Total No. of Questions : 3]

SEAT No. : ____

PA-73

[Total No. of Pages : 2

[5940]-101

First Year B. Pharmacy

HUMAN ANATOMY AND PHYSIOLOGY - I

(2018 Pattern) (Semester - I) (BP101T)

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

Instructions to the candidates :

1) ***Figures to the right indicate full marks.***
2) ***Draw an appropriate diagrams wherever necessary.***

Q1) Attempt all the following questions : **[10 × 2 = 20]**

a) Write types of anaemia.

b) Write a note on heart valves.

c) Explain the Composition of Blood.

d) Explain the structure of Artery.

e) Discuss anatomy of neuron.

f) Discuss the waves of ECG.

g) Explain in brief ABO blood groups.

h) Explain in brief Stages of Cell Division.

i) Write functions and normal value of haemoglobin.

j) Explain in brief Ball & Socket Joint.

P.T.O.

Q2) Attempt any **TWO** questions from the following : **[2 × 10 = 20]**

a) Enlist clotting factors and Discuss in detail mechanism of blood clotting.

b) Discuss in detail mechanism of muscle contraction.

c) Explain in detail mechanisms of transport of substances across cell membrane.

Q3) Attempt any **SEVEN** questions from the following : **[7 × 5 = 35]**

a) Define blood pressure. Discuss in detail hormonal regulation of blood pressure.

b) Write in detail Cardiac Cycle.

c) Explain different types of WBCs with their characteristics & functions

d) Explain the internal structure of Heart.

e) Explain the structure & Functions of cell.

f) Explain the role of Renin-Angiotensin system in regulation of B.P.

g) Classify' human tissues; explain in brief epithelial tissues.

h) Discuss in brief erythroblastosis foetalis.

i) Write Composition, formation and functions of lymph.

Total No. of Questions : 3]

SEAT No. : ____

PA-74

[Total No. of Pages : 2

[5940]-102

First Year B. Pharmacy

PHARMACEUTICAL AN ALYSIS-I

(2018 Pattern) (Semester-I) (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 diagrams wherever necessary.***

Q1) Answer following objective type questions. **[10×2=20]**

a) Define Molarity and Normality and write the formula.

b) What are significant figures?

c) Discuss factors affecting post precipitation.

d) Explain why the visual indicators change their colour.

e) Classify acid base titrations.

f) Give the criteria for selection of Primary standards.

g) Define ligand and chelate.

h) Classify different electrodes used in potentiometry.

i) Discuss the advantages of Glass Electrode.

j) Explain principle of gravimetric analysis.

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

a) Discuss Mohr's method and modified Volhard's method.

b) Discuss in detail about Conductometric Titrations. Write the applications of Conductometry.

c) Discuss principles and applications of Iodimetry and Iodometry, Explain Titration with potassium iodate.

P.T.O.

Q3) Answer ANY SEVEN questions out of the following. **[7×5=35]**

a) Explain accuracy and precision.

b) Write the applications of Potentiometry.

c) Discuss the solvents used in non-aqueous titrations.

d) Explain estimation of sodium benzoate.

e) Explain the neutralization curves of Strong Acid with Strong Base.

f) Explain Ilkovik Equation used in Polarography.

g) Discuss metal ion indicators.

h) Write the principle and procedure for estimation of Ephedrine HC1.

i) Explain the principle and procedure for estimation of Calcium gluconate I.P.

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Total No. of Questions : 3]

SEAT No. : ____

PA-75

[Total No. of Pages : 2

[5940]-103
F.Y. B. Pharmacy
PHARMACEUTICS - I
(2018 Pattern) (Semester - I) (BP103T)

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 all the following questions : **[10 × 2 = 20]**

a) List out all the editions and their supplements of Indian Pharmacopoeia.

b) Define: i) Tinctures ii) Spirits.

c) Why date is important for prescription filling?

d) Give any one formula for dose calculation.

e) Comment on geometric dilutions with an example.

f) Give the meaning of i) Additive effect ii) Synergistic effect

g) Define monophasic liquid dosage forms and give two advantages.

h) What are Elixirs? Give one example.

i) Name two conditions in which the suppositories are used.

j) Give any two labeling conditions for Enemas.

P.T.O.

Q2) Long answer questions (Answer 2 out of 3) : **[2 × 10 = 20]**

a) Write about various solubility enhancement techniques in detail

b) Give the formulation aspects for i) Enemas ii) Throat paints

c) Give in detail the factors influencing dermal penetration of drugs.

Q3) Short answers (Answer 7 out of 9) : **[7 × 5 = 35]**

a) Classify dosage forms based on site of administration.

b) Define posology and explain any four factors affecting posology.

c) Convert the following strength of alcohol into proof spirit.

d) Define powders and comment on effervescence granules.

e) Classify suspensions with suitable example.

f) Give any two identification tests for emulsions.

g) Explain the need for calculation of displacement value with suitable example.

h) Write a note on physical incompatibility.

i) Explain in short, evaluation of semisolid dosage forms.

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Total No. of Questions : 3]

SEAT No. : ____

PA-76

[Total No. of Pages : 2

[5940]-104

First Year B. Pharmacy

PHARMACEUTICAL INORGANIC CHEMISTRY

(2018 Pattern) (Semester - I) (BP104T)

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 the figures whenever necessary.***

Q1) Answer all the questions. **[10×2=20]**

a) Enlist types and sources of impurites.

b) What is mean by Buffer capacity? Give formula to calculate it.

c) Give method of preparation and use of Sodium Bicarbonate.

d) What are desensitizing agents? Give name of desensitizing agents.

e) Give significance of antacid combinations. Give any marketed preparation containing antacid combinations.

f) Give role of Kaolin and magnesium sulphate.

g) Write in short about astringents.

h) Define and classify Antidote with examples.

i) Write in short about acidifiers.

j) Give major function of Potassium and calcium ion in the body.

Q2) Attempt any Two out of Three. **[2×10=20]**

a) Give various limit tests. Write Principle and reaction of Arsenic limit test. Give Diagram, construction and working of Gutzeit apparatus.

b) Give the preparation, identification tests, assay and medicinal uses

   i) Sodium Chloride

   ii) Calcium gluconate

c) What is radioactivity? Explain a method for the measurement of radioactivity. Add a note on pharmaceutical applications of radioactive substances.

P.T.O.

Q3) Attempt any Seven out of Nine. **[7×5=35]**

a) Give in detail limit test for Iron.

b) Write a note on Indian Pharmacopoeia. Give significance of I.P. 2018.

c) What is Isotonicity? Give various methods of adjusting isotonicity.

d) Write in detail about ORS.

e) Write a note on Expectorants and Emetics.

f) Write in detail about Haematinics.

g) Give role of fluoride in the treatment of dental caries. Explain various dental products.

h) What is mean by Half-life of radioisotopes? Give Storage and handling of radioactive substances.

i) Give preparation and assay of sodium thiosulphate. Give mechanism of sodium thiosulphate in poison treatment.

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Total No. of Questions : 3]

SEAT No. : [ ]

PA-77

[Total No. of Pages : 2

[5940]-201

First Year (B. Pharmacy)

BP 201T : HUMAN ANATOMY AND PHYSIOLOGY - II

(2018 Pattern) (Semester - II)

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) Answer the following. **[20]**

a) Give brief description and functions of cerebellum.

b) Give functions of liver.

c) Give composition and functions of pancreatic juice.

d) Enlist cranial nerves.

e) Explain anatomy of neuron.

f) Draw neat labelled diagram of human respiratory system.

g) Define any two disorders affecting kidney.

h) Classify hormones with examples of each.

i) Enlist the hormones of anterior and posterior pituitary glands.

j) Define spirometry. Enlist various lung volumes and capacities.

P.T.O.

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

a) Draw a neat labelled diagram of alimentary canal. Describe structure and functions of each organ.

b) Explain structure and hormones of adrenal glands.

c) Discuss the structure of nephron. Explain in detail physiology of urine formation.

Q3) Answer the following (any 7): **[35]**

a) Describe functional area of cerebrum.

b) Describe anatomy of spinal cord.

c) Write a short note on : Formation and role of ATP in body energetics.

d) Write a short note on production and regulation of acid in the stomach.

e) Define digestion. Discuss role of enzymes in digestion and absorption of food.

f) Explain synthesis, storage, release and function of thyroid hormones.

g) Enlist the organs of female reproductive system. Write a note on Oogenesis.

h) Discuss in detail physiology of breathing.

i) Describe in detail the steps involved in protein synthesis.

Total No. of Questions : 3]

SEAT No. : ____

PA-78

[Total No. of Pages : 2

[5940]-202

First Year B. Pharmacy

PHARMACEUTICAL ORGANIC CHEMISTRY - I

(2018 Pattern) (Semester - II) (BP202T)

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

Instructions to the candidates :

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

Q1) **Answer all the questions :** **[10 × 2 = 20]**

a) Write any 2 qualitative tests for alcohols.

b) Define following terms :

i) Carbocations

ii) Carbanions

c) Classify structural isomerism with examples.

d) Write uses of paraffins.

e) Enlist Factors affecting E1 and E2 reactions.

f) Write Structure and Uses of Acetic acid and Salicylic acid.

g) Draw structures from IUPAC names of following :

i) 3-Ethyl-2-methylpentane

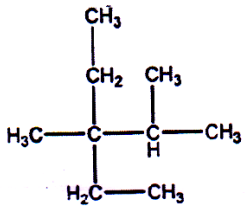
ii) 3-Butenal

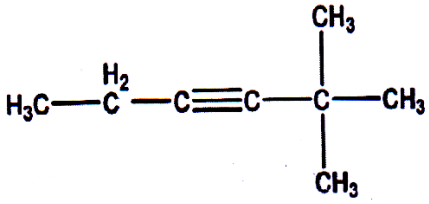
h) Write any 2 general methods of preparation of alkane.

P.T.O.

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

j) Give the IUPAC name of the following compounds.

i) 

ii) 

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

a) What is SN1 and SN2 reaction? Write mechanism and discuss factors affecting on SN1 and SN2 reaction.

b) Define and explain isomerism. Write a note on structural isomerism in organic compounds.

c) Explain in detail Aldol condensation and Crossed Aldol condensation.

Q3) **Solve any seven of the following :** **[7 × 5 = 35]**

a) What is the effect of substituent on Basicity?

b) Write a note on Benzoin condensation.

c) State and explain Markownikoff's and Anti Markownikoff's orientation.

d) Write classification of organic compounds with examples.

e) Write note on inductive effect.

f) Explain stability of conjugated dienes and allylic rearrangement.

g) Write short note on ozonolysis reaction in alkenes.

h) Compare E1 and E2 elimination reactions.

i) Explain formation of ethane and its geometry on the basis of hybridization.

Total No. of Questions : 3]

SEAT No. :

PA-79

[Total No. of Pages : 4

[5940]-203
First Year B.Pharmacy
BIOCHEMISTRY
(2018 Pattern) (Semester - II) (BP - 203T)

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

Instructions to the candidates:

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

Q1) Answer all the MCQ's: **[20]**

a) Before pyruvate enters Kreb cycle it needs to be converted to

i) Acetyl CoA ii) Lactate

iii) Alpha ketoglutarate iv) Acetyl CoB

b) Glycolysis occurs in

i) Mitochondria ii) Cytosol

iii) Both (i) and (ii) iv) None of these

c) All of the following are sulphur containing amino acids except

i) Cysteine ii) Cystine

iii) Methionine iv) Theonine

d) Polysaccharides are

i) Containing 1 monosaccharide unit

ii) Containing 2 monosaccharide unit

iii) Containing 2-10 monosaccharide unit

iv) Containing more than 10 monosaccharide unit

e) Tauri's disease is due to deficiency of

i) Glycogen synthase initiator ii) Glycogen synthase

iii) Phosphofructokinase iv) Glucokinase

P.T.O.

f) Which of the following statement is false for HMP shunt

i) HMP shunt is an alternative pathway for glycolysis and kreb cycle

ii) By products of HMP shunt are pentoses and NADPH

iii) HMP shunt is also called as tetrose phosphate pathway

iv) HMP shunt is also called as phosphogluconate pathway

g) Type II diabetes mellitus is

i) Insulin dependant diabetes mellitus

ii) Non-insulin dependant diabetes mellitus

iii) Gestational Diabetes

iv) All of the above

h) Electron transport chain result in

i) Conversion of ADP into ATP

ii) Conversion of oxygen into water

iii) Transfer of proton

iv) All of the above

i) Which of the following is ETC inhibitor

i) 2, 4 Dinitrophenol ii) 2, 2 dinitrophenol

iii) Nitrophenol iv) Nitrocresol

j) Esters of fatty acid with glycerol are called as

i) Fats ii) Waxes

iii) Oils iv) Fatty acids

k) Lipolysis is

i) Conversion of triglycerides into lipids and glycerol

ii) Conversion of triglycerides into fatty acid and glycerol

iii) Conversion of triglycerides into glycerides

iv) Conversion of glucose into pyruvate

l) Beta oxidation of palmitic acid results in generation of

i) 100 ATP ii) 101 ATP

iii) 10 ATP iv) 11 ATP

m) Biosynthesis of fatty acid is known as

i) Beta oxidation ii) Apha oxidation

iii) De Novo synthesis iv) New fatty acid synthesis

n) Trancription occurs in presence of

i) Pyridoxal phosphate ii) Transaminase

iii) Both (i) and (ii) iv) None

o) DOPA is an intermediate in biosynthesis of

i) Thyroid hormones ii) Catecholamines

iii) Vitamin D iv) Bile salts

p) A nucleotide consist of

i) A nitrogenous base + sugar

ii) A nitrogenous base + Sugar + Phosphate

iii) A nitrogenous base

iv) All of the above

q) Genetic code are

i) Overlapping, universal and ambiguous

ii) Overlapping but not universal

iii) Non overlapping, Universal and Ambigous

iv) Non overlapping and ambiguous but not universal

r) Biosynthesis of protein is called as

i) Replication ii) Transcription

iii) Translation iv) Proteingenesis

s) As per Michaelis Menten equation

i) Km is equal to concentration of product

ii) Km is equal to concentration of substrate

iii) Km is equal to concentration of enzyme

iv) Km is equal to concentration of catalyst

t) Gout is

i) Excess of uric acid in blood

ii) Excess of uric acid in joints

iii) Pain in joints

iv) All of the above

Q2) Long Answer (Any 2 out of 3): **[20]**

a) Explain beta oxidation of fatty acid.

b) Explain transcription in detail.

c) Describe glycogen metabolism in detail. Add a note on GSDs.

Q3) Short answers (Any 7 out of 9): **[35]**

a) Define and classify enzymes. Add a note on coenzymes.

b) Explain ketogenesis and its utilization.

c) Write a note on hormonal regulation of glucose.

d) Explain concept of free energy.

e) Describe process of glycolysis and give its energetics.

f) Explain urea cycle in detail.

g) Describe enzyme inhibition with its significance.

h) Write a note on structure of DNA.

i) Explain biosynthesis of purines.

Total No. of Questions : 3]

SEAT No. : [ ]

PA-80

[Total No. of Pages : 2

[5940]-204

First Year B. Pharmacy

PATHOPHYSIOLOGY

(2018 Pattern) (Semester - II) (BP204T)

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 marks.***

Q1) **Answer all the questions (Objectives) :** **[10 × 2 = 20]**

a) Define hypertension and atherosclerosis.

b) Compare hypothyroidism and hyperthyroidism

c) Define and enlist the types of epilepsy.

d) Explain the clinical complication of heart failure.

e) Enlist the common causes of depression.

f) Define benign and malignant tumor.

g) Explain the causes of meningitis.

h) Enlist the sign and symptoms of typhoid.

i) Enlist the sign and symptoms of tubeculosis

j) Define anemia. Enlist the cause of Megaloblastic anemia.

P.T.O.

Q2) **Long Answers (Any 2 out of 3) :** **[2 × 10 = 20]**

a) Explain in detail pathophysiology of congestive heart failure.

b) Define inflammation. Explain different types of inflammation and its mechanism.

c) Discuss the etiology and pathophysiology of chronic renal failure.

Q3) **Short Answers (Any 7 out of 9) :** **[7 × 5 = 35]**

a) Explain pathophysiology of myocardial infraction

b) Explain pathophysiology of depression.

c) Explain sign, symptoms etiology and pathogenesis of hepatitis A.

d) Define Homeostasis. Explain component, and enlist type of feedback system with example.

e) Explain in detail pathophysiology of Gout.

f) Enlist the type of sexually transmitted disease. Describe pathogenesis of gonorrhoea.

g) Define diabetes. Explain complication of diabetes mellitus.

h) Define Anemia. Explain causes, sign and symptoms of sickle cell anemia.

i) Define goiter. Explain causes, sign and symptoms of goiter.

Total No. of Questions : 3]

SEAT No. : ____

PA-81

[Total No. of Pages : 2

[5940]-301

Second Year B. Pharmacy

PHARMACEUTICAL ORGANIC CHEMISTRY - II

(2018 Pattern) (Semester - III) (Theory) (BP301T)

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) Draw resonance structures for Aniline.

b) Explain any two qualitative tests for phenols.

c) Explain 4n+2 rule of aromaticity with example.

d) Explain chiral and achiral molecules.

e) Discuss Diastereomerism with suitable examples.

f) Draw the structure of the cis-trans isomers for following compounds. Label them cis and trans

i) 3-hexene

ii) 2-butene

iii) 1,2-dimethylcyclohexane

g) 4-Nitro Aniline is less basic than aniline? Explain.

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

a) What are electrophilic aromatic substitution reactions. Explain sulphonation and halogenation of benzene with stepwise mechanism.

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

i) Naphthalene

ii) Diphenylmethane

c) What are amines. Classify with example. Write any three reactions and three methods of preparations of amines.

d) What is geometrical isomerism? Explain methods of determination of configuration of geometrical isomers with suitable examples.

P.T.O.

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

a) How will you distinguish primary, secondary and tertiary amines by chemical test.

b) Write uses of cresols and naphthols and draw structure of any two derivatives.

c) Write mechanism of Friedel-Craft's alkylation reaction.

d) $-NH_2$ group is ortho para directing towards electrophilic substitution reaction Explain.

e) Explain any two methods for the synthesis of anthracene.

f) Write a note on Enantiomerism and meso compounds.

g) Discuss in detail Sachse Mohr's theory.

h) What are fats & oils. Add a note on rancidity of oils.

i) Explain in brief Bayer's strain theory with limitations of bayer's strain theory.

j) Explain Nitrosation reaction.

Total No. of Questions : 3]

SEAT No. : ____

PA-82

[Total No. of Pages : 2

[5940]-302

Second Year B. Pharmacy

PHYSICAL PHARMACEUTICS - I

(2018 Pattern) (Semester - III) (Theory) (BP302T)

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 (objective) (any five) **[5 × 3 = 15]**

a) What you know about solubility expression?

b) Explain the effect of temperature and pressure on solubility of gases in liquids.

c) Explain the phase diagram for two compound system.

d) Discuss limitation of Nernst distribution law.

e) Explain surface tension. How you can measure it?

f) What is protein – drug binding?

g) How we can determine pH.

h) Application buffer in pharmacy.

Q2) Long answer questions. (any two) **[2 × 10 = 20]**

a) State Nernst distribution law along with factors affecting and application.

b) Explain crystals and its method of analysis in detail?

c) Write in detail about measurement of surface and infacial tension.

d) What are different methods for studying complex.

P.T.O.

Q3) Short answer questions. (any eight) **[8 × 5 = 40]**

a) Gibbs phase rule along with its application.

b) HLB scale.

c) Liquification of gases.

d) One component system.

e) Solubility of gase in liquids.

f) Isotonic solution

g) Eutectic mixture.

h) Solute – Solvent Interaction.

i) Solubility of parameter.

j) Protein drug binding.

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Total No. of Questions : 3]

SEAT No. : ____

PA-83

[Total No. of Pages : 2

[5940]-303

Second Year B. Pharmacy

PHARMACEUTICAL MICROBIOLOGY

(2018 Pattern) (Semester - III) (BP-303T)

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 (any five). **[5 × 3 = 15]**

a) Differentiate between Prokaryotes and Eukaryotes.

b) Define

i) Microbiology

ii) Probiotics

iii) Prebiotics

c) Justify Agar is used as solidifying agent.

d) Write advantages and disadvantages of microbial assay method.

e) Write ideal properties of preservatives.

f) Write various chemical classes of disinfectant.

g) Classify bacteria based on their requirement for temperature and oxygen.

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

a) Draw and describe in brief typical structure of bacteria and give the function of each part.

b) Define sterilization. Explain different methods of sterilization with suitable example.

c) Describe in detail cultivation and multiplication of human viruses.

d) How will you perform sterility testing of pharmaceutical product as per I.P.

P.T.O.

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

a) Write in detail scope and importance of pharmaceutical microbiology.

b) Write a note on IMVIC test.

c) Write the contribution of Louis Pasteur in the field of microbiology.

d) Explain the different methods used for preservation of pure cultures.

e) Write a note on Rideal Walker test.

f) Write different sources of contamination in an aseptic area.

g) Explain the different factors affecting microbial spoilage of pharmaceutical products.

h) Write a note on microbiological assay of vitamin B_{12}.

i) Explain general procedure for cell culture.

j) Write different factors affecting disinfectant action.

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Total No. of Questions : 3]

SEAT No. : ____

PA-84

[Total No. of Pages : 2

[5940]-304

Second Year B. Pharmacy

PHARMACEUTICAL ENGINEERING

(2018 Pattern) (Semester - III) (BP304T)

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

b) What are manometers? What different types 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 and neat 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 and 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 fluidized bed dryer.

g) Explain principle, Construction, working & uses of planetary mixer.

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. :

PA-85

[Total No. of Pages : 2

[5940]-401

Second Year B.Pharmacy

PHARMACEUTICAL ORGANIC CHEMISTRY - III

(2018 Pattern) (Semester - IV) (Theory) (BP401T)

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 the following questions (Solve 5 out of 7): **[15]**

a) Write any one stereospecific reaction.

b) Draw Newmann and Sawhorse structures of different conformers of n-butane.

c) Conformational isomerism in Cyclohexane.

d) Explain what are stereoselective reactions.

e) Pyridine undergo electrophilic substitution reaction at 3rd position, Why?

f) Write any two reactions of Imidazole.

g) Discuss the chemistry of pyridine.

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

a) Explain in detail atropisomerism in Biphenyls and conditions required for optical activity.

b) Explain in detail mechanism and applications of Hoffmann rearrangement.

c) Define and classify Heterocyclic compounds. Discuss the one methods of preparation, two reactions and medicinal uses of furan.

d) Give any one methods of synthesis, two chemical reactions and two medicinal uses of

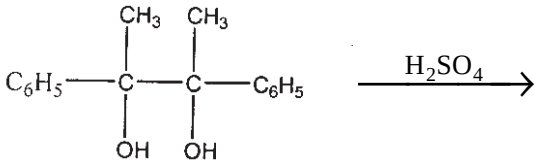
i) Pyrrole

ii) Thiophene

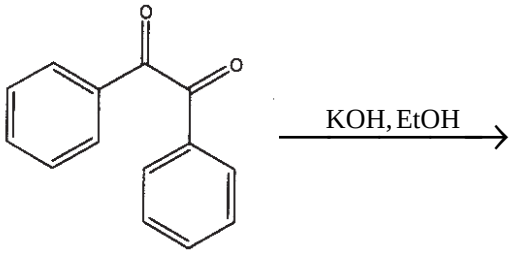
P.T.O.

Q3) Write short notes on: (Solve 8 out of 10) **[40]**

a) Complete the reaction with mechanism:



b) Complete the reaction with mechanism:



c) Explain mechanism of Clemmenson reduction.

d) Explain mechanism of Oppenauer-oxidation.

e) Give any three reactions of Isoquinoline.

f) Discuss one method of synthesis and uses of purines.

g) Outline any one method of synthesis and mention derivatives of Imidazole.

h) Describe the chemistry and mention the medicinal uses of pyrazole.

i) Explain any one method of synthesis and medicinal uses of Isoquinoline.

j) Draw the structure, give the numbering and mention one derivative of following heterocyclic compounds.

   i) Indole

   ii) Pyrimidine

   iii) Quinoline

✪ ✪ ✪

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

PA-86 **[Total No. of Pages : 2**

[5940] - 402

Second Year B.Pharmacy

BP402T : MEDICINAL CHEMISTRY - I

(2018 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) **Attempt the following (Any Five)** : **[5 × 3 = 15]**

a) Draw structure and write medicinal uses of Carbamazepine.

b) Write synthesis of Neostigmine.

c) Draw structure and write medicinal uses of Indomethacin.

d) Write synthesis of Salbutamol.

e) Draw structure and write uses of Xylometazoline.

f) Explain SAR of Cholinergic agonists.

g) Explain role of solubility parameter on drug action.

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

a) Write note on Biosynthesis, release and metabolism of Acetylcholine.

b) Write clinical uses of adrenergic agonists. Give a detailed SAR for adrenergic agonists with help of appropriate examples. Also add a note on any one commonly used agent used in the management of asthma.

c) What are sedative and hypnotic agents? Write classification of sedative and hypnotic agents with examples. Write SAR for barbiturates as sedative and hypnotic agents.

d) Classify non steroidal anti-inflammatory agents with examples. Describe aryl acetic acid and aryl propionic acid derivatives in detail.

P.T.O.

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

a) Write a note on Alpha adrenergic blockers.

b) Explain various Synthetic cholinergic blocking agents give classification, SAR and mode of action of drugs.

c) Discuss in detail the irreversible AchE inhibitors.

d) Draw structure, write IUPAC name and mechanism of action of Clonidine.

e) Write SAR of Morphine analogues.

f) Write SAR of phenothiazines as antipsychotic agent.

g) Explain concept of Bioisosterism with examples.

h) Explain phase I reactions of Drug metabolism.

i) Explain effect of protein binding on drug action.

j) Explain any three conjugation reaction in drug metabolism.

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

PA-87 **[Total No. of Pages : 2**

[5940] - 403

S.Y. B.Pharmacy

BP-403T : PHYSICAL PHARMACEUTICS - II

(2018 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) Enlist application of Colloids in Pharmaceuticals.

b) What is meant by Bingham bodies?

c) How do you select a method for particle size analysis?

d) When methylcellutose is added to water, the viscosity increases? Why?

e) Write a note on accelerated stability studies.

f) Mention optical properties of Colloids.

g) Differentiate between flocculated and deflocculated suspensions.

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

a) Enlist and explain methods for particle size analysis.

b) What is the HLB scale? Explain the use of the HLB scale in the formulation.

c) Explain the effect of temperature on the rate of reaction.

d) Explain stability aspects of suspension and emulsions.

P.T.O.

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

a) Order of reaction and molecularity of a reaction.

b) Pseudoplustic flow.

c) Stability study.

d) Thixotropy.

e) Derived properties of powder.

f) Ostwald viscometer.

g) Particle size distribution.

h) Reaction kinetics.

i) Chemical degradation.

j) Electric double layer.

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

PA-88 **[Total No. of Pages : 2**

[5940]-404

S.Y. B.Pharmacy

BP-404T : PHARMACOLOGY - I

(2018 Pattern) (CBCS) (Semester - IV)

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

a) Define Volume of Distribution with suitable example.

b) Write nature and sources of drugs.

c) Define Idiosyncrasy and give two examples.

d) Define and Classify Sedatives with examples.

e) Explain enzyme induction with one example

f) Define and Classify Adverse drug reactions

g) Define tachyphylaxis with example.

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

a) Define and Classify receptors. Describe GPCR Write about the Signal transduction mechanism of receptors reactions.

b) Describe the process of synthesis, storage, release and termination of action of noradrenaline. Classify various beta blockers. Describe clinical use and ADR of beta blockers.

c) Define and classify antiepileptic agents. What is the Pharmacological basis of using phenytoin in grand mal epilepsy? Describe adverse effects and drug-drug interaction of phenytoin.

d) Define drug metabolism & describe the phases of drug metabolism.

P.T.O.

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

a) Define and classify general Anesthetics and write a note on stages of anesthesia.

b) Classify anticholinergics. Write in detail about their therapeutic uses.

c) Define and classify antipsychotic drugs. Write uses, MOA and ADR of Chlorpromazine.

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

e) Explain pharmacokinetic terms Bioavailability and Half-life in detail.

f) Define biotransformation. Write factors affecting it, and add a note on enzyme inhibition with suitable examples.

g) Describe the aims of various phases of clinical trials. Explain meaning of "double blind placebo controlled randomized clinical trial of drug".

h) Define Pharmacokinetics & Pharmacodynamics. Write in detail about Parenteral routes of drug administration.

i) Define and classify local anesthetics. Write mechanism of action, pharmacological action, clinical uses and adverse effect of Lignocaine.

j) Define receptor& write a note on various receptors.

Total No. of Questions : 3]

SEAT No. : ____

PA-89

[Total No. of Pages : 3

[5940]- 405

Second Year B. Pharmacy

PHARMACOGNOSY AND PHYTOCHEMISTRY - I

(2018 Pattern) (Semester - IV) (BP-405T)

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

a) Physical evaluation of crude drugs.

b) Differentiate between organized & unorganized drugs.

c) Discuss in detail Gelatin as protein.

d) What are stomata's? Give its classification.

e) Give chemical tests along with significance for the following.

i) Dragendorff's Test

ii) Borntragers Test.

iii) Keller- Killiani Test.

f) What are tannins? Give its classification.

g) Attempt the following.

i) The quantitative evaluation of powdered crude drug without chemical and other methods is carried out by

1) Lycopodium spore method

2) Moisture determination method

3) Powder microscopy

4) None of the above

P.T.O.

ii) Senna mainly contains:

1) O- glycosides

2) N- glycosides

3) C- glycosides

4) S- glycosides

iii) Oleo gum resins are mixture of:

1) Volatile oil + Gum + Resins

2) Fixed oil + Gum+ Resin

3) Fats + Gum + Resin

4) Gum + Resins

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

a) Define Alkaloids? Give their important properties & test for their identification. Classify alkaloids with suitable examples.

b) Define Pharmacognsy? Describe in detailed developments in pharmacognosy along with classification.

c) What are the possible sources of adulterants of herbal drugs? What are the different methods for evaluation of herbal drugs.

d) Discuss the various types of plant tissue culture. Explain the technique of plant tissue culture for initiation, development and maintenance of culture.

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

a) Give general extraction method of Shark liver oil & Cod liver oil.

b) Write note on polyploidy.

c) What are phytohormones? Give application of Auxin and cytokinins(CK)

d) Write a note on Edible vaccines.

e) Describe cardiovascular medicinal agents from Marine sources.

f) Discuss and classify primary metabolites? Give the commercial utility of some carbohydrates.

g) Discuss morphological study of Bark.

h) Quantitative microscopy of crude drug base on Lycopodium spore method.

i) Write note on natural Hallucinogens & Teratogens.

j) Write note on natural fibers.

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

PA-90 **[Total No. of Pages : 2**

[5940]-501

T.Y. B.Pharmacy

BP-501T : MEDICINAL CHEMISTRY - II

(2018 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 Five) :** **[5 × 3 = 15]**

a) Define & Classify antianginal agents with examples.

b) Write Mechanism of action & medicinal applications of Bepridil hydrochloride.

c) Outline synthesis of Atenolol.

d) Draw the structure of the following :

i) Cimetidine.

ii) Omeprazole.

iii) Promethazine.

e) Write a note on anti-coagulants.

f) Explain in detail oral contraceptives.

g) Discuss the drugs used in congestive heart failure.

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

a) Classify oral hypoglycemic agents with structure from each class. Discuss in detail sulphonyl-ureas & biguanides.

b) What is hypertension? Classify antihypertensive agents with examples, write mechanism of action & medicinal applications of drugs belonging to class ACE inhibitors.

P.T.O.

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

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

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

a) What are autocoids? Discuss in detail prostaglandins.

b) Write MOA & medicinal applications of Fexofenadine & ranitidine.

c) Outline the synthetic scheme of

i) Promathiazine Hcl.

ii) Cetirizine.

d) Write MOA & medicinal applications of hydrochlorthiazide & acetazolamide.

e) Discuss corticosteroids in detail.

f) Classify local anesthetics with suitable examples.

g) Discuss in detail thyroid & antithyroid drugs.

h) Explain chemistry, nomenclature & stereochemistry of Steroids.

i) Classify anti-arrhythmic agents with suitable examples.

j) Classify antihyperlipidemic agents with suitable examples.

Total No. of Questions : 3]

SEAT No. :

PA-91

[Total No. of Pages : 2

[5940]-502

Third Year B. Pharmacy

BP 502 T : INDUSTRIAL PHARMACY - I

(2018 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) Answer the following (any 2): **[20]**

a) Define Tablets. Discuss JPQC test of tablets.

b) Discuss defects in tablet with it's remedies.

c) Give advantages of parenterals. Discuss in detail official pharmacoperal evaluation parameter of parenterals.

d) What is pelletization? Describe in detail the process of extrusion pelletization.

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

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

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

c) Write note on Tooth pastes.

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

e) What is HLB? Explain it's application in formulation of biphasic liquid orals.

P.T.O.

f) Define and classify Ophthalmic products.

g) Discuss formulation of soft gelatin capsules.

h) Discuss Evaluation of Liquid orals.

i) Write a note on Sunscreen and SPF.

j) Explain in brief tonicity adjustments in Parenterals.

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

a) What are type A and type B gelatin?

b) What is pH formulation? Explain important physicochemical properties involved in preformulation studies.

c) Write a note on vanishing cream.

d) JPQC test of capsules as per Indian Pharmacopoeia.

e) Give advantages of aerosols. Discuss in brief about propellants used in formulation of aerosols.

f) Explain Fluidized bed coating used in tablets coating.

g) How globule diameter affects stability of suspension?

Total No. of Questions : 3]

SEAT No. : ____

PA-92

[Total No. of Pages : 2

[5940] - 503

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

BP 503T - PHARMACOLOGY - II

(2018 Pattern)

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

a) Give mechanism of action of streptokinase.

b) Write mechanism of action of ACTH.

c) Enlist the functions of posterior pituitary hormone.

d) Explain mechanism of action and therapeutic user of vasopressin.

e) Give location and functions of histamine receptor.

f) Define and classify antithyroid drugs.

g) Justify the role of diuretics in the treatment of CHF.

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

a) Classify NSAIDs and write pharmacological details of Aspirin.

b) Define and give types of the bioassay. Add a note on bioassay of d-tuberculosis.

c) Classify antihypertensive. Explain pharmacotherapy of hypertension.

d) Discuss biosynthesis, mechanism, pharmacological action and therapeutic user of Estrogens.

P.T.O.

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

a) Justify combination of statins and Resins to treat hyperlipidemia.

b) Explain pharmacology of thiazide diuretics.

c) Classify antianginal drugs. Describe the therapeutic utility of vasodilation in angina pectorals.

d) Define and classify the drug acting on uterus.

e) Add note on therapeutic effects of corticosteroids.

f) Write mechanism, adverse effects and uses of diltiazem, verapamil and nifedipine.

g) Write a note on sulfosalazine.

h) Discuss pharmacological action of digitalis for the treatment of congestive heart failure.

i) Write a note on calcitonin.

j) Explain the role of gonadotropins in male.

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Total No. of Questions : 3]

SEAT No. : ____

PA-93

[Total No. of Pages : 2

[5940]-504

Third Year B. Pharmacy

PHARMACOGNOSY AND PHYTOCHEMISTRY - II

(2018 Pattern) (Semester - V) (BP 504T) (Theory)

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

Instructions to the candidates:

1) ***All 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) Define secondary plant metabolite with suitable examples.

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 follwoing (Any 2 out of 4). **[2×10=20]**

a) Define Alkaloids. 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 Digital is 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 diagram of Fennel.

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Total No. of Questions : 3]

SEAT No. : ____

PA-94

[Total No. of Pages : 2

[5940] - 505

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

BP505T - PHARMACEUTICAL JURISPRUDENCE (Theory)

(2018 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) Answer all the questions (Two marks each) : **[10 × 2 = 20]**

a) What are copyrights?

b) What are spurious drugs?

c) What are schedule P and O?

d) Constitution of Institutional Animal Ethics Committee.

e) According to Medical Termination of Pregnancy Act, 1971 what are offenses and penalties?

f) Which inventions are patentable?

g) What are Coca derivatives?

h) Write the Ex-officio members of state pharmacy council.

i) Write qualifications of Government Analyst.

j) What are the objectives of DPCO, 1995?

Q2) Long Answers (Any 2 out of 3) **[2 × 10 = 20]**

a) Discuss in detail about constitution and working of state and joint state pharmacy council.

b) Explain in detail schedule M.

c) Write in detail procedure of inspections of drugs and formulations, qualifications and responsibilities of drug inspector as per pharmacy Act.

P.T.O.

Q3) Short Answers (Any 7 out of 9) : **[7 × 5 = 35]**

a) Prices of Bulk drugs.

b) What are the constitution and functions of pharmacy council of India.

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

d) Circumstances under which the pregnancies may be terminated by Registered Medical Practitioner.

e) Schedule H.

f) Explain Non-Bonded Manufactory.

g) Adulterated Drugs.

h) Drug Enquiry Committee.

i) Pharmaceutical code of ethics in relation to medical profession and pharmacy profession.

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Total No. of Questions : 3]

SEAT No. : ____

PA-95

[Total No. of Pages : 2

[5940]-601

Third Year B. Pharmacy

MEDICINAL CHEMISTRY - III

(2018 Pattern) (Semester - VI) (BP-601T) (Theory)

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

Instructions to the candidates:

1) ***All questions are compulsory. Internal choices are given.***
2) ***Figure 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) Define and classify sulphonamides with suitable examples.

b) Give structure, IUPAC name and MOA for clotrimazole.

c) Define and classify beta lactum antibiotics with suitable examples.

d) Define and classify antineoplastic agents with suitable examples.

e) Enlist various physicochemical parameters used in QSAR.

f) Define and classify antileprotic agents with suitable examples.

g) Fill in the banks

i) Imatinib is antineoplastic agent from class of ——— inhibitors.

ii) Cetuximab is antineoplastic agent from class of ____ antibodies.

iii) Trimethoprim drug is ———— inhibitor.

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

a) Define and classify antimalarial agents with suitable examples. Discuss in detail about cinchona alkaloids.

b) Define and classify antifungal agents with suitable examples and describe SAR and MOA of antifungal azoles.

c) Describe chemistry and MOA of alkylating agents and antimetabolites as antineoplastic agents.

d) Define and classify antiviral agents and discuss DNA virus inhibitors.

P.T.O.

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

a) Write a note on Tetracyclines antibiotics.

b) Write a note on polypeptide antibiotics.

c) Discuss SAR of quinoline antimalarials.

d) Explain chemistry and MOA of anthelmintic drugs.

e) Write a note on anti-protozoal agents.

f) Outline the synthesis of sulfamethoxazole.

g) Explain chemistry and MOA of plant products use as anticancer agents.

h) Write a note on macrolide antibiotics.

i) Discuss antileprotic agents.

j) Outline the synthesis of ethambutol.

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Total No. of Questions : 3]

SEAT No. : ____

PA-96

[Total No. of Pages : 2

[5940]-602

Third Year B. Pharmacy

PHARMACOLOGY - III

(2018 Pattern) (Semester - VI) (BP602T)

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

Instructions to the candidates:

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

Q1) Objective type questions (answer 5 out of 7) each question carries 3 marks. **[5 × 3 = 15]**

a) Define COPD. Enlist drugs used in treatment of COPD.

b) Define antitussive agent and give its classification.

c) Differentiate between laxative and purgative classify drugs used for constipation.

d) Define appetite stimulant and digestant with examples.

e) Write in short about circadian rhythm.

f) Write a note on mucolytic.

g) Justify why sulfamethoxazole is given in combination with trimethoprim.

Q2) Long answers (answer 2 out of 4) each question carries 10 marks. **[2 × 10 = 20]**

a) Classify antiemetic drugs. Explain pharmacology of $5HT_3$ antagonist and prokinetic drugs.

b) Explain mechanism of action, antibacterial spectrum. Adverse effect and uses of penicillin G.

c) Write mechanism of action, pharmacological actions, adverse effects and therapeutic uses of Ranitidine.

d) Define Asthma. Discuss mechanism of action, pharmacological actions, therapeutic uses and adverse effects of salbutamol.

P.T.O.

Q3) Short answers (answer 8 out of 10) each question carries 5 marks. **[8 × 5 = 40]**

a) Discuss in short about chemotherapy for tuberculosis.

b) Write general principles of treatment of poisoning.

c) Write mechanism of action and uses of beta lactamase inhibitors.

d) Write a note on proton pump inhibitors.

e) Enumerate newer macrolide antibiotics and its mechanism of action and uses.

f) Give brief account on anti – Helicobacter pylori regimen.

g) Classify antimalarial drugs and write mechanism of action, adverse effect and uses of chloroquine.

h) What is cotrimaxazole? Give its therapeutic uses and mechanism of action.

i) Write a note on vinca alkaloids as anticancer drugs.

j) Write a note on cyclosporine as immunosuppresant drug.

Total No. of Questions : 3]

SEAT No. : ____

PA-97

[Total No. of Pages : 2

[5940] - 603

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

HERBAL DRUG TECHNOLOGY

(2018 Pattern) (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 questions (Answer 5 out of 7)** **[5 × 3 = 15]**

a) Write a note on Homeopathic system of medicine.

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

c) Describe method of preparation for asava-arishta.

d) Define binder along with classification and advantages.

e) Add a note on plant based industries involved in work on medicinal and aromatic plants.

f) Explain about CITES certification.

g) Enlist the common technical aspects for GACP guidelines.

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

a) What is bhasma? Describe in detail method of preparation and general standardization parameter for bhasma as per Ayurvedic Pharmacopoeia.

b) Explain in detail Patent, Patenting aspects of traditional knowledge and natural product along with case studies for Neem and Curcuma.

c) Explain in detail WHO and ICH guidelines for the assessment of herbal drug, stability testing of herbal drug.

d) Brief note on phytosomes technology, advantages, method of preparation and evaluation techniques.

P.T.O.

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

a) Describe basic principles, diagnosis and treatment involved in Ayurveda.

b) Write a role of Alfalfa and honey as health food.

c) Discuss the manufacturing process and evaluation parameters for herbal tablet.

d) What is herbal excipient? Write down about the significance of natural excipients with suitable examples.

e) What are drug interactions? Explain about the herb drug interactions with examples.

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

g) Explain the health benefits of amla and spirulina.

h) Explain in detail about sources and description of raw materials of herbal origin used for herbal cosmetics.

i) Write a note on schedule T.

j) Explain the importance of primary processing, garbling, drying and preservation in the processing of herbal raw material.

▽▽▽▽

Total No. of Questions : 3]

SEAT No. :

PA-98

[Total No. of Pages : 2

[5940] - 604

T.Y. B. Pharmacy

BP604T - BIOPHARMACEUTICS AND PHARMACOKINETICS

(2018 Pattern) (Semester - VI)

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

Instructions to the candidates :

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

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

a) What do you mean by dissolution?

b) What is the rate-limiting step in bioavailability?

c) What are the limitations of pH-partition hypothesis?

d) Define bioavailability. What are the objectives of bioavailability studies?

e) What are the various types of bioequivalence studies?

f) What do you understand by the term 'open' in compartment modelling?

g) Enlist the physiological barriers that affects the distribution of drug.

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

a) What are the different mechanisms of drug absorption? Write in detail about the passive diffusion.

b) Write a detail note kinetics of protein binding.

c) Explain various methods to enhance bioavailability of poorly water soluble drugs.

d) What is gastric emptying? Write a note on the factors that influence gastric emptying.

P.T.O.

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

a) Define and explain renal clearance.

b) Explain statistical methods used in BA/BE studies.

c) What do you understand by the term apparent volume of distribution?

d) Liver is considered as the major organ involved in detoxification, justify.

e) Explain the various non-renal routes of drug excretion?

f) Name the methods used to calculate K_E from urinary excretion data. What are the advantages of urinary data over plasma data?

g) Differentiate between active transport and a facilitated diffusion?

h) What do you mean by first pass effect? Explain its effect on absorption of drug.

i) What are the advantages of administering a drug by constant rate i.v. infusion over oral administration?

j) What is salivary excretion of drugs?

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Total No. of Questions : 3]

SEAT No. : ____

PA-99

[Total No. of Pages : 2

[5940]-605
Third Year B. Pharmacy
PHARMACEUTICAL BIOTECHNOLOGY
(2018 Pattern) (Semester - VI) (BP605T)

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

Instructions to the candidates:

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

Q1) **Answer 5 out of 7 :** **[5 × 3 = 15]**

a) Highlight use of microbes in industry.

b) What is protein engineering?

c) Explain applications of genetic engineering.

d) Illustrate applications of biosensors in pharmaceutical industries.

e) Discuss basic steps involved in recombinant DNA technology.

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 vector in detail.

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

c) What is fermentation? Highlight general requirements of fermentation and discuss production of penicillins by fermentation technology.

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

P.T.O.

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

a) What is mutation? Briefly summarize types of mutation.

b) Explain methods of enzyme immobilization.

c) Write a note on restriction endonuclease and ligase.

d) Discuss production of hepatitis B vaccine by recombinant DNA technology.

e) Describe structure and function of MHC.

f) Write a note on microbial biotransformation.

g) Outline the preparation of toxoids.

h) Explain structure of immunoglobulin.

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

j) Write a note on ELISA.

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Total No. of Questions : 3]

SEAT No. : ____

PA-100

[Total No. of Pages : 2

[5940]-606
Third Year B. Pharmacy
QUALITY ASSURANCE
(2018 Pattern) (Semester - VI) (BP606T)

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) Differentiate calibration and validation.

b) Give full-form of WHO and state its functions.

c) What is stress testing of the drug product?

d) Define installation qualification and operational qualification.

e) State the importance of SOP.

f) What are accuracy and precision parameters for validation of analytical method?

g) State need and objectives of validation.

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

a) Explain the concept of Quality by Design (QbD) write in detail about elements is QbD approach.

b) Discuss maintenance of sterile areas and control of contamination in pharmaceutical manufacturing facility.

c) Explain the major quality control tests for glass containers.

d) Discuss handling of returned goods in pharmaceutical industry.

P.T.O.

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

a) What is quality management? Explain role of USFDA guidelines for quality management.

b) Explain ICH guidelines in brief and its importance.

c) Explain NABL accreditation procedure and its importance.

d) Explain the importance of personnel qualification and training in pharmaceutical industry.

e) Write a note on equipment selection and purchase specifications in pharmaceutical manufacturing facility.

f) Explain the quality control tests for rubber closures.

g) Explain in brief need for GLP and CPCSEA.

h) Explain the difference between BFR and MFR. Explain the importance of these documents.

i) What are different types of validation? Discuss scope of validation.

j) Discuss raw material management in pharmaceutical industry.

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Total No. of Questions : 3]

SEAT No. : ____

PA-101

[Total No. of Pages : 2

[5940]-701

Final Year B. Pharmacy

INSTRUMENTAL METHODS OF ANALYSIS

(2018 Pattern) (Semester - VII) (BP-701T)

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

Instructions to the candidates:

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

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

a) Discuss the applications of flame photometry.

b) Discuss the effect of solvent on absorption spectra in uv spectroscopy.

c) Write the advantages of TLC over paper chromatography.

d) Explain about types of molecular vibrations in IR spectroscopy.

e) Write the principle involved in nephelotur bidometry.

f) Discuss the importance of gradient elution over isocratic elution technique.

g) What is activation of plates? Write its importance.

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

a) Discuss in detail the rate theory, plate theory and system suitability parameters.

b) Describe the principle, instrumentation and applications of HPLC.

c) Distinguish between fluorescence and phosphorescence. Discuss the various factors affecting the phenomenon of fluorescence.

d) Describe the ideal requirements of detector. Discuss in brief about various detectors used in IR spectroscopy.

P.T.O.

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

a) Draw a neat schematic diagram of GC. Explain the columns used in GC.

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

c) Write a note on

   i) Applications of gel chromatography

   ii) System suitability parameters

d) Write a note on

   i) Temperature programming in GC

   ii) Adsorbents used in TLC

e) Discuss the working principle and construction of spectrofluorimeter.

f) State Beer – Lamberts law and derive an equation for it.

g) Draw a neat labelled instrumentation layout of IR spectrophotometer and explain the sample handling techniques in IR.

h) Discuss the different development techniques used in paper chromatography.

i) Discuss the instrumentation of HPTLC.

j) Discuss in detail various types of transitions involved in uv-vis spectrophotometry.

Total No. of Questions : 3]

SEAT No. : ____

PA-102

[Total No. of Pages : 2

[5940]-702
Final Year B. Pharmacy
INDUSTRIAL PHARMACY - II
(2018 Pattern) (Semester - VII) (BP702T)

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

Instructions to the candidates:

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

Q1) **Answer the following (Any 5 out of 7) Each question carries 3 marks.** **[15]**

a) What are different levels of scale up changes as per SUPAC?

b) Explain roles of various ICH guidelines useful in technology transfer?

c) What is horizontal technology transfer?

d) What are the benefits of platform technology?

e) Enlist methods of risk management.

f) What are dimensions of quality?

g) What are benefits of ISO 14000?

Q2) **Answer the following (any 2 of 4) Each carries 10 marks.** **[20]**

a) Explain different types of post approval changes.

b) Write about granularity of technology transfer process.

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

d) Explain significance of documentation in BA-BE studies.

P.T.O.

Q3) **Answer the following (Any 8 out of 10) Each carries 5 marks. [40]**

a) What is risk assessment in technology transfer?

b) What are the parts of quality risk management? Explain risk control.

c) Explain failure mode effect analysis.

d) Explain process validation.

e) Explain steps in technology transfer?

f) Give an account of technology transfer in production?

g) What is clinical research protocol & data presentation?

h) Explain benefits of ISO 14000.

i) Explain applications of bio statistics in pharmaceutical product development.

j) Explain the terminology QTPP & CPP with suitable examples.

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Total No. of Questions : 3]

SEAT No. :

PA-103

[Total No. of Pages : 2

[5940]-703
Final Year B. Pharmacy
PHARMACY PRACTICE (Theory)
(2018 Pattern) (Semester - VII) (BP703T)

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

Instructions to the candidates:

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

Q1) **Objective type questions (Answer any 5 out of 7) :** **[15]**

a) Comment on drug food interactions.

b) Enlist benefits of effective hospital formulary system.

c) Define hospital pharmacy and enlist it's functions.

d) Outline the role of pharmacist in the education and training program in the hospital.

e) Define patient counselling and give its objectives.

f) Give the organizational structure of hospital pharmacy and enlist the responsibilities of hospital pharmacist

g) Define over the counter (OTC) medicines and give basic criteria for sale of OTC medicines.

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

a) Classify adverse drug reactions and discuss monitoring and reporting system of ADR in India.

b) Explain drug distribution systems for in-patients in the hospital.

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 any 8 out of 10) :** **[40]**

a) Explain pharmacodynamic type of drug interactions with their clinical significance.

b) Discuss hospital formulary management principles and process for selecting new medicines in formulary.

c) Define medication adherance and explain the role of pharmacist in patient medication adherance.

d) Discuss the concept of therapeutic drug monitoring (TDM) and give the characteristics of drug applicable for TDM.

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

f) Discuss the role and responsibilities of community pharmacist.

g) Comment on arrangement of drugs in drug store.

h) Describe the stages of patient counselling.

i) Discuss the rational use of common over the counter medications.

j) Comment on clinical significance of kidney function tests and lipid profile tests.

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Total No. of Questions : 3]

SEAT No. : [ ]

PA-104

[Total No. of Pages : 2

[5940]-704

Fourth Year B. Pharmacy

NOVEL DRUG DELIVERY SYSTEM

(2018 Pattern) (Semester - VII) (BP-704T) (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) Answer the following (solve 5 out of seven) **[5 × 3 = 15]**

a) Define and differentiate between active and passive targeting.

b) Describe nanoparticles along with their general properties.

c) Enlist the advantages and disadvantages of GRDDS.

d) Write a short note on propellants.

e) Explain ideal properties of bio adhesive polymers.

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

g) Explain disadvantages of conventional occular drug delivery systems.

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

a) Describe microencapsulation and explain any three techniques of making microcapsules.

b) Explain the physicochemical parameters for the selection of drug for modified drug delivery system.

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

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

P.T.O.

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

a) Explain in brief about methods of preparation of niosomes.

b) Write a short note on contact lens

c) Explain the different theories of mucoadhesion.

d) Describe the various delivery systems for intrauterine application.

e) What are temperature and pH responsive polymers? Explain.

f) Explain metered dose inhaler.

g) Explain permeation enhancers with suitable examples in TDDS.

h) Describe vapour pressure activated implantable device.

i) Explain glass transition temperature and TGA of polymers.

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

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Total No. of Questions : 3]

SEAT No. :

PA-105

[Total No. of Pages : 2

[5940]-801

Fourth Year B. Pharmacy

BP 801T : BIOSTATISTICS AND RESEARCH METHODOLOGY

(2018 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) What is the need for research design?

c) Explain in brief about response surface plot.

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

e) Write a note on “Random Sampling”.

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

g) In a box, there are 5 Aspirin, 6 Analgin and 10 Paracetamol tablets. If one tablet is chosen at random, find the probability that:

i. It is Aspirin and

ii. It is Paracetamol.

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

a) Explain Principle and steps involved in experimental design. Write in detail about factorial design.

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

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

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

P.T.O.

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

a) What are the characteristics of good statistical measure? Write about standard deviation as the measure of dispersion.

b) Write note on MINITAB®.

c) Enlist the steps for constructing a frequency distribution.

d) Write about Pie chart.

e) Define statistics. Write applications of statistics.

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

g) Explain in brief about ANOVA.

h) Write short note on Central Composite Design.

i) Find the mean, median and mode for the following data:

X: 61, 62, 63, 64, 64, 64, 60, 65, 63, 64, 65, 66, 64.

j) The class marks and their corresponding frequencies are given below:

Class mark:	23	28	33	38	43	48	53	58
Frequency:	1	2	5	8	14	6	3	1

Form a cumulative frequency table from the above data.

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Total No. of Questions : 4]

SEAT No. :

PA-106

[Total No. of Pages : 2

[5940]-802

Fourth Year B.Pharmacy

SOCIAL AND PREVENTIVE PHARMACY

(2018 Pattern) (Semester - VIII) (BP-802 T)

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 (5 out of 7) **[15]**

a) What are the objectives of national mental health programme?

b) Explain the Health care programme for elderly.

c) Write a note on "Health promotion in schools".

d) Write a note on control of deafness.

e) What is diseases and Social Causes of diseases?

f) Define AIDS? What are its causes, symptoms and prevention.

g) Write a note on drug addiction.

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

a) Write general principles of prevention and control of respiratory infections.

b) Write general principles of prevention and control of diabetes mellitus.

c) Write general principles, prevention and control of cholera.

d) Explain about national Tuberculosis control programmes.

P.T.O.

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

a) Explain prevention and control of Dengue.

b) Write the objectives in improving rural sanitation.

c) Write the objectives in improving rural sanitation.

d) Explain Concept of nutritional deficiency disease.

e) Write about national intervention programme for mother and child.

f) Write a note on Lymphatic filariasis.

g) What is Hypertension? Describe the prevention and control of hypertension

h) Define health. Write a note on evaluation of public health.

i) Explain in brief Prevention and control of SARS.

j) Role of WHO in Indian national programme.

Total No. of Questions : 3]

SEAT No. :

PA-107

[Total No. of Pages : 2

[5940]-803

F.Y. B.Pharmacy

PHARMA MARKETING MANAGEMENT

(2018 Pattern) (Semester - VIII) (BP-803 ET)

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

a) Write in detail with examples about size and composition of Pharma market.

b) Enlist the Demographic characteristics in customer profile what is its impact on sale of products.

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

d) Explain pharmaceutical sales representative duties and responsibility.

e) Outline importance and mechanism of pharmaceutical detailing.

f) Explain optional product pricing strategy.

g) Summarize revision of selling price of schedule formulations.

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

a) Explain in detail product portfolio risk analysis.

b) Elaborate on model of organizational buying behaviour.

c) Write in detail about Rural marketing of pharma product.

d) Discuss in detail about launching of new product in pharma market.

P.T.O.

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

a) Discuss the formula and calculations of retail price of formulation in Pharma market.

b) Discuss the qualitative aspects of pharmaceutical market.

c) Write a note on prescribing habits of the physician.

d) Discuss the various factors which affect patient's choice regarding physician and retail pharmacist.

e) Define market research state its importance in Pharma marketing.

f) Explain measures of channel performance.

g) Give the outline of physical distribution management.

h) Explain Importance of medical sales representative to build the image of company.

i) Write a note on product positioning.

j) Discuss in detail product management in pharmaceutical Industry.

Total No. of Questions : 3]

SEAT No. :

PA-108

[Total No. of Pages : 2

[5940]-804

Final Year B.Pharm.

PHARMACEUTICAL REGULATORY SCIENCE

(2018 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.***

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

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

b) What are the stages of drug discovery.

c) Explain about generic drugs.

d) Discuss the process of approval of new drug.

e) Explain the role of regulatory affairs professionals.

f) Define DMF & its types.

g) Describe orange book.

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

a) What is drug development. Summarize & discuss drug development process.

b) Explain organization, structure & application of regulatory authorities of US.

c) What is clinical trial protocol? Explain formation & working procedure of ethics committee.

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

P.T.O.

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

a) Give brief overview of guidelines for the export of drug issued by ministry of health & family welfare.

b) What is fedral register. Give code of fedral regulatory.

c) Summarize ASEAN (ACTD) research.

d) Explain NDA & ANDA.

e) Write a note on regulatory authorities of Europian union.

f) Explain organization, structure & function of regulatory authorities of India.

g) Write a note on electronic common, technical document.

h) Explain non clinical activities in drug development.

i) Define law & Act. Explain purple book.

j) Explain good clinical practices of investigators, sponsors & monitors.

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

PA-109 **[Total No. of Pages : 2**

[5940]- 805
Final Year B. Pharmacy
PHARMACOVIGILANCE
(2018 Pattern) (Semester - VIII) (BP805ET)

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

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4,Q.5 or Q.6, Q.7 or Q.8.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable data, if necessary.***

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) Give the application of defined daily dose in Pharmacovigilance.

e) What are the basic drug information resources?

f) What is the role of post approval phase?

g) Write the importance of safety monitoring of medicines.

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 about ICH and GCP guidelines in Pharmacovigilance.

d) Discuss in detail basic and specialized drug information resources in Pharmacovigilance.

P.T.O.

Q3) **Solve any Eight:** **[8×5=40]**

a) Explain the role of CDSCO in Pharmacovigilance.

b) Explain expedited reporting and post approval expedited reporting.

c) Discuss about establishment of national Pharmacovigilance programme.

d) Write about MedDRA and standardized MedDRA.

e) Write a note on information resources in Pharmacovigilance.

f) What is under reporting of ADRs?

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

h) Write a note on Schedule Y.

i) Explain Narinjo scale.

j) Explain Vaccine safety surveillance.

Total No. of Questions : 3] **[Total No. of Pages : 2**

PA-110

[5940]-806

Final Year B.Pharmacy

QUALITY CONTROL AND STANDARDIZATION OF HERBALS

(2018 Pattern) (Semester - VIII) (BP-806ET)

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

a) Brief chemical evaluation of crude drugs.

b) What are the challenges in safety monitoring of herbal medicines.

c) Brief various parameters for monograph study of herbs as per Indian Herbal pharmacopoeia.

d) Short note on 'Analytical report or worksheet' part as per GLP.

e) Short note on physical evaluation of crude drugs.

f) Write about 'record of market complaints' as per schedule T for GMP.

g) Write reporting aspect for suspected adverse drug reaction while safety monitoring of herbals as per WHO guidelines.

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

a) Explain WHO guidelines on safety monitoring of herbal medicines in pharmacovigilance system.

b) Elaborate WHO guidelines on Current - Good manufacturing practices GMP for herbal medicines.

c) Explain on preparation of documents for new drug application & export registration.

d) Explain regulatory requirements as per D & C act for Herbal Drug Industry.

P.T.O.

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

a) Explain application of TLC & HPTLC technique for standardization of herbal products.

b) Explain role of Biological markers in standardization of herbal products.

c) What are GMP requirements for herbals.

d) Explain EV guideline for quality control of herbal drugs.

e) Explain authentication & cultivation as per GACP guideline of WHO.

f) Write basic tests for medicinal plants materials and dosage forms.

g) Explain efficiency parameter for WHO guidelines for quality control of herbal drugs.

h) Write about research guidelines for evaluating safety of Herbal Medicines.

i) Brief parameters of GAP.

j) Explain equipments instruments & reagent as per GLP.

Total No. of Questions : 3]

SEAT No. : ____

PA-111

[Total No. of Pages : 2

[5940]-807

Fourth Year B. Pharmacy

COMPUTER AIDED DRUG DESIGN

(Semester-VIII) (2018 Pattern) (BP807ET)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicates 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 & its applications.

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

e) Write a note on cheminformatics in drug discovery process.

f) Differenciate between molecular mechanics & quantum mechanics.

g) Write a note on pharmacophore based screening.

Q2) Long answer 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 & development of QSAR. Explain the electronic & 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 & non-classical bioisosteric replacement strategies in Analogue based design of drugs with examples.

P.T.O.

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

a) Explain different methods in determination of energy minimization.

b) Explain Hansch Analysis & Free wilson analysis along with its advantages & disadvantages.

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

d) Explain in detail Quantum mechanics.

e) Define molecular docking. 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 conformational analysis.

j) Pharmacophore based virtual screening.

Total No. of Questions : 4]

SEAT No. :

PA-112

[Total No. of Pages : 2

[5940]-808

Fourth Year B.Pharmacy

CELL AND MOLECULAR BIOLOGY

(2018 Pattern) (Semester - VIII) (BP-808 ET)

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.***

Q1) Answer any five : **[15]**

a) Define Meiosis

b) Define Catabolism

c) Define Cell adaptation

d) Functions of Cell Membrane

e) Give significance of protein synthesis

f) Draw double helical structure of DNA

g) Give different types of RNA

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

a) Describe different steps involved in translation process

b) Describe G-Protein coupled receptor

c) Explain misregulation of signaling pathway and its role in disease process

d) Describe the cell cycle

P.T.O.

Q3) Answer any eight. **[40]**

a) Explain different check point in cell cycle.

b) Explain the transducer mechanism of GPCR.

c) Enlist name of cell organelles with its functions.

d) Explain the mechanisms of DNA replication.

e) Explain the mechanism gene expression.

f) Enlist the applications of Proteomics.

g) Explain the process of Meiosis.

h) Write a note on regularities in protein synthesis.

i) Draw the structure of GPCR. Write a note on its transducer mechanisms.

j) Discuss process of cell division in somatic cells and gametes.

Total No. of Questions : 3]

SEAT No. : ____

PA-113

[Total No. of Pages : 2

[5940]-809

Final Year B. Pharmacy

COSMETIC SCIENCE

(2018 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 necessary.***
3) ***Figures to the right indicate full marks.***

Q1) Answer any Five out of Seven of the following: **[5×3=15]**

a) Give classification of cosmetics.

b) Explain the principle of hair tensile strength test.

c) Give the classification of Surfactants in cosmetics.

d) Draw & label basic structure of skin.

e) What is the difference between vanishing cream and moisturing cream?

f) How Trans-epidermal water loss is measured?

g) Write in brief on tooth sensitivity.

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

a) Give the detailed account on the excipients used in cosmetics.

b) Discuss the principles and building blocks of oral care products.

c) Explain the role of herbs in cosmetic with special emphasis on skin care, oral care and hair care products.

d) Give the BIS specification and analytical method for Shampoo.

P.T.O.

Q3) Answer in brief on any Eight out of Ten of the following: **[8×5=40]**

a) Discuss the antiperspirant and deoderants with respect to formulation development.

b) Discuss the hair fall and dandruff remedies.

c) Discuss the formulation and applications of face wash and moisturing cream.

d) Discuss the causes and remedies for oily & dry skin.

e) Write a note on chemistry and formulation of para-phenylene diamine based hair dye.

f) Discuss in brief about formulation of Sunscreems.

g) Write a note on cosmeceuticals.

h) Write a note on emollients as cosmetic excipients.

i) Write a note on cold cream.

j) Discuss the cosmetic products for hair care.

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Total No. of Questions : 4]

SEAT No. : ____

PA-114

[Total No. of Pages : 2

[5940]-810
Final Year B. Pharmacy
EXPERIMENTAL PHARMACOLOGY
(2018 Pattern) (Semester - VIII) (BP810ET)

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

Instructions to the candidates:

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

Q1) **Objective type questions (Answer any 5 out of 7)** **[15]**

a) Enlist techniques of blood collection and euthanasia in laboratory animals.

b) Give importance of Sham negative and positive control groups.

c) Explain any one model for preclinical screening of anti-diabetic drugs.

d) Discuss preclinical screening models for local anesthetics.

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

f) Enlist models for preclinical screening of Anti-Alzheimer and Anti-epileptic agents.

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

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

a) Discuss CPCSEA and OECD guidelines for maintenance, breeding and conduct of experiments on laboratory animals.

b) Discuss preclinical screening models for anti-hypertensive drugs.

c) Explain preclinical screening animal models for anti-aggregatory.

d) Describe significance and various sources for literature review for research project.

P.T.O.

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

a) Explain preclinical screening models for diuretics.

b) List out preclinical screening models for nootropics. Explain any two model.

c) Explain preclinical screening models for analgesic drugs.

d) Discuss preclinical evaluation of anti-asthmatics.

e) Enlist screening models for parasympathomimetics and parasym patholytics in animals.

f) Discuss screening models for anti-psychotic agents.

g) Discuss role of mice and rat in experimental pharmacology.

h) Write a note on IAEC.

i) List and explain in detail any two screening methods for anti-coagulant drugs.

j) Describe analysis of variance.

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Total No. of Questions : 3]

SEAT No. :

PA-115

[Total No. of Pages : 2

[5940]-811

Fourth Year B. Pharmacy
ADVANCED INSTRUMENTATION TECHNIQUES
(2018 Pattern) (Semester - VIII) (BP811ET)

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 shielding and deshielding in NMR? Explain with suitable example.

b) Explain about molecular ion peak, isotope peak and base peak.

c) Differentiate between K line X-ray and L line X-ray.

d) What is stray light? How the parameter 'stray light' is calibrated in UV spectrophotometer.

e) Discuss procedure for Injection Accuracy with reference to calibration of HPLC.

f) What are applications of Differential Scanning Calorimetry?

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

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

a) Write in detail about instrumentation of Mass Spectrophotometer.

b) Suggest suitable chemical structure for following spectroscopic data:

Molecular Formula C_7H_7NO

IR : 3350, 3180 cm^{-1}, 1690cm^{-1}, 1600 cm^{-1}, 1400 cm^{-1}

Proton NMR : δ 7.2 (*m*, 5H), δ 5 (*s*, 2H),

Mass (m/z): 121, 105, 77

c) Give an exhaustive account of Rotating Crystal method and Powder Crystal method.

d) Discuss principle, procedure and components of Radio immune assay with its applications.

P.T.O.

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

a) MALDI.

b) GC-MS.

c) Thermogravimetric Analysis.

d) Calibration of Electronic Balance.

e) Solid Phase Extraction.

f) Fragmentation pattern in Alcohols.

g) Paper Electrophoresis.

h) Chemical Ionization.

i) ^{13}C NMR.

j) MS/MS.

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Total No. of Questions : 3]

SEAT No. : ____

PA-116

[Total No. of Pages : 2

[5940] - 812

F.Y. B. Pharmacy

DIETARY SUPPLEMENTS & NUTRACEUTICALS

(2018 Pattern) (Semester - VIII) (BP812ET)

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

Instructions to the candidates :

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

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

a) What food standards does Agmark (AGMARK) specify?

b) Give the example of reactive Oxygen species.

c) Give examples of complex carbohydrates.

d) Enlist factors that reduce endogenous antioxidant enzymes.

e) Explain the health benefits of Xanthophylls.

f) Define dietary supplements.

g) Elaborate the health benefits of Lycopene.

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

a) Explain in detail how the nutraceuticals play an important role in prevention of heart disease & hypertension. Define functional foods & classify nutraceuticals.

b) Comment on the role of α-lipoic acid and tocophenol in management of diabetes. Add a note on role of nutraceuticals in chronic disease management.

c) Write a detailed note on FSSAI & FDA.

d) Explain the pharmacopoeial specifications of dietary supplements & nutraceuticals.

P.T.O.

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

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

b) What are Prebiotics & Probiotics. Add a note on their role as nutraceuticals.

c) Write a note on FPO & MPO.

d) Write a note on Vit C.

e) What are functional food grains? Explain with examples.

f) Write a note on flavonoids as nutraceuticals with examples.

g) How Garlic is useful as nutraceutical?

h) Explain role of beverages as functional foods.

i) Write a note on spirulina & GMKO.

j) Nutraceuticals as adjuvants in cancer management.

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