buying behavior in marketing.

b) Demonstrate product life cycle.

c) Enumerate the factors to be considered for new product decisions.

d) What are the role & responsibilities of Professional sales representative?

e) Describe various ways of marketing a product.

f) Correlate the factors affecting product pricing strategy.

g) Write about designing pharmaceutical marketing channels.

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

a) Explain with examples launching of new product.

b) Describe the ways and means of marketing segmentation &.targeting.

c) What are different methods and determinants of promotional mix.

d) Discuss in detail Primary and Secondary research state their importance.

P.T.O.

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

a) Write about the role of market research.

b) Discuss about factors regulating patient choice of physician.

c) Write a note methods of determining budget for promotional expenditure.

d) Discuss on OTC marketing strategies.

e) Write in detail about conflicts in channels.

f) Explain the objectives and importance of pricing.

g) Address the issues in price management in pharmaceutical industry.

h) Elaborate on importance of rural marketing.

i) Describe the role of DPCO.

j) Explain the need & importance of e-detailing.

Total No. of Questions : 3]

SEAT No. : ____

P892

[Total No. of Pages : 2

[6019]-8014

Fourth Year B.Pharmacy
PHARMACEUTICAL REGULATORY SCIENCE
(2019 Pattern) (Semester-VIII) (BP804ET)

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) **[5×3=15]**

a) What is clinical trial?

b) Explain the purple book.

c) What is CTD? (Common Technical Documents)

d) Explain about generic drug.

e) Explain the role of regulatory affairs professionals.

f) Explain federal register.

g) What are the stages of drug discovery.

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

a) Explain registration process for new drug approval in India.

b) What is NDA and ANDA? Give approval process and timeline involved in investigational new drug IND.

c) Explain organization structure and application of regulatory authorites of US.

d) Explain procedure for development of protocol.

P.T.O.

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

a) What is orange book? Give its application.

b) Write a note on DMF? (Drug Master File).

c) Summarize ASEAN (ACTD) research.

d) Give brief overview of guidelines for the export of drug issued by ministry of health and Family Welfare.

e) Explain preclinical studies and non-clinical activities in drug development.

f) Explain regulatory authority in Japan.

g) Explain clinical trial protocol.

h) Give brief account on electronic common technical document.

i) Explain procedure of GCP of investigators, sponsors, and monitors.

j) Explain import and export of pharmaceutical products in detail.

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Total No. of Questions : 3]

SEAT No. :

P-893

[Total No. of Pages : 2

[6019]-8015

Final Year B. Pharmacy

BP805ET : PHARMACOVIGILANCE

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

a) Write a note on cohort study.

b) Define serious adverse event, side effect and adverse event.

c) Enlist steps involved in vaccine pharmacovigilance.

d) What is the role of post approval phase?

e) Write about the importance of safety monitoring of medicines.

f) What is under reporting of ADRs?

g) What is periodic safety update reports?

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

a) Define pharmacovigilance. Discuss in detail reporting and management of ADRs along with causality assessment scales.

b) Discuss in detail the drug information sources and give specialized resources for ADR.

c) Discuss in detail about ICH and GCP guidelines in Pharmacovigilance.

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

P.T.O.

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

a) Write a importance of Communication in pharmacovigilance.

b) Write the role of pre-clinical and clinical phase in safety data generation.

c) Write a note on Schedule Y.

d) Explain Narinjo scale.

e) Explain Vaccine safety surveillance.

f) Write a short note on ICH guidelines

g) Discuss WHO drug dictionary and coding in pharmacovigilance.

h) Write a short note on WHO causality assessment.

i) Discuss adverse effects after immunization.

j) What is the role of preclinical and clinical phase in safety data generation?

Total No. of Questions : 3]

SEAT No. : [ ]

P894

[Total No. of Pages : 2

[6019] - 8016

Fourth Year B. Pharmacy

QUALITY CONTROL AND STANDARDIZATIONS OF HERBALS

(2019 Pattern) (Semester - VIII) (Theory) (BP806ET)

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

Instructions to the candidates:

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

Q1) Solve the following. (Answer 5 out of 7) **[5x3=15]**

a) Brief physical evaluation of crude drugs.

b) Write about 'personnel' from GACP.

c) Write in short 'Record of market complaints' as per schedule T.

d) Note on biological evaluation of crude drugs.

e) What are basic tests for identification in herbal dosage forms.

f) Note on 'Foaming Index'as per WHO for quality control of crude drugs.

g) Write in short 'Stores' as per schedule T.

Q2) Solve long answers (Answer 2 out of 4) **[2x10=20]**

a) Write in detail research guideline for evaluating safety of herbal drugs.

b) Elaborate list of recommended machinery, equipment and space requirement of premises required for manufacturing of herbal medicines as per schedule T.

c) Explain stability testing of herbal drugs in detail.

d) Write in detail regulatory requirement for herbal medicines.

P.T.O.

Q3) Solve Short answers (Answer 8 out of 10) **[8x5=40]**

a) What are post harvesting processing as per GACP?

b) Brief parameters of quality control of herbal drugs as per EU guidelines.

c) Write about cultivation parameter as per GAP for medicinal plants.

d) Write a note on comparison of monograph studies of herbals in Indian Herbal pharmacopoeia and American herbal pharmacopoeia.

e) Brief safety in laboratories as per GLP.

f) Explain application of TLC & HPTLC for standardization of herbals.

g) Write ICH guidelines for quality control of herbal drugs.

h) Explain WHO guidelines on safety monitoring of herbal medicines in pharmacovigilance systems.

i) Write in detail about various types of licensing forms needed for herbal drug industry for regulation aspects under D & C Act.

j) Discuss on preparation of documents for new drug application.

Total No. of Questions : 3]

SEAT No. : ____

P3162

[Total No. of Pages : 2

[6019]-8017A

Fourth Year B.Pharmacy

COMPUTER AIDED DRUG DESIGN

(2019 Pattern) (Semester-VIII) (BP807ET) (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) Objective types questions (Answer 5 out of 7) **[5×3=15]**

a) Write a note on Taft steric constant,

b) Write a note on Lipinski Rule of 5.

c) Compare SAR and QSAR.

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

e) Define Bioinformatics. Mention applications of bioinformatics.

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

g) Applications of QSAR.

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

a) What is QSAR? Explain in detail the history and development of QSAR Explain the Hansch analysis and Free Wilson analysis and the relationship between them.

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

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

d) What is Molecular docking? Enlist various types of Molecular docking and explain any one of them. Write a note on the concept of Virtual screening.

P.T.O.

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

a) Write a note on molecular mechanics.

b) Classify the bio-isosterism approach with examples. Discuss of bioisosteric replacement strategy with one case study.

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

d) Explain in detail Quantum mechanics.

e) Physicochemical parameters involved in QSAR.

f) Write a note on databases used in bioinformatics.

g) Discuss COMFA & COMSIA.

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

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-895

[Total No. of Pages : 2

[6019]-8018

Final Year B. Pharmacy

BP-808ET : 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.***
2) ***Draw well labeled diagrams wherever necessary.***

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

a) Write functions of cell membrane

b) Define the term meiosis

c) What do you mean by catabolism

d) Elaborate cell adaptation

e) Explain the structure of protein

f) Draw double helical structure of DNA

g) Write the types of RNA

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

a) Write different types of receptors. Describe G-Protein coupled receptor in detail.

b) What are the different steps involved in translation process?

c) What is cell signaling? Explain the mechanism of cell signaling in detail.

d) Discuss cellular reproduction process in ova and sperm formation.

P.T.O.

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

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

b) What are the different checkpoints in the cell cycle?

c) What are the applications of proteomics in disease?

d) Define cell organelles and write its functions.

e) What is the mechanism of DNA replication in eukaryotes?

f) Explain the principles of gene expression?

g) What means by meiosis? What are the four process of meiosis?

h) Why is it important to regulate protein synthesis?

i) What is the division of somatic cells to form gametes?

j) Write the functions of GPCRs?

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Total No. of Questions : 3]

SEAT No. :

P-1465

[Total No. of Pages : 2

[6019]-8019

Final Year B. Pharmacy

BP809ET : COSMETIC SCIENCE

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

a) Discuss the formulation of Hair oils.

b) Compare antiperspirants and deodorants.

c) Define SPF, Give Classification of sunscreen.

d) Discuss the causes for the hair fall.

e) Discuss the role of antioxidants in cosmetic products.

f) Explain the role of fluoride in toothpaste formulations and its benefits for dental health.

g) Discuss applications of Amla in hair care.

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

a) Define cosmetics and cosmeceuticals and outline their classification.

b) Discuss the cosmetic problems for skin and add a note on products prepared to address these problems.

c) Discuss the forniulation aspects of oral care products.

d) Discuss in detail formulation aspects of antidandruff shampoo and add a note on its evaluation.

P.T.O.

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

a) What are the different types ofsurfactants used in cosmetic formulations? Discuss the examples and function of each type.

b) Write a note on formulation aspects of mouthwash.

c) Discuss the analytical methods for toothpaste.

d) Discuss in detail BIS Specifications and analytical methods for skin cream.

e) Explain the role of polymers and thickeners in cosmetics.

f) Write a note on evaluation of sunscreen products.

g) Describe the formulation and manufcturing process of a hair dye product.

h) Write a note on neem and clove in oral care products.

i) Write a note on soap and syndet bars.

j) Write in brief about formulation of hair conditioners.

Total No. of Questions : 3]

SEAT No. :

P-896

[Total No. of Pages : 2

[6019]-8020

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 indicate full marks.***

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

a) Explain principle and working of Eddy's hot plate method for evaluation of analgesic activity.

b) Discuss animal models for evaluation of nootropic activity.

c) Explain the principle of screening methods for anti-dyslipidemic drugs .

d) Elucidate 3 'R' principles of CPCSEA.

e) Enlist the methods and discuss any one method for evaluation of skeletal muscle relaxant activity.

f) Define epilepsy and explain evaluation of anti-epileptic activity in experimental animals.

g) Discuss euthanasia techniques for laboratory animals.

Q2) **Solve any Two out of Four :** **[20]**

a) Discuss the evaluation of anti-diabetic activity in laboratory animals.

b) Explain preclinical evaluation of anti-hypertensive activity.

c) Describe preclinical methods for evaluation of anti-ulcer activity.

d) Elucidate evaluation of anti-depressant activity of compound in experimental animal.

P.T.O.

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

a) Explain preclinical data analysis using students 't' test.

b) Describe acute oral toxicity as per OECD guidelines.

c) Explain evaluation of sympatholytic activity in experimental animals.

d) Discuss preclinical screening of coagulants.

e) Explain preclinical evaluation of sedative and hypnotics.

f) Discuss evaluation of anti-inflammatory activity.

g) Discuss any two methods for screening anti-arrythmic drugs.

h) Explain evaluation of local anesthetics in experimental animals.

i) Discuss methods for making transgenic animals.

j) Explain screening methods for anti-pyretic activity.

Total No. of Questions : 3]

SEAT No. :

P-3375

[Total No. Of Pages : 2

[6019]-8021
Final Year B.Pharmacy
BP811ET: ADVANCED INSTRUMENTATION TECHNIQUES
(Semester-VIII) (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.***
3) ***Draw well labelled diagrams wherever necessary.***
4) ***Do not write anything on question paper except seat number.***

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

a) What is Chemical Shift? How it is measured?

b) Explain Spin-Spin splitting rule with reference to NMR.

c) Enlist names of matrix used in MALDI along with their functions.

d) How system Precision is evaluated for calibration of HPLC?

e) Discuss procedure to evaluate accuracy of Electronic balance.

f) What are applications of Thermogravimetric Analysis?

g) Differentiate between Proton NMR and ^{13}C NMR

P. T. O

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

a) Discuss exhaustively on RIA with its applications.

b) Suggest suitable chemical structure for following spectroscopic data:

Molecular Formula C_7H_5N

IR : 3100 cm^{-1}, 2200 cm^{-1}, 1600 cm^{-1}, 1400 cm^{-1}

Proton NMR: δ 7.2 (m, 5H)

Mass (m/z): 103,77

c) Give an exhaustive account of Differential Thermal Analysis.

d) Write in detail about different components of Mass Spectrophotometer.

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

a) Time of Flight Mass Analyzer

b) LC-MS

c) Differential Scanning Calorimetry

d) Calibration of UV Spectrophotometer

e) Solid Phase Extraction

f) Fragmentation pattern in Alcohols

g) Gel Electrophoresis

h) Chemical Ionization

i) ^{13}C NMR

j) Powder Crystal method

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

P897 **[Total No. of Pages : 2**

[6019]-8022
Fourth Year.B.Pharmacy
BP812ET : DIETARY SUPPLEMENTS & NUTRACEUTICALS
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) What food standards does AGMARK specify?

b) What are reactive oxygen species? Give examples.

c) What are complex carbohydrates? Give examples.

d) Enlist factors that reduce endogenous antioxidant enzymes.

e) Write health benefits of Xanthophylls.

f) Define functional foods. Give examples.

g) List out nutraceuticals for child health.

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

a) Define Functional foods and Classify Nutraceuticals. Explain in detail the significance of Nutraceuticals in prevention & management of heart disease and hypertension.

b) 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.

c) Explain in detail the GMP in manufacturing of nutraceuticals and food.

d) Explain in detail the regulation of FSSAI and FDA.

P.T.O.

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

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

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

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

d) Role of free radicals in causing Diabetes.

e) Explain the documents and requirements for obtaining FDA approval.

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

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

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

i) Comment on the role and concentration of BHT and BHA in food products.

j) Significance and Role of minerals as functional food.