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

P883 **[Total No. of Pages : 2**

[5854]-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) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw will labelled diagram wherever necessary.***

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

a) Write about types of epithelial tissue.

b) Explain in brief Cell junctions.

c) Write in brief Semilunar valves.

d) Enlist the various types of human bones.

e) Explain in brief lymph circulation.

f) What is heart sound?

g) What are the various body fluids?

h) Enlist and define tongue disorders.

i) Discuss in brief anatomy of human nose.

j) Write the importance of blood transfusion.

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

a) Explain in detail process of blood formation.

b) Discuss in detail structures and functions of skin.

c) Explain the neuromuscular junction in detail.

P.T.O.

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

a) What is blood pressure? Discuss the factors affecting blood pressure.

b) Explain in brief reticuloendothelial system.

c) Explain the heamolytic disease of newborn.

d) Describe Coronary Circulation.

e) Explain in brief homeostasis.

f) Explain the muscle tone in detail.

g) Explain Spinal nerves.

h) Explain the ear as a sense organ.

i) Differentiate between Mitosis and Meiosis.

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

P884 **[Total No. of Pages : 2**

[5854]-102
First Year B. Pharmacy
BP102 T : PHARMACEUTICAL ANALYSIS - I
(2018 Pattern) (Semester - I) (BP 102T)

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 (10×2)/objective types questions. **[10×2=20]**

a) Give the name of different techniques of pharmaceutical analysis.

b) Define specific conductivity.

c) What is Nernst equation?

d) Define diffusion current.

e) How will you prepare and standardise 0.1N Potassium Permanganate solution.

f) What is colloidal state? Enumerate the properties of colloidal particles.

g) What do you mean by Co precipitation? Enlist the types of Co precipitation.

h) Enlist the different types of Redox titration on the basis oxidant or reluctant used

i) Define the term Ligand and Chelation

j) Define Ohm's law

Q2) Answer the following (Answer 2 out of 3) **[2×10=20]**

a) Explain in detail about the various types of Complexometry titration.

b) Discuss the various types of titration curves obtained in acid-base titration.

c) Give detail about Conducto metric titrations, its principle and instrumentation.

P.T.O.

Q3) Answer the following (Answer 7 out of 9) **[7×5=35]**

a) Explain in detail different source of impurities.

b) Explain in detail various commonly used method of expressing concentration.

c) Write a note on indicator electrode.

d) Explain factors affecting Ilkovic equation.

e) Explain different methods of minimising errors.

f) Explain Mohr's method.

g) Give detail application of Polarography.

h) Explain universal and mixed indicators

i) Write note on Dropping Mercury Electrode.

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Total No. of Questions : 3]

SEAT No. : ____

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[5854]-103

F.Y. B. Pharmacy

PHARMACEUTICS - I

(2018 Pattern) (Semester - I) (BP 103T) (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) Multiple Choice Questions (MCQ) select the proper choice : **[20 × 1 = 20]**

a) The first Indian Pharmacopoeia was published in:

i) 1955 ii) 1855

iii) 1890 iv) 1904

b) Solutions having freezing point _____is isotonic with tear secretion.

i) 0.52°C ii) 0.52°F

iii) 5.2°C iv) –0.52°C

c) Macrogel is a _____ type of ointment base.

i) Absorption ii) Oily

iii) Oleaginous iv) Water soluble base

d) The Single dose mixtures are called as _____

i) Solution ii) Draught

iii) Drop iv) Cachet

P.T.O.

e) The subscription indicates:_____

i) Directions to the patient
ii) Directions to the pharmacist
iii) Directions to the physician
iv) None of these.

f) In case of infants, the most important criteria for dose of drug is _____

i) Age and body weight
ii) Body weight and Body surface area
iii) Sex and Body weight
iv) Both (i) and (ii)

g) The solutions having same osmotic pressure as that of blood plasma is known as _____

i) Para tonic
ii) Isotonic
iii) Hypotonic
iv) Hypertonic

h) The enclosed powders made up of rice paper are called as _____

i) Tablets triturates
ii) Cachets
iii) Compound Powders
iv) Simple Powders

i) _____ is the most widely used solvent as a vehicle for pharmaceutical product.

i) Alcohol
ii) Water
iii) Oil
iv) None of these.

j) The monophasic liquids can be given for _____

i) Bitter and irritant drugs
ii) Saline and Nauseous drugs
iii) Both (i) and (ii)
iv) None of these.

k) The colloidal suspensions have particle size:_____

i) Less than 1 µm
ii) More than 1 µm to 50-75 µm
iii) Between 1nm to 0.5 µm
iv) Between 1 µm to 5µm

l) The wetting agents used in the suspensions act by _____

i) Reducing interfacial tension

ii) Displaces entrant air

iii) Forms a film around Dispersed particles

iv) All of the above

m) Emulsions are _____.

i) Homogenous, Stable

ii) Homogenous, Unstable

iii) Heterogeneous, Stable

iv) Heterogeneous, Unstable

n) The suppositories made for Vaginal cavity are called as _____

i) Suppositories ii) Pessaries

iii) Ear bougies iv) Nasal cones.

o) When two immiscible liquids are added together, the in compatibility is called as _____.

i) Physical ii) Chemical

iii) Therapeutic iv) Pharmacokinetic

p) Dose is a _____ quantity.

i) Related ii) Changed

iii) Fixed iv) Average

q) The hydrocarbon bases are _____

i) Not absorbed by skin and forms occlusive layer

ii) It restricts the loss of moisture

iii) Both (i) and (ii)

iv) Not inert.

r) The drugs are rapidl; y absorbed from ..(a)

i) empty stomach ii) full stomach

iii) empty mouth iv) none of these

s) Liquefaction is an example of _____ incompatibility.

i) Chemical ii) Physical

iii) Biopharmaceutical iv) None of these

t) The concentration of NaCl which is isotonic with blood plasma is :

i) 0.9% w/v ii) 1.0% w/v

iii) 0.09% w/v iv) 0.3% w/v

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

a) Define the prescription. Explain in details various steps involved in handling of prescription.

b) Explain various methods of preparation of suspension in details.

c) Explain various evaluation tests for semisolid dosage forms in details.

Q3) Solve any SEVEN : **[7 × 5 = 35]**

a) Define suppository and give the importance of displacement value in preparation with example.

b) If the adult dose of a drug in 100 mg, what will be the dose of a child with body surface area of 0.5 m^2?

c) Differentiate between flocculated and deflocculated suspensions with suitable points.

d) Write a note on Pastes.

e) Explain chemical incompatibilities.

f) In what proportions 20% w/w benzocaine ointment should be mixed with an ointment base to produce 2.5 % w/w benzocaine ointment?

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

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[5854]-104
First Year B. Pharmacy
PHARMACEUTICAL INORGANIC CHEMISTRY
(2018 Pattern) (Semester - I) (BP104 T)

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 wherever nesessary.***

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

a) Define limit test. Mention various limit tests used.

b) What are acids, bases according to Lowry-Bronsted theory? Give suitable examples.

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

d) Give role of fluoride in the treatment of dental caries. Give name of fluoride containing anticaries agent.

e) Why combinations of antacids are used? Give various antacid combinations.

f) What are adsorbents? Give examples.

g) Define astringents with examples.

h) Write in short about Haematinics.

i) Enlist methods of adjusting isotonicity.

j) What are expectorants?

P.T.O.

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

a) Describe types and sources of impurities in pharmaceutical substances.

b) Give mechanism for antimicrobial agents. Add a note on Hydrogen peroxide and Potassium Permanganate as an antimicrobial agent.

c) Explain Storage conditions, precautions and pharmaceutical applications of radioactive substances.

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

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

b) Write history and development of Indian Pharmacopoeia.

c) What is buffer capacity and Buffer equation?

d) Write in detail about ORS.

e) Write a note on Cathartics.

f) What is mean by Radioactivity? Give methods for measurement of Radioactivity.

g) What are desensitizing agents? Write a note on zinc-eugenol cement.

h) Give modified limit test for chloride and sulphate.

i) Write a note on poison and Antidote.

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

P887 **[Total No. of Pages : 2**

[5854]-201

First Year B. Pharmacy

HUMAN ANATOMY AND PHYSIOLOGY - II

(2018 Credit 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) Enlist organs of digestive system.

b) Explain composition and functions of gastric juice.

c) Explain layers of stomach from outside to inside.

d) Describe the disorders :

i) Alzhemer's disease

ii) Schizophrenia.

e) Explain types of neuroglia cells.

f) Draw neat labelled diagram of nephron.

g) Define cushing's syndrome and pheochromocytoma.

h) Mention different methods of artificial respiration.

i) Enlist different lung volumes and capacities with normal values.

j) Discuss the functions of prostate glands.

P.T.O.

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

a) Describe basic functions of nervous system. Give organisation of nervous system. Discuss diencephalon in detail.

b) Explain biosynthesis, storage and release of thyroid glands.

c) Discuss the structure and functions of kidney. Write detailed account of renin-angiotensin- aldosterone system.

Q3) Answer the following (Any 7) **[35]**

a) Explain anatomy of spinal cord and comment on reflex are.

b) Give functions of digestive system. Explain role of parasympathetic nervous system in GIT.

c) Write a short note on : creatinine phosphate and body energetics.

d) Explain structure and functions of liver

e) Discuss in detail structure and functions of ovary.

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

g) Explain regulation of respiration.

h) Write in detail about pancreatic hormones.

i) Discuss spermatogenesis.

Total No. of Questions : 3]

SEAT No. : ____

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[Total No. of Pages : 2

[5854]-202

F.Y.B. Pharmacy

PHARMACEUTICAL ORGANIC CHEMISTRY - I

(2018 Pattern) (Semester - II) (BP 202T)

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 : **[10 × 2 = 20]**

a) Write any 2 qualitative tests for carboxylic acids.

b) Define following terms

i) Electrophile ii) Nucleophile

c) Define and Classify structural isomerism.

d) Explain Stability of conjugated dienes.

e) Enlist factors affecting SN1 and SN2 reactions.

f) Write Structure and uses of ethyl chloride & Chloroform.

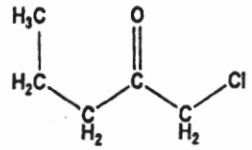
g) Draw structures from IUPAC names of following.

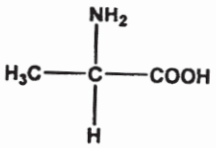
i) Butanal ii) 2-Chlorobutanoic acid

h) Write uses of paraffins.

i) Why Chloro acetic acid is stronger than acetic acid? Explain.

j) Give the IUPAC name of the following compounds.

i) 

ii) 

P.T.O.

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

a) What are Elimination Reactions? Discuss the mechanism, Stereochemistry, kinetics and orientation involved in Elimination reaction.

b) Define and classify Hybridization. Explain SP^3 hybridization in alkane.

c) Explain in detail Cannizzaro reaction and Crossed Cannizzaro reaction.

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

a) Explain Saytzeffs rule with example.

b) Explain formation of ammonia and its geometry on the basis of hybridization.

c) Give general methods of preparation and reactions of Alkenes.

d) Write classification of organic compounds with examples.

e) Explain Aldol condensation.

f) Explain free radical addition reactions of conjugated dienes.

g) Write any two methods of preparation and two reactions of alkyl halide.

h) Compare SN1 and SN2 reactions.

i) Write note on inductive effect.

Total No. of Questions :3]

SEAT No. :

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[Total No. of Pages : 4

[5854]-203
First Year B.Pharm.
BIOCHEMISTRY
(2018 Pattern) (Semester-II) (BP203T)

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 labeled diagram wherever necessary.***

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

i) Amino acids are

a) Containing amino group

b) Containing carboxyl group

c) Containing amino and carboxyl group

d) Containing amido and carboxyl group

ii) Which of the following is imino acid?

a) Tyrosine b) Proline

c) Tryptophan d) All of the above

iii) Ligases are

a) Enzymes involved in addition of water

b) Enzymes involved in removal of water

c) Enzymes involved in joining two molecules

d) Enzymes involved in isomerization reactions

iv) Enzyme inhibition means

a) Decrease in catayltic activity of enzyme

b) Metabolism of enzymes

c) Synthesis of enzymes

d) All of the above

v) Glycolysis results in generation of

a) 9 ATP b) 7 ATP

c) 5 ATP d) 11 ATP

P.T.O.

vi) ETC Pathway involves

a) Five complexes
b) Four complexes
c) Three complexes
d) Two complexes

vii) 1 NADH is converted into 2.5 ATP by

a) NADH dehydrogenase
b) Succinate dehydrogenase
c) ATP synthase
d) ATP Reductase

viii) Vitamins involved in Kreb's cycle

a) Thiamine
b) Niacin
c) Riboflavin
d) All of the above

ix) Debranching enzyme is involved in

a) Glycogenesis
b) Glycogenolysis
c) Glycolysis
d) Kreb's cycle

x) Ketone bodies formation occurs in

a) Lungs
b) Liver
c) Kidney
d) Skeletal muscle

xi) Beta Oxidation of fatty acid is

a) Oxidation at β - Carbon
b) Oxidation at α - Carbon
c) Oxidation at ω - Carbon
d) Oxidation at δ - Carbon

xii) Atherosclerosis is

a) Accumalation of lipids
b) Hardening of arteries
c) Both (a) & (b)
d) Accumulation of cholesterol

xiii) The codon that terminates protein biosynthesis

a) UAA
b) UAG
c) UGA
d) All of above

xiv) Which of the following enzymes associated with hyperuricemia

a) PRPP Synthestase
b) HGPRT
c) Glucose B - Phosphatase
d) All of them

xv) Gout is

a) Over production of urea

b) Over production of uric acid

c) Low production of urea

d) Low production of uric acid

xvi) Proof reducing activity in DNA application is done by

a) DNA polymerase I b) DNA polymerase II

c) DNA polymerase III d) All of the above

xvii) Transcription process is

a) DNA to DNA b) DNA to RNA

c) RNA to Protein d) RNA to DNA

xviii) Biosynthesis of protein is called as

a) Replication b) Transcription

c) Translation d) Proteinogenesis

xix) As per Michaelis Menten equation

a) Km is equal to concentration of product

b) Km is equal to concentration of substrate

c) Km is equal to concentration of enzyme

d) Km is equal to concentration of catalyst.

xx) Gout is

a) Excess of uric acid in blood

b) Excess of uric acid in joints

c) Pain in joints

d) All of the above

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

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

b) Explain semi conservative model of DNA. Add a note on DNA replication.

c) Explain Beta oxidation of odd and even number fatty acid in detail.

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

a) Define and classify enzymes. Add a note on enzyme specificity.

b) Explain oxidative phosphorylation.

c) Explain urea cycle in detail.

d) Define and classify amino acids. Add physical and chemical properties of it.

e) Elaborate on disorders in purine metabolism - Gout.

f) Describe organization of mammalian genome.

g) Describe transmination and deamination.

h) Add a note on ketone bodies formation and utilization.

i) Explain biological role and utilization of cholesterol.

♦ ♦ ♦

Total No. of Questions : 3]

SEAT No. : [ ]

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[Total No. of Pages : 2

[5854]-204

First Year B. Pharmacy

PATHOPHYSIOLOGY

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

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

Instructions to the candidates:

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

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

a) Define hypertension and atherosclerosis.

b) Explain signs and symptoms of hypothyroidism.

c) Define and enlist the types of epilepsy.

d) Explain the clinical complication of hypertension.

e) Explain sign and symptoms of Alzheimer's disease.

f) Define benign and malignant tumor.

g) Explain the cause of stroke.

h) Enlist the sign and symptoms of tuberculosis.

i) Explain sign and symptoms of AIDS.

j) Define anaemia and enlist its types.

P.T.O.

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

a) Define cancer. Explain in detail pathophysiology of cancer.

b) Define diabetes mellitus. Explain causes, sign and symptoms of diabetes mellitus. Enlist the complication associated with it.

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

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

a) Explain pathophysiology of depression.

b) Define meningitis. Explain pathophysiology meningitis.

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

d) Define goiter. Enlist causes, sign and symptoms of goiter.

e) Explain in detail pathophysiology of acute renal failure.

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

g) Define peptic ulcer. Differentiate between gastric and duodenal ulcer.

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

i) Explain pathophysiology of myocardial infraction.

Total No. of Questions : 3]

SEAT No. : ____

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[5854] - 301

S.Y. B.Pharmacy

PHARMACEUTICAL ORGANIC CHEMISTRY - II

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

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

Instructions to the candidates :

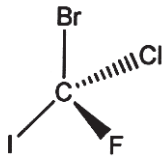
1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

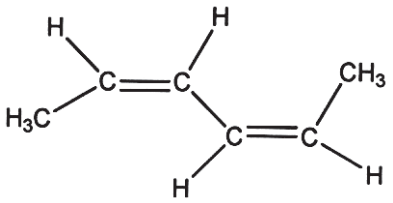
Q1) Attempt the following (Any Five) : **[5 × 3 = 15]**

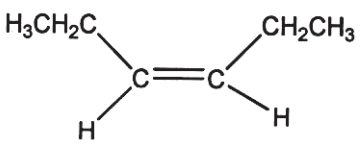
a) Draw resonance structures for Nitrobenzene.

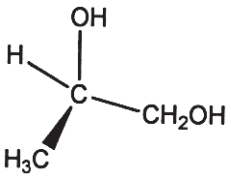
b) Comment on acidity of phenol.

c) Assign the configuration to following (any three).

i) 

ii) 

iii) 

iv) 

d) Discuss meso compounds with suitable examples.

e) Discuss chiral and achiral compounds.

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

g) Compare basicity of Methyl amine and aniline.

P.T.O.

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

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

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

i) Phenanthrene

ii) Anthracene

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

d) What is optical activity? Explain Enantiomerism and Diastereomerism with suitable examples.

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

a) Write uses of resorcinol and naphthols and draw structure of any two derivatives.

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

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

d) $-NO_2$ group is meta directing towards electrophilic substitution reaction. Explain.

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

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

g) Explain in brief saponification and rancidity of oils.

h) Discuss in detail theory of strainless rings.

i) Explain in detail Geometrical isomerism.

j) What are cycloalkanes? Explain Coulson and Moffitt's modification.

▽▽▽▽

Total No. of Questions : 3]

SEAT No. : ____

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[5854]-302

S.Y. B. Pharmacy

PHYSICAL PHARMACEUTICS - I

(2018 Pattern) (Semester - III) (BP 302T)

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 any five : **[5 × 3 = 15]**

a) Explain Fick's first law of diffusion.

b) Define critical temperature, critical pressure and critical volume.

c) Explain Gibb's phase rule.

d) What are optically active substances?

e) Explain invariant and univariant systems as per Gibb's phase rule.

f) Explain significance of buffer capacity.

g) Explain hydrogen bonding.

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

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

b) Explain Nernst's distribution law and deviations from the law.

c) Classify surfactants with examples. Give the HLB scale and write about applications of surfactants.

d) Classify complexes and enlist methods of analysis of complexes. Give applications.

P.T.O.

Q3) Answer any eight : **[8 × 5 = 40]**

a) Write a note on Polymorphism.

b) Explain 2-component system with phase diagram.

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

d) Explain about different methods for pH determination.

e) Explain capillary rise method for determination of surface tension.

f) Explain principle of liquefied propellants in aerosols.

g) Enlist factors affecting solubility of liquids in liquids.

h) Write a note on micellar solubilization.

i) Write a note on vapor pressure.

j) Write a note on boiling point elevation as a colligative property.

Total No. of Questions :3]

SEAT No. :

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[Total No. of Pages : 2

[5854]-303
S.Y. B.Pharmacy
PHARMACEUTICAL MICROBIOLOGY
(2018 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.***
4) ***Assume Sutable data if necessary.***

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

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

b) Define

i) D-value

ii) Z-value

iii) Culture media

c) Write the importance of fungi.

d) Enlist different factors influencing disinfectant action.

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

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

g) Comment “moist heat sterilization is more superior to dry heat sterilization”.

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

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

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

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

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

P.T.O.

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

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

b) Write in detail growth curve of bacteria.

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

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

e) Describe in detail chemical agents as disinfectants.

f) Explain different branches of microbiology.

g) Write a note on Dark field microscopy.

h) Write a note on laminar air flow equipments.

i) Write preservation of pharmaceutical products using antimicrobial agents.

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

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Total No. of Questions : 3]

SEAT No. : ____

P894

[Total No. of Pages : 2

[5854]-304

Second Year B. Pharmacy
PHARMACEUTICAL ENGINEERING
(2018 Pattern) (Semester - III) (BP 304T)

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) Classify the materials of plant construction. Explain the use of Ferrous Metal.

b) What is Reynold's Number? Write its significance.

c) Classify evaporators. Explain the term evaporator capacity.

d) Define distillation. Draw a neat and labelled diagram showing simple distillation assembly arrangement for lab scale processing.

e) What are filter aids? List the functions of filter aids.

f) Write a note on mechanism of mixing for Liquids.

g) Explain : Elutriation Tank.

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

a) Define size reduction. What are its objectives? With the help of neat diagram describe in detail Ball Mill.

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

P.T.O.

c) Explain the principle, construction, working, uses, merits and demerits of perforated basket centrifuge.

d) Describe in detail objectives, applications and mechanism of heat transfer. Add a note on Black Body and Grey Body.

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

a) Explain the Bernoulli's theorem with its applications.

b) Describe the mechanism and laws governing size reduction.

c) Explain principle, construction & working of sieve shaker.

d) Write a note on heat exchanger?

e) Explain principle, construction and working of climbing film evaporator.

f) Explain the Fractional distillation with suitable example.

g) Explain the mechanism of drying process.

h) Explain the mechanism of solid mixing.

i) Describe principle, construction & working of plate and Frame Filter.

j) Explain the types of Corrosion and their prevention.

Total No. of Questions : 3]

SEAT No. :

P895

[Total No. of Pages : 2

[5854]-401

S.Y. B.Pharmacy

PHARMACEUTICAL ORGANIC CHEMISTRY - III (Theory)

(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.***
3. ***Draw well labeled diagrams wherever necessary.***

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

a) Give three necessary conditions for optical activity in Biphenyls.

b) Define Chiral auxillary and give one example.

c) Explain with example what are stereospecific reactions.

d) Explain any two reactions of chiral molecules.

e) Justify why pyrrole undergoes Electrophilic substitution reaction only at 2 or 5 position?

f) Write any two reactions of Indole.

g) Discuss the chemistry of pyridine.

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

a) Explain in detail methods of resolution of racemic mixture.

b) Explain in detail mechanism and applications of Pinacol-Pinacolone rearrangement.

c) Discuss the chemistry, reactions, synthesis and medicinal uses of Oxazole.

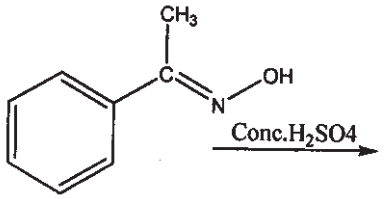
d) Write the synthesis, reactions, medicinal uses and derivatives of Imidazole.

P.T.O.

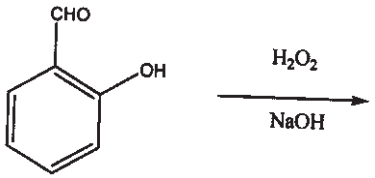
Q3) Write short notes on: (Solve 8 out of 10) **[40]**

a) Explain conformational isomerism in n-Butane.

b) Complete the reaction with mechanism:



c) Complete the reaction with mechanism:



d) Explain mechanism of Bayer Villiger oxidation.

e) Give the following details of Pyrrole.

i) reactions (any 2)

ii) synthesis (any 01)

f) Outline the reaction and medicinal uses of Thiophene.

g) Describe the chemistry and medicinal uses of Acridine.

h) Explain one synthetic method and two characteristic reaction of Furan.

i) Write the following reactions of Pyrazole.

i) Nitration

ii) Halogenation

iii) Oxidation

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

i) Quinoline

ii) Isoquinoline

iii) Thiazole

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Total No. of Questions : 3]

SEAT No. :

P896

[Total No. of Pages : 2

[5854]-402
S.Y. B.Pharmacy
MEDICINAL CHEMISTRY - I (Theory)
(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) Explain AChE inhibitors.

b) Draw structure,write mechanism of action and medicinal applications of Diazepam.

c) Define nonsteroidal anti-inflammatory agents.Write Classification of NSAIDs with examples.

d) Write synthesis of Dicyclomine hydrochloride.

e) Explain reduction reaction in drug metabolism.

f) Write synthesis of Propranolol.

g) Explain role of partition coefficient in drug action.

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

a) Explain cholinergic receptors and stereochemistry of acetylcholine.

b) Elaborate on Biosynthesis, release and metabolism of noradrenaline.

c) What is epilepsy? Write classification of anticonvulscent agents with examples.Write SAR of Hydantoins as anticonvulscent agents.

d) What are narcotic analgesics? Write SAR of Morphine analogues.

P.T.O.

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

a) Explain Cholinergic agonists Mode of action and SAR of various agents.

b) Illustrate the structure, synthesis, and uses of Tolazoline.

c) Classify adrenergic receptors and mention their importance.

d) Write structure, IUPAC name and mechanism of action of Labetolol.

e) Explain the role of Beta 2 agonists in the treatment of asthma.

f) Explain role of Ionisation on drug action.

g) Write a note on Narcotic antagonists.

h) Write a note on Phase II reactions of drug metabolism.

i) Write a note on Factors affecting drug metabolism.

j) Write SAR of phenothiazine as antipsychotic agents.

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Total No. of Questions : 3]

SEAT No. : ____

P897

[Total No. of Pages : 2

[5854]-403

S. Y. B.Pharmacy

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) Write application of rheology.

b) Write application of chemical kinetics.

c) How do you select a viscometer?

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

e) Write classification of colloids.

f) How to develop formulation by HLB consideration.

g) Write a note on the Coulter counter apparatus for particle analysis.

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

a) Enlist and explain methods for particle size analysis.

b) Classify viscometer and explain the principle, working, and application of ostwald viscometer and cup and bob viscometer.

c) Classify and explain the type of Flow.

d) Compare first and second order reaction. Discuss different methods used for determining the order of a reaction.

P.T.O.

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

a) Deformation of solids

b) Degradation pathways

c) Particle surface area

d) Accelerated stability studies.

e) Electrical and optical properties of colloids.

f) Stability of emulsion.

g) True density, Bulk density and porosity.

h) HLB

i) Electric double layer

j) Particle size distribution.

Total No. of Questions : 3]

SEAT No. :

P993

[Total No. of Pages : 2

[5854]-404

Second Year B. Pharmacy

PHARMACOLOGY - I

(2018 Pattern) (Semester - IV) (Credit System)

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

Instructions to the candidates:

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

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

a) What is prodrug? Give two examples.

b) Write definition and uses of local anesthesia

c) Define Teratogenicity and give two examples.

d) Define tachyphylaxis with example.

e) Explain enzyme inhibition with one example.

f) Mention two rational uses of adrenaline.

g) Define and Classify Drug Interactions.

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

a) What is metabolism of drugs? Explain stages of metabolism with details of enzymes involved in metabolism. Add a note on enzyme induction with suitable example.

b) Define and Classify Adverse Drug Reactions with suitable examples. Write factors affecting ADR and add a note on Pharmacovigilance.

c) Write detailed Pharmacology of Alcohol and add a note on Disulphiram and its effects

d) Classify sympatholytics. Write mechanism of action, pharmacological action, adverse effects and uses of propranalol.

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) What is the rational use of medicine? Write a note on a rational drug prescribing.

c) What is DRC? Explain competitive and noncompetitive antagonism with the help of DRC. Give two example each of competitive and noncompetitive antagonism.

d) Classify alpha adrenergic blockers with MOA, ADR and Uses

e) Define drug distribution, write factors affecting it and add a note on volume of distribution.

f) Classify neuromuscular blocking agents. Describe mechanism of action, adverse effects and uses of nondepolarizing blockers.

g) Classify various drugs used for the treatment of Parkinson's disease. Explain the "on and off" phenomenon related to Parkinson's disease in clinical practice.

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

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

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

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Total No. of Questions : 3]

SEAT No. :

P898

[Total No. of Pages : 2

[5854]-405

S.Y. B.Pharmacy

PHARMACOGNOSY AND PHYTOCHEMISTRY - I

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

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

Instructions to the candidates :

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

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

a) Define

i) Stomatal index

ii) Unorganized drugs

iii) Flavonoid

b) Mention therapeutic uses and commercial utility of Papain.

c) Give biological source, chemical components & uses of following natural fibers.

i) Cotton

ii) Jute.

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

i) Molisch's test

ii) Salkowski test

iii) Legal's test

e) Define and classify essential oils & resins with examples.

f) Give extraction method of Castor oil.

g) Describe morphological character of bark.

P.T.O.

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

a) Define and classify Glycosides with example. Write test to identity different types of Glycosides.

b) What is evaluation of crude drugs? Write a note on physical & chemical evaluation.

c) Discuss the various types and nutritional requirement of plant tissue culture. Enlist the important application of PTC.

d) Discuss the significance of primary and secondary metabolites by giving suitable examples.

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

a) Give quantiative microscopic evaluation of crude drug with reference to lycopodium spore method.

b) Discuss importance of marine pharmacognosy & its future. Describe efficacy of anticancer marine drugs.

c) Write note on Polyploidy.

d) What are Phytohormones? Give function of any two Plant hormones.

e) What are Natural allergens? Describe different types of natural allergens giving their effects.

f) Define crude drugs? How do you classify Crude drugs?

g) Method of extraction of wool fat.

h) Write a note on adulteration of crude drugs with suitable examples.

i) Discuss in brief conservation of Medicinal plants.

j) Compare following

   i) Gums & Mucilage

   ii) True alkaloids & Pseudo alkaloids.

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

P899 **[Total No. of Pages : 2**

[5854]-501
Third Year B. Pharmacy
MEDICINAL CHEMISTRY - II
(2018 Pattern) (Semester - V) (Theory) (BP 501 T)

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

Instructions to the candidates:

All questions are compulsory.

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

a) Write MOA & Medicinal applications of verapamil.

b) Write MOA & Medicinal applications of omeprazole.

c) Write MOA & Medicinal applications of Doxylamine.

d) Discuss in detail HMG - COA reductase inhibitors.

e) Explain in brief anti-coagulants.

f) Write a note on drugs for erectile dysfunction.

g) Write a note on Anti-thyroid agents.

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

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

b) What are estrogen? Classify them with examples. Give SAR of estrogens. Give therapeutic uses of estrogens & antiestrogens.

c) What is angina pectoris? Classify antianginal agents with examples, write mechanism of action & medicinal applications of drug belonging to class vasodialators.

d) Define diuretics. Classify diuretics with examples, write mechanism of action & medicinal applications of drug belonging to class thiazides.

P.T.O.

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

a) Write synthesis of Furosemide & atenolol.

b) Write MOA & Medicinal applications of nitroglycerine & amlodipine.

c) Write MOA & Medicinal applications of hydrofluthiazide & acetazolamide.

d) Write a note on H_2 receptor antagonists.

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

f) Classify corticosteroids in detail.

g) Elaborate development of H_2 antagonists.

h) Explain in brief local anaesthetics.

i) Discuss in brief oral hyperglycemic agents with suitable examples.

j) Classify antiarrhythmic agents with suitable examples.

Total No. of Questions : 3]

SEAT No. :

P900

[Total No. of Pages : 2

[5854]-502

T.Y. B. Pharmacy

BP502T : INDUSTRIAL PHARMACY - I

(Semester - V) (2018 Pattern)

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 side indicate full marks.***

Q1) Answer the following (any 2) : **[20]**

a) Define tablets. Discuss in detail different additives used in tablet formulation.

b) Give complete account of environmental control zones in sterile manufacturing facilities. Add a note on HVAC system.

c) Discuss defects in tablet coating and explain remedies thereof.

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

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

a) Describe construction and principle involved in working of fluidized bed granulator.

b) Give a detail account on evaluation of granules.

c) What are the problems involved in filling hard of gelatin capsule?

d) Explain weight variation test for capsule as per Indian Pharmacopoeia.

e) Describe controlled flocculation in structured vehicle.

f) Discuss formulation of soft gelatin capsule.

g) Write a note on Lipsticks.

h) What is preformulation? Explain important physicochemical properties of preformulation studies.

i) Explain importance of base adsorption in soil gels.

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

P.T.O.

Q3) Answer the following (any 5) : **[15]**

a) Explain glass as packaging material and explain water attack test.

b) Give various components of aerosol system.

c) Explain the quality control test of aerosols.

d) Explain evaluations of ophthalmic preparations.

e) What is SPF? Discuss in brief about sunscreens.

f) Give an account on different types of ophthalmic dosage forms.

g) IPQC test of capsules as per Indian Pharmacopoeia.

Total No. of Questions : 3]

SEAT No. : ____

P901

[Total No. of Pages : 2

[5854]-503

T.Y. B. Pharmacy

PHARMACOLOGY - II

(2018 Pattern) (Semester - V) (BP 503T) (Theory)

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.***

Q3) Attempt **any Five** of the following : **[15]**

a) What are the adverse effects of NSAIDs?

b) Comment the role of HMG-CoA reductase inhibitors to treat hyperlipidaemia.

c) Define and classify tocolytics.

d) Write biosynthesis of protaglandins.

e) Enlist mechanism of anti-gout drugs.

f) Write note on histamine receptors.

g) Write the advantages of oralhypoglycaemic agent.

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

a) Classify antihistamises. Describe Pharmacological action of antihistamine.

b) Discuss biosynthesis, mechanism of action, pharmacological action and therapeutic uses of progesterone.

c) Classify antihypertensive drugs? Explain phamacotherapy for hypertension.

d) Describe biosynthesis, storage and release of insulin. Add note on insulin preparations.

P.T.O.

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

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

b) Write a note on platelet-activating factors.

c) Write mechanism of acetazolamide and spironolactone.

d) Support the use sodium channel blockers for treatment of cardiac arrthymias with example.

e) Discuss oral contraceptive pills.

f) Add note on bioassay of Oxytocin.

g) Justify action of calcium channel blockers for any two cardiovascular diseases.

h) Explain Pharmacological action of nitrates.

i) Describe physiological effect of glucagon.

j) Explain the calcium homeostasis.

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

P902 **[Total No. of Pages : 2**

[5854]-504
Third Year B. Pharmacy
PHARMACOGNOSY AND PHYTOCHEMISTRY - II
(2018 Pattern) (Semester - V) (BP504T) (Theory)

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

Instructions to the candidates:

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

Q1) Objective type questions (Answer 5 out of 7) **[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 spectroscopy.

g) Write the applications of Microwave assisted extraction.

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

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Total No. of Questions : 3]

SEAT No. :

P903

[Total No. of Pages : 2

[5854] - 505
Third Year B. Pharmacy
PHARMACEUTICAL JURISPRUDENCE
(BP505T) (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) **Answer all the questions (Two marks each) :** **[10× 2 = 20]**

a) What is Trademark?

b) Write the members of joint state pharmacy council.

c) What are schedule K and L?

d) Write offenses and penalties as per prevention of cruelty to the Animal Act, 1960.

e) What are the objectives of DPCO, 1995?

f) Write functions of pharmacy council of India.

g) What are psychotropic substances?

h) What is product patent?

i) Central Register of Pharmacist.

j) What are misbranded drugs?

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

a) Write qualification, powers and duties of Drug inspector.

b) Discuss in detail the objectives and salient features of Drug and Magic remedies Act and rules 1976.

c) Give the constitution and functions of Drugs Technical Advisory Board (DTAB) and Drug consultative committee (DCC) as per Drugs & cosmetics Act & Rules.

P.T.O.

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

a) Prices of Bulk Drugs.

b) What is patent infringement? Explain its significance.

c) Qualification and duties of Government Analyst under D & C Act.

d) Exempted class of advertisements as per Drugs & Magic Remedies Act.

e) Explain Bonded Manufactory.

f) Drug Enquiry committee.

g) Pharmaceutical code of ethics.

h) Loan license.

i) Geographical indications.

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

P904 **[Total No. of Pages : 2**

[5854]-601

T.Y.B. Pharmacy

MEDICINAL CHEMISTRY - III (Theory)

(2018 Pattern) (Semester - VI)

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

Instructions to the candidates:

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

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

a) Define and classify antifungal agents with suitable examples.

b) Give structure and uses of any three antibiotics which have site of action on cell wall.

c) Define and classify antimalarial agents with suitable examples.

d) Define and classify antibiotics with suitable examples.

e) Give structure and uses of any three drug from class cinchona alkaloids.

f) Draw the structure of penam, cepham and beta lactam ring.

g) Fill in the blanks :

i) _____ are drugs that have the capability of ridding the body of parasitic worms.

ii) Malaria, Amoebiasis, Giardiasis, Trichomoniasis, Taxoplasmosis are _____ disease.

iii) Antibacterial aniline substituted suphonamides are called as _____.

P.T.O.

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

a) Discuss various physicochemical parameters used in QSAR and add a note on Hansch QSAR analysis.

b) Describe the chemistry, SAR and MOA of aminoglycoside antibiotics.

c) Define and classify anticancer agents with suitable examples, explain in detail alkylating agents & plants products.

d) Describe the chemistry, SAR and MOA of quinolines antimalarial agents.

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

a) Describe the SAR and MOA of Antifungal azoles.

b) Explain MOA of sulphonamide.

c) Draw the scheme of synthesis for chloroquine.

d) Elaborate about antitubercular agents.

e) Elaborate about antileprotic agents.

f) Draw the scheme of synthesis for chloramphenicol.

g) Discuss chemistry, MOA of plant products use as antineoplastic agents.

h) Write a note on anthelmintic drugs.

i) Discuss polyene antibiotics.

j) Write a note on Ferguson principle.

Total No. of Questions : 3]

SEAT No. : [ ]

P905

[Total No. of Pages : 2

[5854]-602
T.Y. B. Pharmacy
PHARMACOLOGY - III
(2018 Pattern) (Semester - VI)

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.***
4) ***Assume suitable data if necessary.***

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

a) Define acute, subacute and chronic toxicity.

b) Elaborate the term carcinogenicity and teratogenicity.

c) Enlist adverse effect and uses of chloramphenicol.

d) Classify antileprotic drugs.

e) Write clinical symptoms & management of organophosphorus compound.

f) Give mechanism of action and adverse effect of aminoglycoside.

g) Write symptoms and treatment of lead poisoning.

Q2) Long Answers (Answer 2 out of 4) each question carries 10 marks. **[20]**

a) Write general principles of treatment of poisoning.

b) Define and classify macrolides antibiotics. Give pharmacology of erythromycin.

c) Classify cephalosporin. write mechanism of action, adverse effect and uses of cephalosporin.

d) Describe mechanism of action. antibacterial spectrum, adverse effect and uses of sulphonamide.

P.T.O.

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

a) Explain mechanism of action, adverse effects and uses of tetracycline and Fluoroquinolones.

b) Classify anti-tubercular drugs. Describe mechanism of action, resistance, adverse effects and uses of isoniazid and rifampicin.

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

d) Classify anti-ulcer drugs. Illustrate pharmacology of proton pump inhibitors and H1 antihistaminic drugs.

e) Write a brief note on non-systemic antacids.

f) Write a short note on pharmacotherapy of diarrhoea.

g) Classify anticancer drugs. Write a detail note on alkylating agents.

h) Classify penicillin antibiotics and give an account on extended spectrum penicillin.

i) classify immunosuppresant drugs and write a detail note on antibodies used as immunosuppresant.

j) Define Biological clock and write their signifance leading to chromotherapy.

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Total No. of Questions :3]

SEAT No. :

P 906

[Total No. of Pages : 2

[5854]-603
T.Y. B.Pharmacy
HERBAL DRUG TECHNOLOGY
(2018 Pattern) (Semester - VI) (Theory) (BP603T)

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

Instructions to the candidates:

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

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

a) Write a note on Unani system of medicine.

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

c) Describe method of preparation for Avaleha.

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) Elaborate the guidelines for GAP guidelines.

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

a) What are ayurvedic formulations? Describe in detail method of preparation and general standardization parameter for Asava and Aristha 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) Describe in detail ICH guidelines for the assessment of herbal drug, stability testing of herbal drug.

d) Brief note on Novel Herbal formulations, advantages and describe any one novel Herbal formulation.

P.T.O.

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

a) Describe five element and tridosha theory involved in Ayurveda.

b) Write a role of Alfalfa and honey as herbal dietary supplement.

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) Describe Herbal drug interactions? Explain with suitable 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 Spirulina as nutraceutical.

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

i) Write a note on GMP for AYUSH formulation.

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. : [ ]

P907

[Total No. of Pages : 2

[5854]-604

Third Year B. Pharmacy

BIOPHARMACEUTICS AND PHARMACOKINETICS

(2018 Pattern) (Semester - VI) (BP 604T)

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

Instructions to the candidates:

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

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

a) What are different pathways of drug absorption?

b) Define and explain ivivc.

c) Define and explain renal clearance.

d) What is the basic role of Phase I reactions?

e) What are minor pathways of drug elimination?

f) Why are drugs better absorbed from small intestine?

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

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

a) Discuss the assumptions, limitation and significance of pH - partition hypothesis.

b) Discuss various factors that are responsible for differences in drug distribution in the body.

P.T.O.

c) Explain Biopharmaceutical classification system and its significance with respect to ivivc.

d) What is non-linear pharmacokinetics? Give reasons with examples for non-linear pharmacokinetics shown by drugs.

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

a) Discuss the factors that influence the gastric emptying rate.

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

c) What are various sites of drug metabolism in the body?

d) What are the factors that influence passive reabsorption of drugs renal tubules?

e) What are various approaches used to enhance bioavailability of drug from its dosage form.

f) Why is placental barrier not as effective as Blood Brain Barrier.

g) Explain which parameters decide time to reach steady state plasma concentration of drug after i.v. infusion.

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

i) Explain advantages of physiological model over compartmental model.

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

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Total No. of Questions : 3]

SEAT No. :

P908

[Total No. of Pages : 2

[5854]-605
T.Y. 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) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***

Q1) Answer 5 out of 7. **[5×3=15]**

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

b) Enlist applications of immobilized enzymes.

c) Highlight use of microbes in industry.

d) Explain basic principle of genetic engineering.

e) Give brief overview of protein engineering.

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 recombinant DNA technology? Summarize applications of recombinant DNA technology and discuss production of recombinant insulin.

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

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

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

P.T.O.

Q3) Answer 8 out of 10. **[8×5=40]**

a) Discuss working and applications of biosensors in pharmaceutical industries.

b) Explain restriction endonuclease with example.

c) Write a note on ELISA.

d) What is cloning vector? Explain plasmid as a cloning vector.

e) Discuss general method of preparation of bacterial vaccines.

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

g) Explain the structure of immunoglobulin.

h) Write a note on microbial biotransformation.

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

j) What is mutation ?Summarize types of mutation.

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

P909 **[Total No. of Pages : 2**

[5854]-606
Third Year B. Pharmacy
PHARMACEUTICAL QUALITY ASSURANCE
(2018 Pattern) (Semester - VI) (BP 606T)

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

Instructions to the candidates:

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

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

a) What is GMP? Give its importance.

b) What is the role and functions of WHO?

c) Briefly describe the importance of training in pharmaceutical manufacturing.

d) Outline a general format for SOP.

e) Write about QSEM concepts in ICH guidelines.

f) How complaints are handled in pharmaceutical industry?

g) How is scrap and waste material disposed in pharmaceutical industry?

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

a) Explain the concept of quality by design (QbD). Write in detail about steps in QbD approach.

b) What is analytical method? Explain the parameters for analytical method validation.

c) Explain the major quality control tests for paper boards and cartons.

d) Discuss the different documents (BFR, MFR and SOP) maintained in pharmaceutical industry.

P.T.O.

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

a) Explain the concept of quality Assurance and quality control in pharmaceutical industry. Enlist different regulatory authorities for quality management in pharmaceutical industry.

b) Discuss JCH Guidelines for stability testing.

c) Explain NABL accreditation procedure.

d) Write a note on environmental control in pharmaceutical industry.

e) Explain the importance of qualification and calibration of equipment in pharmaceutical industry.

f) Explain the quality control tests for plastic containers for parentral preparations.

g) Explain the importance and responsibilities of quality assurance unit as per GLP guidelines.

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

i) What is ISO? Elaborate benefits and limitations of ISO.

j) Discuss in brief good warehousing practices.

Total No. of Questions : 3]

SEAT No. : ____

P910

[Total No. of Pages : 2

[5854]-701

F.Y. B. Pharmacy

INSTRUMENTAL METHODS OF ANALYSIS

(2018 Pattern) (Semester - VII) (Theory) (BP701T)

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) Explain the principle and methodology of thin layer chromatography.

b) Give a detail account on any two pumps used in HPLC.

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

d) Discuss the principle and applications of ion exchange chromatography.

e) Explain the types of molecular vibration in IR spectroscopy.

f) Explain with example the excitation and emission fluorescence spectra.

g) Describe various development techniques used in paper chromatography.

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

a) Describe the ideal requirements of detector. Discuss in brief about various detectors used in HPLC.

b) Draw a neat labeled diagram of flame photometer. Explain the functioning of each part. Write applications of flame photometry.

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

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

P.T.O.

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

a) Write a note on :

i) Applications of Gel chromatography.

ii) Adsorbents used in TLC.

b) Give a detail account on detectors used in UV-Visible Spectroscopy.

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

d) Explain various types of detectors used in GC.

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

f) Discuss rate theory and plate theory in detail.

g) Give a brief account on filters and monochromators used in UV-Visible spectroscopy.

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

i) Write a note on :

i) Temperature programming in GC

ii) Gradient elution technique

j) Discuss about various columns used in GC.

Total No. of Questions : 3]

SEAT No. : ____

P911

[Total No. of Pages : 2

[5854]-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) ***Figures to the right indicate full marks.***

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

a) What is platform technology?

b) What are the goals of quality management system?

c) Enlist methods of risk management.

d) What is performance qualification?

e) What are the dimensions of quality?

f) What is vertical technology transfer?

g) What are the benefits of ISO 14000?

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

a) What is technology transfer? Explain granularity of technology transfer.

b) Describe documentation required in technology transfer.

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

d) Explain the elements of ISO 9000 : 2000.

P.T.O.

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

a) Describe SUPAC SS level 1 changes in batch size.

b) What is risk management in technology transfer?

c) Write a note on technology transfer agencies in India.

d) Describe impact of change in equipment as per SUPAC guidance.

e) What is certification process as per ISO 9001?

f) Explain the organisation & functions of CDSCO.

g) What is GLP? Discuss the same.

h) Explain concept of six sigma for quality improvement.

i) What is clinical research protocol & data presentation.

j) Write note on phases of clinical trials.

Total No. of Questions :3]

SEAT No. :

P 912

[Total No. of Pages : 2

[5854]-703
F.Y. B.Pharmacy
PHARMACY PRACTICE
(2018 Pattern) (Semester - VII) (BP 703T)

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) Classify hospitals based on type of care provided and give their functions.

b) Comment on the benificial drug interactions.

c) What is satellite pharmacy service? Give its advantages & disadvantages.

d) What is drug information centre (DIC)? Enlist the objectives of DIC.

e) Enlist the risks associated with self medication.

f) Give the composition of pharmacy & therapeutic committee and enlist the primary functions of it.

g) Explain the role of pharmacist in use of investigational drug in the hospital.

Q2) Long answers (Anwer any 2 out of 4) **[20]**

a) Summarize the risk factors for drug interactions and explain pharmacokinetic type of drug interactions with examples.

b) Enlist the objectives of drug store and describe the layout, types of material stocked and storage conditions for different materials in drug store.

c) Describe objectives and stages of patient counselling.

d) Explain the drug therapy monitoring by clinical pharmacist.

P.T.O.

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

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

b) Comment on the clinical significance of hematological parameters.

c) Define controlled drug and discuss the dispensing of controlled drugs.

d) Give type of prescriptions and discuss legal requirements and handling of prescription.

e) Explain the hypersensitivity and carcinogenicity.

f) Discuss the dispensing of drugs of ambulatory patients.

g) Explain the basic criteria for sale of over the counter (OTC) medication and give advantages and risk associated with OTC medication.

h) Comment on the adverse drug reaction monitoring & reporting system in India.

i) Enlist the objectives of inventory control and discuss techniques used for inventory control.

j) Explain the role of pharmacist in patient's medication adherance.

Total No. of Questions : 3]

SEAT No. : ____

P913

[Total No. of Pages : 2

[5854]-704

Fourth Year B. Pharmacy

NOVEL DRUG DELIVERY SYSTEM

(2018 Pattern) (Semester - VII) (Theory) (BP 704T)

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 7) : **[5×3=15]**

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

b) Write a short note on nebulizers.

c) Explain disadvantages of conventional occular drug delivery systems.

d) Describe nanoparticles along with their general properties.

e) Classify liposomes according *w* structure.

f) Explain ideal properties of bioadhesive polymer.

g) Write note on coacervation methods of microencapsulation.

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

a) Explain in detail components for TDDS patch formulation along with evaluation of TDDS.

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

P.T.O.

c) Explain the preparation and applications of Monoclonal antibodies.

d) Discuss in detail types of occular drug delivery systems.

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

a) Explain the classification of intrauterine drug delivery system with suitable examples.

b) Explain permeation enhancers with examples in TDDS.

c) Explain the different theories of mucoadhesion.

d) Write a note on evaluation properties of niosomes.

e) Describe the mechanism of osmotically controlled system for controlled drug delivery of drugs.

f) Explain Metered Dose Inhaler (MDI).

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

h) What are ion exchange resins? Give their mechanism.

i) Explain the different barriers in ocular drug delivery.

j) Write a short note on biodegradable polymers.

Total No. of Questions : 3]

SEAT No. :

P914

[Total No. of Pages : 2

[5854]-801
F.Y. B.Pharmacy
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) ***Black figures to the right indicate full marks.***

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

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

b) Enlist steps in writing a research report.

c) Explain different types of errors in hypothesis testing.

d) Explain in brief about response surface plot.

e) Find the range of the following raw data and put it as arrayed data :
7, 13, 5, 3, 4, 12, 13, 4, 3, 4, 18, 19, 12, 4, 13, 8, 4, 9, 8, 24.

f) A box contains 5 red, 3 blue and 6 green balls; if one ball is drawn at random from the box what is the probability that the ball is : I. Red and II. Green.

g) A random sample of 20 tablets from a batch gives a mean active ingredient content 42 mg and standard deviation of 6 mg. Test the hypothesis that the population mean is 44 mg. (Table t value = 2.093).

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

a) Which are the different methods for presentation of data? Describe in detail about graphical presentation of data.

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

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

d) An injection has been formulated containing sulfamethaxazole and trimethoprim. It is known that the probability of precipitation in the formulation is 1%. Calculate the chance of observing 2, or fewer than 2 vials containing precipitate in a sample of 100 vials.

P.T.O.

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

a) Explain in brief about ANOVA.

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

c) Write a note on Plagiarism.

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

e) Explain the different steps needed to convert a given raw data to grouped data and to form a frequency table.

f) Define statistics. Write applications of statistics.

g) Write note on MINITAB®.

h) Write a note on Wilcoxon Rank Sum Test.

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

Class marks :	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.

j) Given the two lines of regression as, $8X - 10Y + 66 = 0$ and $40X - 18Y - 214 = 0$. Find average of X & Y and correlation coefficient between X and Y.

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Total No. of Questions :3]

SEAT No. :

P 915

[Total No. of Pages : 2

[5854]-802
F.Y. B.Pharm.
SOCIAL AND PREVENTIVE PHARMACY
(2018 Pattern) (Semester-VIII) (Revised)

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

Instructions to the candidates:

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

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

a) What is Pulse polio programme.

b) Explain the causes and treatment of malaria.

c) What are the objectives of RNTCP.

d) Describe the toxic effects of tobacco.

e) What is national urban health mission?

f) Explain the Importance of personal hygiene.

g) What is Lymphatic filariasis? Add note on its prevention and treatment.

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

a) Write a note on HIV and AIDS control program.

b) Explain Integrated Disease Surveillance Programme (IDSP).

c) Write a note on National Health Programme and National AIDS Control Programme.

d) Explain the process and indication for evaluation of public health.

P.T.O.

Q3) Anwer any eight. (8 out of 10) **[40]**

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

b) Write general principles of prevention and control of cholera.

c) Explain the effects of ebola virus, mode of transmission and prevention.

d) What is SARS write its symptoms and prevention?

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

f) Explain the objectives and functions of national leprosy programme.

g) What are the funtions of Primary Health Centres?

h) Objectives and implementation of national tobacco control programme.

i) What are the community serivces in urban areas?

j) What is cancer? Write a note palliative care in cancer.

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Total No. of Questions : 3]

SEAT No. : ____

P916

[Total No. of Pages : 2

[5854]-803

Final Year B.Pharmacy

PHARMA MARKETING MANAGEMENT

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

a) Distinguish between marketing & selling.

b) Discuss the Quantitative aspects of pharmaceutical market.

c) Write a note on market segmentation.

d) Discuss the motivation and Prescribing habits of physician.

e) Discuss the various factors which affects patient's choice regarding Physician.

f) Define market research & explain its importance in Pharma marketing.

g) Discuss the importance of Competative analysis in pharma marketing.

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

a) Discuss in detail Global marketing of pharmaceutical product.

b) Explain in detail pricing objectives.

c) Explain Designing of Pharmaceutical marketing chanel.

d) Discuss the main factors influencing promotion mix.

P.T.O.

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

a) Write in detail targeting in Pharmaceutical marketing.

b) Explain in detail with example about size and composition of the Pharma market.

c) What are Demographic characteristics in customer profile.

d) Describe types of Conflict and competions in marketing channel.

e) Outline sources of market research.

f) Discuss in detail product life cycle.

g) Discuss in detail online Promotional techniques for OTC products.

h) What is detailing explain its purpose.

i) Write in detail about compensation and future prospects of the professional sales Representative.

j) Write a note on DPCO (Drug price control order).

Total No. of Questions : 3]

SEAT No. :

P994

[Total No. of Pages : 2

[5854]-804

Final Year B. Pharm.

PHARMACEUTICAL REGULATORY SCIENCE

(2018 Pattern) (Semester - VIII) (BP804ET) 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 any 5 out of 7) : **[5 × 3 = 15]**

a) Give the stages of drug discovery.

b) What is NDA, explain in brief.

c) Write a note on ANDA.

d) Elaborate on common technical document.

e) Explain clinical trial protocol.

f) Give basic terminologies in regulatory concept.

g) Write a note on orange book.

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

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

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

c) Explain in detail regulatory authority & agencies in Europe.

d) Describe in detail procedure for development of protocol.

P.T.O.

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

a) Explain import & export of pharmaceutical product in detail.

b) Write a note on drug master file.

c) Explain clinical trial protocol.

d) Discuss GCP obligation of investigator & sponsors.

e) Elaborate on regulations & regulatory concept.

f) Explain Austrialian regulatory authority.

g) Write a note on Fedral regulations.

h) Explain technical documentation for Indian drug.

i) Describe regulatory authority in Japan.

j) Write a note on ASEAN (ACTD) research.

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Total No. of Questions : 3]

SEAT No. : ____

P917

[Total No. of Pages : 2

[5854]-805

Final Year B. Pharmacy

PHARMACOVIGILANCE

(2018 Pattern) (Semester - VIII)

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

Instructions to the candidates :

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

Q1) Solve any FIVE : **[5 × 3 = 15]**

a) Give examples of ADRs due to genetic defect in distribution.

b) Write the role and responsibilities of CDSCO?

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

d) Explain the international classification of diseases.

e) Write a note on cohort study.

f) HOW will you calculate DDD?

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) Explain CIOMS requirements for ADR reporting.

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

d) What is the organization and objective of ICH guidelines in Pharmacovigilance? Explain in detail good clinical practices in Pharmacovigilance studies.

P.T.O.

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

a) Explain Vaccine safety surveillance.

b) Discuss the methods of PMS used by pharmaceutical industry.

c) Write about MedDRA and standardized MedDRA.

d) Explain PSUR and ICSR.

e) Write a short note WHO causality scales.

f) Write a note on Schedule Y.

g) What is the role of Pharmacist in management of ADRs.

h) Explain scope of pharmacovigilance and methods of ADR reporting in India.

i) Explain comparative observational studies.

j) Write a note on Communication in pharmacovigilance.

Total No. of Questions : 3]

SEAT No. :

P918

[Total No. of Pages : 2

[5854]-806

Final Year B.Pharmacy

QUALITY CONTROL AND STANDARDIZATION OF HERBALS (Theory)

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

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

a) Enlist evaluation types of crude drugs.

b) Brief about basic tests for medicinal plants.

c) Who should report and to whom about adverse drug reaction while safety monitoring of herbal medicines as per WHO guidelines.

d) Brief the parameters of GAP.

e) Brief 'Safety' in laboratory as per GLP.

f) Brief licensing under regulatory requirements of herbals in India.

g) Justify chromatographic technique application for standardization of herbal products.

Q2) Solve long answers : **[2 × 10 = 20]**

a) Write about WHO guidelines for GACP for medicinal plants.

b) Elaborate stability testing for shelf life determination of herbal medicines.

c) Explain schedule T for GMP requirements as per D & C Act.

d) Elaborate ICH Guidelines for quality control of Herbal drugs.

P.T.O.

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

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

b) Explain harvest & personnel as per GACP guideline of WHO.

c) Explain role of chemical markers in standardization of herbal products.

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

e) Explain D & C Act provision for herbals.

f) Brief note on various herbal pharmacopoeia.

g) Brief post harvesting aspects as per GACP guidelines of WHO.

h) Explain cGMP for quality assurance in herbal drug industry.

i) Write in detail about GLP in Herbal drug Industry for traditional system of medicine.

j) Write about research guidelines for evaluating efficacy of herbal medicines.

Total No. of Questions : 8] **SEAT No. :**

P919 **[Total No. of Pages : 2**

[5854]-807
Final Year B. Pharmacy
COMPUTER AIDED DRUG DESIGN
(2018 Pattern) (Semester - VIII) (Theory) (BP807ET)

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

Instructions to the candidates:

All questions are compulsory.

Q1) Objective type 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 Five.

c) Compare SAR & QSAR.

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

e) Define bioinformatics. Mention applications of Bioinformatics.

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

g) Applications of QSAR.

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

a) What is QSAR? Explain in detail history & development of QSAR. Explain the Hantzsch analysis & free Wilson analysis & relationship between them.

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

c) Explain in detail Liganf structure based drug design by taking suitable example.

d) What is molecular docking? Enlist various types of molecular docking & explain any one of them. Write a note on concept of virtual screening.

P.T.O.

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

a) Write a note on molecular mechanics.

b) Classify the Bioisosterism approach with examples. Discuss bioisosteric replacement strategy with one case study.

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

h) Explain different methods in determination of energy minimization.

i) Describe theoretical determination of partition coefficient parameter in QSAR.

j) Pharmacophore based screening.

Total No. of Questions : 3]

SEAT No. : [ ]

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[Total No. of Pages : 2

[5854] - 808

Fourth Year B.Pharmacy

CELL AND MOLECULAR BIOLOGY

(2018 Pattern) (Semester - VIII) (BP808ET)

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

Instructions to the candidates :

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

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

a) Define molecular biology.

b) Define mitosis.

c) Define anabolism.

d) Define mutation.

e) Importance of Cell Membrane.

f) Give significance of protein synthesis.

g) Draw double helical structure of DNA.

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

a) Describe different steps involved in transcription process.

b) Describe various signaling pathway.

c) What are amino acids. Explain their role in protein synthesis.

d) Describe in detail about MAPK, SiRNA, MicroRNA.

P.T.O.

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

a) Explain the stages in cell cycle.

b) Explain the transducer mechanism of GPCR.

c) Describe gene mapping and gene sequencing in detail.

d) Draw well labeled structure of cell. Enlist functions of cell and its organelles.

e) Explain the mechanisms of replication.

f) Explain the mechanism gene expression.

g) Write a note on the applications of Genomics.

h) Explain the process of mitosis.

i) Describe primary, secondary, tertiary structure of proteins.

j) Explain misregulation of signaling pathway and its role in disease.

▽▽▽▽

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

P921 **[Total No. of Pages : 2**

[5854]-809
Final Year B. Pharmacy
COSMETIC SCIENCE
(2018 Pattern) (Semester - VIII) (BP 809ET)

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 out of seven of the following **[5×3=15]**

a) Define SPF. Give Classification of sunscreen.

b) Give the classification of shampoos used for dandruff.

c) Explain cosmetic as Quasi drug.

d) How rheology modifiers can improve the aesthetic value of cosmetics.

e) Give the difference between humectants and emollients.

f) Write the evaluation test for tensile strength of hair

g) Discuss functions of skin.

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

a) Explain the Bureau of Indian standards and analytical methods for toothpaste.

b) Define cosmetics & elaborate on the classification of cosmetic and cosmeceutical products.

c) Discuss the principles and building blocks of hair care products.

d) Discuss the role of herbs in cosmetics with special emphasis on skin care, oral care & hair care products.

P.T.O.

Q3) Answer in brief on any eight of the following. **[8×5=40]**

a) Discuss in brief formulation of mouthwash

b) Write a note on acne and measures to control it.

c) Discuss on bleeding gums and mention suitable therapy.

d) Discuss the role of surfactants as cosmetic excipients

e) Discuss formulation aspects of vanishing cream

f) Discuss teh evaluation of sunscreen in brief

g) Discuss causes and prevention for blemishes and wrinkles.

h) Write a note on deodorants and antiperspirants.

i) Discuss in brief role and applications of viscosity modifiers and preservatives as cosmetic ingredients.

j) What is the reason for sensitive teeth and how cosmeceuticals can help to avoid sensitivity?

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

P922 **[Total No. of Pages : 2**

[5854]-810
Fourth Year B. Pharmacy
EXPERIMENTAL PHARMACOLOGY
(2018 Pattern) (Semester - VIII) (BP810 ET)

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

Instructions to the candidates:

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

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

a) Explain the 3 'R' principles of CPCSEA.

b) Enlist the preclinical screening methods for anti-inflammatory activity.

c) List out animal models for sympathomimetics & sympatholytics.

d) Explain the preclinical evaluation of skeletal muscle relaxants.

e) Explain the different types of control groups used in design of animal experiments.

f) What is nootropic activity? Explain the principle of any two models used to determine nootropic activity.

g) Discuss the principle and use of Actophotometer in experimental pharmacology.

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

a) Discuss CPCSEA guidelines for laboratory animals housing facility.

b) Discuss preclinical screening methods for analgesic drugs

c) Enlist the screening methods for anti cancer drugs. Explain any two methods

d) Discuss production and applications of trangenic animals.

P.T.O.

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

a) Discuss characteristics and experimental uses of guinea pig & rabbit

b) Explain ANOVA and its applications

c) Explain preclinical evaluation of anti diabetic activity.

d) Discuss screening of anit psychotics agent in laboratory animals.

e) Enlist screening models for anti depressant activity. Explain any two models

f) Explain any two methods for evaluation of anti hypertensive activity

g) Define bioassay and explain principle and applications of it

h) Enlist anti asthmatic screening methods. Explain any two methods.

i) Write a note on preclinical evalution of anti dyslepidemic agents.

j) Explain the sources and significance of “literature review” in research.

Total No. of Questions : 3]

SEAT No. :

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[Total No. of Pages : 2

[5854] - 811
F. Y. B. Pharmachy
ADVANCED INSTRUMENTATION TECHNIQUES
(2018 Pattern) (Semester - VIII)

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

Instructions to the candidates :

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

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

a) Write in brief about Time of flight analyzer

b) Explain NMR spectrum of ethyl alcohol.

c) Discuss Bragg's equation in brief and state its significance.

d) How the parameter 'Control of Absorbance' is calibrated in UV spectrophotometer?

e) Discuss procedures for injection Linearity and detector linearity for calibration of HPLC.

f) What are applications of Differential Thermal Analysis?

g) Write in brief about solvents used in NMR spectroscopy.

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

a) Discuss various factors affecting chemical shift.

b) Suggest suitable chemical structure for following spectroscopic data :
Molecular Formula $C_7H_6O_2$
JR : 3200 cm^{-1}, 2800 cm^{-1},1710 cm^{-1}
Proton NMR : δ 7.2 (m, 5H), δ10 (s, 1H),
Mass (m/z): 122, 105, 77

c) Explain in detail instrumentation of NMR spectroscopy with labelled diagram.

d) Discuss rules for predicting prominent peaks in mass spectrum.

P.T.O.

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

a) Instrumentation of DTA

b) GC-MS

c) Gel Electrophoresis

d) Calibration of IR Spectrophotometer

e) Solid Phase Extraction

f) Calibration of Electronic balance

g) Powder Crystal Technique

h) Differential Scanning Calorimetry

i) Radioimmuno assay

j) Tandem mass spectrometry

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Total No. of Questions : 3]

SEAT No. : ____

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[Total No. of Pages : 2

[5854]-812A

F. Y. B.Pharmacy (Semester - VIII)

BP812 ET : DIETARY SUPPLEMENTS & NUTRACEUTICALS

(2018 Pattern)

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

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Draw neat & labelled diagram 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 specify?

b) What are reactive oxygen species? Give examples.

c) What are complex carbohydrates? Give examples.

d) Enlist factors that reduce endogenous antioxidants 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 & classify Nutraceuticals. Explain in detail the significance of Nutraceuticals in prevention & management of heart disease & hypertension.

b) Explain in detail the role of free radicals in diabetes. Comment on the role of α-Lipoic acid & tocopherol in management of free radicals.

c) Explain the importance of GMP in Food safety. Add a note on adulteration of foods.

d) Write a note on Phytochemicals as nutraceuticals.

P.T.O.

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

a) Write a note on Flax seeds and its medicinal importance.

b) Enlist various sea foods. Add a note on medicinal applications of sea foods.

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

d) Role of free radicals in causing diabetes.

e) Explain the regulatory process of obtaining FDA approval.

f) Write detailed note on Lycopene & Lutein.

g) Write a note on storage & environmental factors on the potency of Nutraceuticals.

h) Write a note on Endogenous antioxidants. Add a note on Vitamin C.

i) Write a note on various sources of Dietary fibres.

j) Explain the significance of Carotenoids as nutraceuticals.