Total No. of Questions : 3]

SEAT No. :

PA-4523

[Total No. of Pages : 2

[5940]-1001

F. Y. B.Pharmacy

BP101T : HUMAN ANATOMY AND PHYSIOLOGY - I (Theory)

(2019 Pattern) (Semester - I)

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

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw an appropriate diagram/s wherever necessary.***

Q1) **Attempt any five from the followings :** **[5 × 3 = 15]**

a) Explain various basic life processes.

b) Explain Passive diffusion.

c) Give structural and functional classification of joints.

d) Define blood transfusion and give its significance.

e) Explain structure of lymph node.

f) Give types of blood circulation.

g) Enlist functions of skin.

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

a) Explain morphology and functions of different types of blood cells.

b) Explain characteristical features and functions of bones of appendicular skeletal system.

c) Explain in detail regulation of blood pressure.

d) Explain structure and functions of ear.

P.T.O.

Q3) **Attempt any eight from the followings :** **[8 × 5 = 40]**

a) Explain sliding filament theory.

b) Explain structure of eye.

c) Explain electrocardiogram.

d) Explain structure and functions of spleen.

e) Explain structural and functional features of nervous tissue.

f) Explain Erythropoiesis.

g) Explain characteristics and functions vertebral column.

h) Explain cell division.

i) Explain structural and functional features of parasympathetic system.

j) Explain positive feedback mechanisms for homeostasis.

Total No. of Questions : 3]

SEAT No. :

PA-4524

[Total No. of Pages : 2

[5940]-1002

F.Y. B.Pharmacy

BP-102T : Pharmaceutical Analysis - I

(2019 Pattern) (Semester - I)

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

Instructions to the candidates:

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

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

a) Discuss post precipitation.

b) Explain why the visual indicators change their colour.

c) Classify acid base titrations.

d) Give the criteria for selection of Primary standards.

e) Write the applications of Refractometry.

f) Write the difference between accuracy and precision.

g) Discuss the advantages and limitations of Mohr's method.

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

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

b) How do you prepare and standardize the solution of Potassium Permanganate I.P. Write the applications of Permaganometry.

c) What is Complexometric titration? Classify them with suitable examples. Discuss metal ion indicators.

d) Discuss the solvents used in non-aqueous titrations, and explain estimation of sodium benzoate.

P.T.O.

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

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

b) Write a note on Modified Volhard's method.

c) Explain Ilkovik Equation used in Polarography.

d) Discuss the advantages and limitations of Glass Electrode.

e) Write a note on Iodimetry.

f) Write the applications of Potentiometry.

g) Explain the term specific and molar refraction.

h) Write the principle and procedure for estimation of ammonium chloride.

i) Explain principle and steps involved in gravimetric analysis.

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

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Total No. of Questions : 3]

SEAT No. :

PA-4525

[Total No. of Pages : 2

[5940]-1003
F.Y. B.Pharmacy
BP103T : PHARMACEUTICS - I
(2019 Pattern) (Semester - I)

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

Instructions to the candidates:

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

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

a) Explain how pharmacy education started in India.

b) Define :

i) Cachets

ii) Lozenges

iii) Pills

c) Enlist the steps in prescription handling.

d) Define posology and give any one formula for dosage calculation.

e) Convert the following degree of proof spirit into real strength (% v/v)

i) 75° UP

ii) 35.3° OP

f) Define effervescent powder and enlist their advantages.

g) What is reconstituted suspension? Give one example of it?

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

a) Comment on stability of suspension.

b) Define emulsion. Discuss the identification tests for emulsion. Add a note on their types.

c) Discuss various suppository bases in detail also add a note on additives for suppository.

d) Write a note on factors influencing the dermal penetration of drug.

P.T.O.

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

a) Classify dosage forms on the basis of site of administration and give any two needs for dosage forms.

b) Classify gels.

c) Write a note therapeutic incompatibility.

d) Explain theories of emulsification.

e) Define monophasic liquids. Classify them in detail.

f) Enlist various solubility enhancement techniques and explain any 1 in detail.

g) Describe powders for external application.

h) Explain factors affecting dose of drug.

i) How many ml of 60% w/v glucose solution and 10% w/v glucose solution are required to prepare 3000ml of 20% w/v glucose solution?

j) Write a note on pharmacy as a career.

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Total No. of Questions : 3]

SEAT No. :

PA-4526

[Total No. of Pages :2

[5940]-1004
F.Y. B. Pharmacy
BP104T : PHARMACEUTICAL INORGANIC CHEMISTRY
(2019 Pattern) (Semester - I)

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

Instructions to the candidates :

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

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

a) Give principle and reaction for Arsenic limit test.

b) What are buffers? Give examples of buffers in pharmaceutical systems.

c) Give assay for Calcium Gluconate.

d) Give role of fluoride in the treatment of dental caries. Add a note on Zinc eugenol cement.

e) Give ideal properties of antacids. Write various antacid combinations.

f) What are adsorbents? Give examples.

g) Write in detail about Haematinics.

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

a) What are limit tests? Discuss in detail about chloride limit test and Iron limit test.

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

i) Hydrogen peroxide

ii) Chlorinated lime

P.T.O.

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

d) Write a note on Physiological acid base balance. Give functions of major extracellular electrolytes.

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

a) Define Antidote. Give the preparation and assay of Sodium thiosulphate.

b) Write about Indian Pharmacopoeia.

c) What is buffer equation and buffer capacity?

d) Write in detail about acidifiers.

e) Write a note on expectorants and emetics.

f) Give storage and handling of radiopharmaceuticals. Add a note on Sodium iodide.

g) Explain various official waters with their Quality control tests.

h) Give in detail about ORS.

i) Write a note on cathartics and astringents.

j) Write in detail about antimicrobial agents. Give their classification and mechanism.

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Total No. of Questions : 3]

SEAT No. :

PA-4527

[Total No. of Pages : 2

[5940] - 2001

First Year B. Pharmacy

BP 201T : HUMAN ANATOMY & PHYSIOLOGY - II

(2019 Credit Pattern) (Semester - II)

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

Instructions to the candidates:

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

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

a) Give composition and functions of Saliva.

b) Explain composition and functions of CSF.

c) Draw a neat labelled of nephron & Explain Structure of glomerulus.

d) Write location and functions of kidney.

e) Write a note on hypothalamic hormones.

f) Explain structure of sperm with a neat labelled diagram.

g) Discuss the structure of lungs.

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

a) Classify nervous system. Write in detail anatomy and functions of brain stem.

b) Draw a neat labelled diagram of digestive system. Explain structure and functions of liver.

c) Explain the physiological role of hormones of anterior pituitary gland.

d) Explain in detail various phases of menstrual cycle and hormones involved in it.

P.T.O.

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

a) Explain structure and functions of Pancreas.

b) Draw neat labelled diagram of spinal cord and Explain reflex arc.

c) Write a note on neurotransmitters.

d) Enlist and Explain disorders of nervous system.

e) Explain the process of generation of action potential.

f) Explain Oogenesis.

g) Discuss in detail Calcium Homeostasis.

h) Write an account on physiology of micturition.

i) Explain the venin angiotensin aldosterone system.

j) Define respiration. Describe the actions of muscles involved in breathing.

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Total No. of Questions : 3]

SEAT No. :

PA-4528

[Total No. of Pages : 3

[5940] - 2002

F.Y.B. Pharmacy

PHARMACEUTICAL ORGANIC CHEMISTRY - I (BP202T)

(2019 Pattern) (Semester - II)

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

Instructions to the candidates:

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

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

i) Explain sp^2 hybridization.

ii) Draw structures of compounds from following IUPAC names.

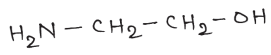
a) 2-Ethyl-5-methyl-1-heptanol

b) 5-Methyl-1-hexyne

c) 2-Nitrobutane

iii) Write IUPAC names for following structures.

a)



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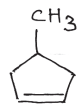

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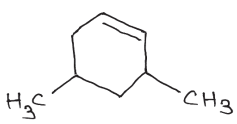

iv) Differentiate between E_1 and E_2 elimination reactions.

v) Explain why aldehydes are more reactive than ketones.

P.T.O.

vi) Arrange the following acids in increasing order of their acidity and explain the reason for the same Chloroacetic acid, acetic acid, formic acid.

vii) Explain why aliphatic amines (methyl/ethyl amines) are more basic than ammonia.

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

i) Explain bimolecular substitution reaction with mechanism and discuss factors affecting the bimolecular substitution reaction.

ii) Define elimination reactions? Explain E2 elimination with mechanism, kinetics and factors affecting.

iii) Write three methods of preparation and two reactions for aldehydes and ketones.

iv) Explain conjugated dienes with suitable examples. Explain the stability of conjugated dienes. Explain Diel's-Alder reactions of conjugated dienes.

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

i) Classify organic compounds on the basis of elemental composition with suitable examples.

ii) Write a note on structural isomerism.

iii) Draw structure and give uses of following organic compounds.

a) Benzaldehyde

b) Benzyl benzoate

c) Ethylenediamine

iv) Write short note on sp^3 hybridization in alkanes.

v) Write any three methods of preparation and three reactions of carboxylic acids.

vi) Explain following reactions with mechanism

a) Aldol condensation

b) Perkin condensation

vii) Draw structure and give uses of following organic compounds.

a) Propylene glycol

b) Vanillin

c) Benzoic acid

viii) Explain the role of electromeric effect on reactivity of carbonyl group.

ix) Write any three methods of preparation and reaction of alkyl halides

x) Explain Saytzeffs orientation for 1,2 Elimation reactions.

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Total No. of Questions : 3]

SEAT No. :

PA-4529

[Total No. of Pages : 2

[5940] - 2003

First Year B. Pharmacy

BP 203T : BIOCHEMISTRY

(2019 Pattern) (Semester - II)

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 the following (Any 5 out of 7) (3 Marks each) **[15]**

a) Define and classify amino acid based on their structure.

b) Give chemistry and biological functions of lipids.

c) Explain oxidation of pyruvate to acetyl CoA.

d) Explain ketoacidosis/ Fatty liver.

e) Define carbohydrate. Classify it with example.

f) Write a note on genetic code.

g) Give significance of ATP and cyclic AMP.

Q2) Long Answer (Any 2 out of 4) (10 marks each) **[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.

d) Discuss chemistry nucleic acid and explain biosynthesis of pyrimidine.

P.T.O.

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

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

b) Write a note on gluconeogenesis.

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.

f) Describe organization of mammalian genome.

g) Describe transamination and deamination.

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

i) Explain biological role and utilization of cholesterol.

j) Explain metabolic disorders of phenylalanine and tyrosine.

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Total No. of Questions : 3]

SEAT No. :

PA-4530

[Total No. of Pages : 2

[5940]-2004

F.Y. B. Pharmacy

BP204T - PATHOPHYSIOLOGY (Theory)

(2019 Pattern) (Semester - II)

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

Instructions to the candidates :

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

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

a) Define and explain pathogenesis of angina pectoris.

b) Compare hypothyroidism and hyperthyroidism.

c) Define and explain pathophysiology of atherosclerosis.

d) Explain the pathogenesis of cell injury.

e) Describe pathophysiology of myocardial infarction.

f) Explain the etiology of AIDS.

g) Define and describe symptoms of hypogonadism.

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

a) Define, classify and explain pathophysiology of hypertension.

b) Outline the types and explain in detail pathophysiology of cancer.

c) Explain pathophysiology of acute and chronic renal failure.

d) Define inflammation. Explain pathophysiology of acute inflammation.

P.T.O.

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

a) Define leprosy and describe signs and symptoms of leprosy.

b) Explain etiology and pathogenesis of hepatitis B.

c) Define and explain pathogenesis of asthma.

d) Write a short note on peptic ulcer.

e) Explain schizophrenia and discuss its signs and symptoms.

f) Discuss pathogenesis of diabetes mellitus.

g) Discuss pathophysiology of Parkinson's disease.

h) Write short note on thalassemia.

i) Define and explain pathogenesis of osteoporosis.

j) Describe etiology and pathogenesis of tuberculosis.

▽▽▽▽

Total No. of Questions : 3]

SEAT No. :

PA-863

[Total No. of Pages : 2

[5940]-3001
S.Y. B. Pharmacy
BP301T : PHARMACEUTICAL ORGANIC CHEMISTRY - II
(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

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

Q1) Answer any five (3 marks each): **[15]**

a) Write medicinal uses of phenanthrene.

b) Differentiate fats and oils.

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

d) Draw resonating structures of following.

i) Benzoic acid

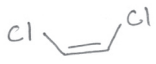
ii) Aniline

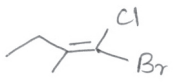
iii) Phenol

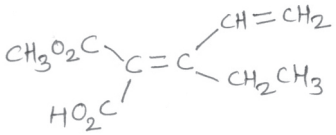
e) Describe any one method to determine Reichert Meissl (RM) value with its significance.

f) Explain significance of & reactions of hydrolysis and hydrogenation of oils and fats.

g) Assign E/Z configuration.

i) 

ii) 

iii) 

P.T.O.

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

a) What are phenols? Explain acidity of phenols. Write any three methods of preparation and three reactions of phenols.

b) What is aromatic electrophilic substitution reaction? Mention any three types. Write down the mechanism of Friedel Crafts Alkylation.

c) Explain diazotization reaction of aromatic amine in detail along with various products.

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

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

a) Hydroxyl group is ortho-para director. Explain.

b) Explain the effect of amino and chlorine substituent on bromination of benzene.

c) Discuss the stability of cycloalkanes.

d) Write synthesis and chemical reactions of Naphthalene.

e) Give any two reactions of cyclopropane & cyclobutane.

f) Explain preparation methods of amines.

g) Explain Sandmeyer reaction in detail along with various products.

h) Define meso compounds with suitable examples.

i) Write structure, synthesis and medicinal uses of Naphthalene.

j) Explain structure, synthesis and medicinal uses of Diphenylmethane.

Total No. of Questions : 3]

SEAT No. :

PA-864

[Total No. of Pages : 2

[5940]-3002
S.Y. B. Pharmacy
PHYSICAL PHARMACEUTICS - I
(2019 Pattern) (Semester - III) (BP 302 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) ***Neat diagrams must be drawn wherever necessary.***

Q1) Attempt any five. **[5×3=15]**

a) Explain properties of ideal gases.

b) State the Bragg's equation.

c) Explain significance of vander Waal's constants for real gases.

d) State Fick's first law of diffusion.

e) Give pharmaceutical applications of phase diagram of three component systems.

f) Describe Sorensen's pH scale.

g) Write about dielectric constant and dipole moment.

Q2) Answers any two: **[2×10=20]**

a) Explain principles and methods of liquefaction of gases. Write about working of aerosols.

b) Explain Gibb's phase rule. Explain 2 - component system using phase diagrams.

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

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

P.T.O.

Q3) Answers any eight: **[8×5=40]**

a) Polymorphism.

b) One component system.

c) Pharmaceutical & biological buffers.

d) Glass transition temperature.

e) Protein binding.

f) Du Niioy ring method for determination of surface tension.

g) Solute-solvent interactions.

h) Adsorption isotherms.

i) Methods of crystal analysis.

j) Surface free energy.

Total No. of Questions : 3]

SEAT No. :

PA-865

[Total No. of Pages : 2

[5940]-3003
S.Y. B. Pharmacy
BP 303 T : PHARMACEUTICAL MICROBIOLOGY
(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

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

Q1) Attempt any 5 out of 7. **[5×3=15]**

a) Discuss various branches of microbiology.

b) Differentiate between prokaryotes and enkaryotes.

c) Describe various methods used to cultivate anaerobic bacteria.

d) Explain in short clean area classification.

e) Enlist factors affecting microbial spoilage.

f) Give classification of viruses.

g) Distinguish between prebiotics & probiotics.

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

a) Define culture media. Discuss different types of culture media along with its examples.

b) Define sterilization. Enlist different methods of sterilization. Discuss dry & moist heat sterilization.

c) Write in detail identification of bacteria by staining technique.

d) Define microbial assay. Discuss different methods used for microbial assay of antibiotics.

P.T.O.

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

a) How will you identify E. coli as a source of contamination?

b) Write a note on phase contrast microscopy.

c) Explain growth curve of bacteria.

d) Write a note on LAF.

e) Discuss mechanical method of sterilization.

f) Write a note on fungi.

g) Discuss applications of cell culture in pharma industry.

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

i) Discuss various methods adopted for isolation of bacteria.

j) Write a note on sterility indicators.

Total No. of Questions : 3]

SEAT No. :

PA-866

[Total No. of Pages : 2

[5940]-3004
S.Y. B. Pharmacy
PHARMACEUTICAL ENGINEERING
(2019 Pattern) (Semester - III) (BP304T)

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

Instructions to the candidates:

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

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

a) Classify the materials of plant construction. Explain the use of ferrous metals.

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 mechanisms of mixing for liquids.

g) Explain: Elutriation tank.

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

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

d) Describe in detail objectives, applications and mechanisms of heat transfer. Add a note on: Black body and Grey body.

P.T.O.

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

a) Explain the Bernouilli'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 exchangers.

e) Explain principle, construction & 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 & Frame filter.

j) Explain the types of corrosion and their prevention.

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

PA-867 **[Total No. of Pages : 2**

[5940]-4001

S.Y. B.Pharmacy

BP-401T : PHARMACEUTICAL ORGANIC CHEMISTRY - III

(2019 Pattern) (Semester - IV)

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

Instructions to the candidates :

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

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

a) Write conditions for optical activity.

b) Give any three reactions for Furan.

c) Draw the following heterocycles with numbering.

i) Benzthiazole.

ii) Thiazole.

iii) Pyridine.

d) Write stereospecific & stereoselective reactions.

e) Discuss two methods for synthesis of Oxazole.

f) Draw the resonance structure of Pyrrole and & Pyrazole.

g) Give the structure & medicinal uses of Acridine.

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

a) Discuss in detail the conformational isomerism is cyctohexane.

b) Give methods of synthesis & reactions of Thiophene.

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

d) Elaborate method of synthesis, reactions & medicinal uses of Quinoline.

P.T.O.

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

a) Write Chemistry & Synthesis of Pyrrole.

b) Asymmetric Synthesis.

c) Comment on conformational isomerism in n-butane.

d) Discuss the stereoisomerism in biphenyl compounds. Write it's significance.

e) Write in detail on aromaticity in Pyridine.

f) Describe method of synthesis & chemical reactions of Isoquinoline.

g) Discuss the mechanism & synthetic application of Hofmann rearrangement.

h) What is Dakin reaction? Give its application.

i) Discuss synthesis & medicinal uses of Pyrimidine.

j) Explain in detail Schmidt rearrangement.

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

PA-868 **[Total No. of Pages : 2**

[5940]-4002

S.Y. B.Pharmacy

BP-402T : MEDICINAL CHEMISTRY - I

(2019 Pattern) (Semester - IV)

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

Instructions to the candidates :

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

Q1) **Answer <u>any Five</u> questions out of Seven questions :** **[5 × 3 = 15]**

a) Explain in brief importance of Partition Coefficient in relation to biological action.

b) Discuss how drugs with esters/amide class under go metabolism.

c) Outline the synthesis of Tolazoline.

d) Discuss SAR & MOA of aniline derivatives as analgesics.

e) Explain with examples irreversible Cholinesterase enzyme inhibitors.

f) Explain the SAR & MOA of Methadone derivatives.

g) Discuss Chemistry of solanaceous alkaloids as anti muscarinic agents.

Q2) **Answer <u>any Two</u> questions out of Four questions :** **[2 × 10 = 20]**

a) Write a note on Biosynthesis and Metabolism of Catecholamines. Explain SAR & MOA of Beta Blockers with examples.

b) What is epilepsy? Classify anticonvulsants with examples. Discuss GABA analogs as anticonvulsants.

c) Explain classification of opioid analgesics. Explain SAR and therapeutic uses of Mepiridine analogs.

d) Define Metabolism, Enlist factors affecting Metabolism. Discuss Phase II reactions with examples.

P.T.O.

Q3) **Answer <u>any Eight</u> questions out of Ten questions :** **[8 × 5 = 40]**

a) Write a note on importance of stereo chemistry in drug action.

b) Discuss in detail Alpha Adrenergic antagonist.

c) Write a note on mixed action Sympathomimetic drugs with examples.

d) Classify Cholinergic receptors and their distribution. Elaborate on Chemistry of Acetyl Choline analogs.

e) Discuss SAR & MOA of Atypical anti psychotics.

f) Outline synthesis of Halothane and give its MOA.

g) Explain SAR of amino alcohol and amino alcohol ethers as muscarinic antagonist. Add their therapeutic uses.

h) Explain SAR & MOA of aryl acetic acid derivatives (Indo methacin).

i) Explain the MOA of Neostigmine and outline the synthesis.

j) Discuss the Butyro Phenone derivatives with examples.

Total No. of Questions : 3]

SEAT No. : ____

PA-869

[Total No. of Pages :2

[5940]-4003
Second Year B. Pharmacy
BP403T : PHYSICAL PHARMACEUTICS - II
(2019 Pattern) (Semester - IV)

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

Instructions to the candidates :

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

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

a) Differentiate between lyophilic and lyophobic colloids.

b) Write equation and application of Heckel equation.

c) Define and give an example of the required HLB.

d) Define half-life and shelf life of reaction.

e) Define porosity and write it's applications.

f) Explain the pharmaceutical importance of particle size determination.

g) What is a gold number and give it's example?

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

a) Write short notes on non-Newtonian types of flow.

b) Describe optical and electric properties of colloidal dispersion.

c) Discuss the method used for the determination of the order.

d) What is the specific surface area of powder and write methods for determination of it?

P.T.O.

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

a) Instability of lyophilic colloids.

b) Suspending agents.

c) Coulter counter method.

d) Stability study of pharmaceutical products.

e) Half-life and shelf life of zero order reaction.

f) Ture density of the powder.

g) Instability of suspension.

h) Thixotropy.

i) Particle size distribution.

j) Emulsion theories.

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Total No. of Questions : 3]

SEAT No. :

PA-870

[Total No. of Pages :2

[5940]-4004
Second Year B. Pharmacy
BP404T : PHARMACOLOGY - I
(2019 Pattern) (Semester - IV)

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

Instructions to the candidates :

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

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

a) Define agonist, antagonist & partial antagonist.

b) Classify sedative & hypnotics.

c) Explain why levodopa is combined with carbidopa.

d) What is the enteric nervous system?

e) Explain enzyme induction and enzyme inhibition with example.

f) What do you mean by clinical trials? Enlist phases of clinical trials.

g) Give therapeutic uses of atropine

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

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

b) Classify sympatholytics .Write mechanism of action, pharmacological action, adverse effects and uses of propranolol.

c) Discuss the pharmacology of Parkinson's diseases.

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

P.T.O.

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

a) Write MOA, Adverse Effects and Clinical uses of Aspirin.

b) Write about process of development of new drug.

c) Explain factors affecting drug absorption.

d) Write a brief note on drug interaction.

e) Define & classify sympathomimetics. Write a note on amphetamines.

f) Organophosphate poisoning.

g) Enlist various neurotransmitters of CNS & explain neurohumoral transmission.

h) Define antidepressants & write uses, adverse effects of tricyclic antidepressants.

i) Define general anesthetics & explain pre-anesthetic medication.

j) Write a note on various receptors.

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Total No. of Questions : 3]

SEAT No. : ____

PA-871

[Total No. of Pages :2

[5940]-4005

Second Year B. Pharmacy

BP 405T : PHARMACOGNOSY AND PHYTOCHEMISTRY - I

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

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

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Draw neat labelled diagram.***
3) ***Figures to the right indicate full marks.***

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

a) Write the biological source, chem. constituents and applications of Jute and Hemp.

b) Add a note on coppicing and felling method.

c) Define and classify natural allergens.

d) Differentiate between organised and unorganised drugs with examples.

e) Explain the growth curve of plant tissue culture.

f) What is micropropagation?

g) Describe plant fruit anatomy with a neat diagram.

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

a) Define and classify alkaloids. Explain chemical tests for alkaloids.

b) Give historical development of PTC. Classify and explain various types of cultures.

c) Define and classify lipids. Explain general methods of extraction. Describe extraction of shark liver oil.

d) Explain role of secondary metabolites in plants. Differentiate between primary and secondary metabolites.

P.T.O.

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

a) Explain in detail polyploidy and mutation techniques in medicinal plants.

b) Classify various marine drugs and explain anticancer drugs of marine origin.

c) Explain in detail foaming index.

d) Enlist plant hormones with their applications.

e) Describe various types of adulteration.

f) Describe general anatomy and morphology of subterranean organs.

g) Explain in detail lycopodium spore method.

h) Classify crude drugs and explain pharmacognosy of any one crude drug.

i) Write a note on abscisic acid and gibberlins. Give their functions.

j) Explain ash values and their significances.

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Total No. of Questions : 3]

SEAT No. :

PA-872

[Total No. of Pages :2

[5940]-5001
Third Year B. Pharmacy
BP 501T : MEDICINAL CHEMISTRY - II
(2019 Pattern) (Semester - V)

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

Instructions to the candidates :

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

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

a) Write a note on gastric proton pump inhibitors.

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

c) Write mechanism of action & medicinal applications of chlorpheniramine.

d) Discuss in detail HMG CO - A 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 2)** **[2 × 10 = 20]**

a) What are estrogens? Classify them with examples. Give SAR of estrogens. Give therapeutic uses of estrogens

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

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

d) Classify anti hypertensive agents with suitable examples. Give SAR & MOA of calcium channel blockers.

P.T.O.

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

a) Explain in detail prostaglandins.

b) Write mechanism of action & medicinal applications of Isobarbide dinitrate & captopril.

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

d) Outline the synthetic scheme of

i) Cetirizine

ii) Promethazine

e) Explain in brief - oral contraceptives.

f) Classify anti-arrhythmic agents with suitable examples.

g) Discuss in brief oral hypoglycemic agents with examples.

h) Explain in brief local anaesthetics.

i) Elaborate development of H_2 antagonists.

j) Classify corticosteroids in detail

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Total No. of Questions : 3]

SEAT No. :

PA-873

[Total No. of Pages :2

[5940]-5002
Third Year B. Pharmacy
BP 502T : INDUSTRIAL PHARMACY - I
(2019 Pattern) (Semester - V)

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

Instructions to the candidates :

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

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

a) Explain the mechanism of wet granulation and in detail high shear granulator and fluidized bed granulator.

b) Discuss in detail formulation development of hard gelatin capsule, standards & defects thereof . Explain the volumetric and dosalor principle in capsule filling.

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

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

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

a) Define biphasic dosage form. Explain stability consideration of biphasic dosage form.

b) What are type A and type B gelatin?

c) Explain different types of aerosol system.

d) Write a note on quality control of aerosol system.

e) Describe controlled flocculation in structured vehicle.

f) Discuss formulation of soft gelatin capsules.

P.T.O.

g) Write a note on Lipsticks.

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

i) Explain importance of base adsorption in softgels.

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

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

a) Cold cream.

b) Sugar coating.

c) Directly compressible excipients with their trade names.

d) Evaluation of opthalmic preparations.

e) Sunscreens and SPF.

f) Types of opthalmic dosage form.

g) IPQC test of capsules as per I.P.

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Total No. of Questions : 3]

SEAT No. :

PA-874

[Total No. of Pages :2

[5940]-5003
Third Year B. Pharmacy
BP 503T : PHARMACOLOGY - II
(2019 Pattern) (Semester - V)

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

Instructions to the candidates :

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

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

a) Justify the role of diuretics in the treatment of congestive heant failure.

b) Write mechanism of action of ACTH.

c) Enlist the hormones secreted by Anterior pituitary with phystoluogied role.

d) Define and classify and thyroid drugs.

e) Explain mechanism of action and therapeutics uses of vasopressin.

f) Classify anti histaminics with examples.

g) Classify and coagulant. Write mechanism of actions of warfarin.

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

a) Discuss biosynthesis, mechanism of action, pharmacological actions and therapeutic uses of estrogen.

b) Write advantages, disadvantages and types of the bioassay. Add a note on bioassay of insulin.

c) Classify oral hypoglycaemic agents. Explain pharmacotherapy of type 2 diabetes.

d) Classify NSAIDs and write pharmacological details of Aspirin.

P.T.O.

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

a) Explain the role of gonadotropins in male.

b) Write note on sulfasalazines.

c) Define and classify the drug acting on uterus.

d) Write a note on β - blockers.

e) Write a note on corticosteroids.

f) Write mechanism, adverse effect and uses of diltiazem, verapamile and nifedipine?

g) Explain pharmacology of thiazide diuretics?

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

i) Classify antianginal drug. Describe the therapeutic utility of vasodilators in angina pectoris.

j) Justify combination of statins and resins to treat hyperlipidemia.

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Total No. of Questions : 3]

SEAT No. :

PA-875

[Total No. of Pages : 2

[5940]-5004

Third Year B. Pharmacy

PHARMACOGNOSY AND PHYTOCHEMISTRY - II

(2019 Pattern) (Semester - V) (BP504T)

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

Instructions to the candidates :

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

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

a) Define secondary plant metabolite with suitable examples.

b) Give botanical source and Chemical Constituent of Tea.

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

d) Write identification test for Sennoside.

e) Give chemical constituents and uses for Liquorice.

f) Utilization of Vinca alkaloids.

g) Write the applications of Microwave assisted extraction.

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

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

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

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

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

P.T.O.

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

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

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

c) Write the isolation and estimation of Glycyrhetenic acid.

d) Explain the industrial production and uses of Artemisinin.

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

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

g) Write the isolation and identification of Curcumin.

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

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

j) Explain with a neat labeled microscopic diagram of Fennel

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Total No. of Questions : 3]

SEAT No. :

PA-876

[Total No. of Pages : 2

[5940]-5005

Third Year B. Pharmacy

PHARMACEUTICAL JURISPRUDENCE (Theory)

(2019 Pattern) (Semester - V) (BP505T)

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

Instructions to the candidates :

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

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

a) What is opposition to grant of patent. Enlist criteria?

b) Write the qualification and duties of drug inspector.

c) What are schedule J and Y?

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

e) Differentiate between State pharmacy council and Joint state pharmacy council.

f) What is illicit traffic?

g) What is product patent?

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

a) What are salient features of intellectual property? Explain various types of intellectual property.

b) 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.

c) Discuss in detail the objectives and salient features of Drugs and Magic Remedies Act and Rules 1976.

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

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

a) Write short note on loan license.

b) Prohibited class of advertisements as per Drugs and Magic Remedies Act.

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

d) What is Patent infringement? Explain its significance.

e) Explain Non-bonded Manufactory.

f) Write requirements of drug store as per D & C Act 1940.

g) Pharmaceutical code of ethics.

h) Write short note on Schedule M.

i) Exclusive marketing right.

j) Discuss about Animal Welfare Board of India and experimentation of animals according to prevention of cruelty to Animals Act, 1960.

Total No. of Questions : 3]

SEAT No. : [ ]

PA-877

[Total No. of Pages : 2

[5940]-6001

T.Y.B. Pharmacy

MEDICINAL CHEMISTRY-III

(Semester-VI) (BP601T) (2019 Pattern)

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 makrs.***
3) ***Draw neat diagrams and structures wherever necessary.***

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

a) Define and classify anti-neoplastic agents.

b) Define and classify antimalarial agents.

c) What are beta-lactam antibiotics? Classify beta lactam antibiotics.

d) Define and classify macrolide antibiotics.

e) Enlist various physico-chemical parameters used in QSAR.

f) Define and classify anthelmintic drugs.

g) Fill in the blank

i) Penicillins are group of antibiotics originally obtained principally from _____ and _____ penicillium mold

ii) Tuberculosis (TB) is an infection disease usually caused by_____ bacteria.

iii) Malaria is caused by single-called micro-organism of plasmodium group. It is spread exclusively through bites of infected_____ according to a 2014 WHO fact sheet.

P.T.O.

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

a) Describe the chemistry, SAR and MOA of Quinolones anti-infective agents.

b) Define and classify antifungal agents and describe the SAR and MOA of anti fungal azoles.

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

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

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

a) Draw the scheme of synthesis for ciprofloxacin.

b) Write a note on tetracycline antibiotics.

c) Discuss SAR of quinolines antimalarials.

d) Explain chemistry and MOA of anthelmintic drugs.

e) Write a note on anti-protozoal agents.

f) Discuss Hansch QSAR analysis and Ferguson principle.

g) Draw the scheme of synthesis for isoniazid.

h) Write a note on aminoglycoside antibiotics.

i) Write a note on antiviral : DNA virus inhibitor agents.

j) Explain chemistry, MOA of plant products use as anticancer agents.

Total No. of Questions : 3]

SEAT No. : [ ]

PA-878

[Total No. of Pages : 2

[5940]-6002

T.Y.B. Pharmacy

BP 602T : PHARMACOLOGY - III

(2019 Pattern) (Semester - VI)

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

Instructions to the candidates:

1) ***All questions are compulsory, 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). **[15]**

a) Define & classify Analeptics.

b) Classify Antiemetics with MOA of ondansetron.

c) Write clinical symptoms and management of barbiturate poisoning.

d) Define leprosy. Classify antileprotic drugs.

e) Elaborate the term chemotherapy and antibiotics with example.

f) What is COPD? Enlist drug used in treatment of COPD.

g) Define Laxative. Classify drugs used for constipation.

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

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

b) Write a note on general principles of treatment of poisoning.

c) Classify cephalosporin. Write Mechanism of Action, adverse effect and uses of cephalosporin.

d) What is T.B.? Classify antitubercular drugs and give MOA, pharmacological action, adverse effect & therapeutic uses of isoniazid in details.

P.T.O.

Q3) Short answer question (Answer 8 out of 10). **[40]**

a) Classify antiviral drugs with side effects & uses of Acyclovir.

b) Write a note on Expectorants.

c) Give rational use of antibiotics.

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

e) Wriet a note on 420 oral acute toxicity studies in rodant.

f) Explain in detail genotoxicity.

g) Classify antifungal drugs and give adverse effect & therapeutic uses of amphotericin B.

h) Write a short note on pharmacotherapy of diarrhoea.

i) Give detail account on cancer chemotherapy.

j) Classify immunostimulant & give MOA of any one drug.

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Total No. of Questions : 3]

SEAT No. : ____

PA-879

[Total No. of Pages : 2

[5940]-6003

T.Y. B. Pharmacy

BP603T : HERBAL DRUG TECHNOLOGY

(2019 Pattern) (Semester - VI)

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

Instructions to the candidates:

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

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

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

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

c) Describe in Proanthocyanidins as Nutraceuticals.

d) ICH guidelines for stability of herbal drugs.

e) Write a note on natural binders and disintegrants.

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

g) Write a note on Ashwagandha as Nutraceutical.

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

a) Define Bhasma. Explain in detail method of preparation and evaluation of Bhasma.

b) Give sources and description of raw materials for hair cosmetics. Explain preparation and evaluation of hair cosmetic preparation.

c) Classify the nutraceuticals with e.g. Describe omega 3 fatty acid and Resveratrol as Nutraceutical.

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

P.T.O.

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

a) Explain basic principles involved in Ayurveda.

b) Explain preparation and evaluation of Asava and Aristha.

c) Describe Guidelines for Good Agriculture and Collection Practices for Medicinal plants.

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

e) Elaborate on scope of Herbal Drug Industry.

f) Schedule T.

g) Write a note on Homeopathic system of medicine.

h) Describe natural sweeteners.

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

j) Write a note on Churna.

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Total No. of Questions : 3]

SEAT No. : [ ]

PA-880

[Total No. of Pages : 2

[5940]-6004

T. Y. B. Pharmacy

BP 604T : BIOPHARMACEUTICS AND PHARMACOKINETICS

(2019 Pattern) (Semester-VI)

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

Instructions to the candidates:

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

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

a) What are different pathways of drug absorption?

b) Give the reasons for higher solubility and better dissolution of salt forms of drug.

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

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

e) Enlist the components of blood to which drug binds.

f) Define & Differentiate absolute and relative bioavailability.

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

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

a) Enlist various factors affecting absorption and explain in detail pharmaceutical factors affecting absorption of drug from GIT.

b) Explain the concept of BCS. Give it significance and add note on BDDCS.

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

d) What is compartmental modeling? Explain one compartmental open model for i.v. bolus administration of the drug.

P.T.O.

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

a) Define and Explain in short -MRT, AUC.

b) Enlist various methods to estimate absorption rate constant (ka) after oral administration.

c) Explain the design for one compartmental open model for the zero-order i.v. infusion.

d) Differentiate between active transport and a faciliated diffusion?

e) What are the factors that influence passive re-absorption of drugs the renal tubules?

f) What is Non-Linear Pharmacokinetics? Explain Michaelis Menten equation and determination of V_{max} and K_m.

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

h) Why drugs are better absorbed from small intestine? Explain.

i) What are the possible mechanisms of enzyme induction and enzyme inhibition?

j) Define absorption of drug. Discuss influence of Physicochemical properties of drug on absorption.

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Total No. of Questions : 3]

SEAT No. : [ ]

PA-881

[Total No. of Pages : 2

[5940]-6005

T.Y. B. Pharmacy

BP605T : PHARMACEUTICAL BIOTECHNOLOGY

(2019 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.***

Q1) Answer 5 out of 7 : **[5×3=15]**

a) Highlight use of microbes in industry.

b) What is protein engineering?

c) Explain applications of genetic engineering.

d) Illustrate applications of biosensors in pharmaceutical industries.

e) Discuss basic steps involved in recombinant DNA technology.

f) Discuss aeration process used in fermentation.

g) Describe the principle of southern blotting.

Q2) Answer 2 out of 4 : **[2×10=20]**

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

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

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

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

P.T.O.

Q3) Answer 8 out of 10 : **[8×5=40]**

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

b) Explain the methods of enzyme immobilization.

c) Write a note on restriction endonuclease and DNA ligase.

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

e) Describe structure and function of MHC.

f) Write a note on microbial biotransformation.

g) Outline preparation of toxoids.

h) Explain structure of immunoglobulin.

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

j) Write a note on ELISA.

Total No. of Questions : 3]

SEAT No. :

PA-882

[Total No. of Pages : 2

[5940]- 6006
T. Y. B. Pharmacy
BP 606T :PHARMACEUTICAL QUALITY ASSURANCE
(2019 Pattern) (Semester - VI)

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

Instructions to the candidates:

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

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

a) Comment on "Validation is an essential part of GMP practice".

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) State importance of NABL accreditation.

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

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

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

a) Define Total Quality. Give the basic concept, objectives and principles of TQM.

b) Who are the key personnel in pharmaceutical industry? Provide requirements of organization and personnel as per GMP.

c) State importance of distribution record. Discuss the principles and process of product recall in a pharmaceutical industry.

d) Discuss the concept of Batch maufacturing record (BMR/BPCR) with suitable formats.

P.T.O.

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

a) What are QA and QC? Differentiate QA and QC.

b) Explain URS and IQ.

c) Write a note on prospective Validation.

d) Explain linearity and range with respect to analytical method validation.

e) What does USFDA regulates?

f) Give a brief overview of ICH stability testing guidelines.

g) Discuss the concept of QbD with elements of QbD program.

h) Design a plant layout of pharmaceutical industry considering manufacturing of tablet dosage form.

i) Write a note on Environmental control in sterile areas.

j) Describe process of selection and purchase of equipment for pharmaceutical manufacturing.

Total No. of Questions : 3]

SEAT No. :

PA-883

[Total No. of Pages : 2

[5940]-7001

Fourth Year B. Pharmacy

BP701T : INSTRUMENTAL METHODS OF ANALYSIS

(2019 Pattern) (Semester - VII)

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

Instructions to the candidates:

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

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

a) Explain the term chromophore and Auxochrome with suitable example.

b) Discuss the concept of adsorption and partition chromatography.

c) Discuss the advantages of HPTLC over TLC.

d) Explain the concept of singlet and triplet electronic state.

e) Write the principle involved in ion exchange chromatography.

f) Discuss the importance of temperature programming in GC.

g) Describe the importance of term retention factor and retention time in detail.

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

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

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

c) Explain the phenomenon of fluorescence and phosphorescence with the help of neat labelled diagram. Discuss the factors affecting the phenomenon of fluorescence.

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

P.T.O.

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

a) Draw a neat labeled diagram of fluorimeter and explain the functioning of each part.

b) Discuss the various development techniques used in.

   i) Paper chromatography

   ii) Thin layer chromatography

c) Write a note on:

   i) Columns in GC

   ii) System suitability parameters

d) Write a note on:

   i) Affinity chromatography

   ii) Column chromatography

e) Discuss the construction and working of double beam UV-Visible spectrophotometer.

f) State Beer-Lamert's Law and explain the deviations leading from it.

g) Give a brief account on Nepheloturbidometry.

h) Discuss the instrumentation of AAS.

i) Write a note on

   i) Multi component method of analysis.

   ii) Quenching of fluorescence.

j) Discuss in detail various types of electronic transitions in UV-Visible spectrophotometry.

Total No. of Questions : 3]

SEAT No. : ____

PA-2609

[Total No. of Pages : 2

[5940]-7002

Final Year B. Pharmacy

INDUSTRIAL PHARMACY - II

(2019 Pattern) (Semester - VII) (BP702T)

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

a) What is technology transfer? Explain granularity of tech 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) Short Answers (Answer 8 out of 10): **[8×5=40]**

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

b) What is technology transfer?

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

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

e) What is the certification process in accordance with ISO 9001?

f) Explain the organization and functions of CDSCO.

g) What is GLP and discuss the same.

h) Explain the concepts of six sigma for Quality Improvement.

i) What is clinical research protocols and data presentation?

j) Write short note on various phases of clinical trials.

✈ ✈ ✈

Total No. of Questions : 3]

SEAT No. :

PA-884

[Total No. of Pages : 2

[5940]- 7003
Fourth Year B. Pharmacy
BP703T : PHARMACY PRACTICE
(2019 Pattern) (Semester - VII)

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

Instructions to the candidates:

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

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

a) Comment on benificial drug- drug interactions.

b) List advantages of hospital formulory system.

c) Enlist the responsibilities an functions of hospital pharmacist.

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

e) Summarize the risk factors for drug interactions.

f) Describe the organizational structure of hospital pharmacy.

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

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

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

b) Discuss in detail the organization and functions of pharmacy and therapeutic committee.

c) Enlist the objectives of drug store and discuss the layout, types of material stocked and storage conditions for different material in drug store.

d) Explain the drug therapy monitoring by clinical pharmacist.

P.T.O.

Q3) Short answers (Any 8 out of 10) **[40]**

a) Explain pharmacokinetic type of drug interactions with examples.

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

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

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

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

f) Discuss role and responsibilities of community pharmacist.

g) Comment on arrangement of drugs in drug store.

h) Describe the stages of patient counseling.

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

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

Total No. of Questions : 3]

SEAT No. :

PA-2619

[Total No. of Pages : 2

[5940]-7004

Final Year B.Pharmacy

NOVEL DRUG DELIVERY SYSTEM

(2019 Pattern) (Theory) (Semester - VII) (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 Five out of Seven) **[5×3=15]**

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

b) Explain different ideal properties of bioadhesive polymers.

c) Define and compare, active and passive targetting?

d) Classify Liposome according to structure?

e) Describe nanoparticals along with their general properties.

f) What are the disadvantages of conventional occular drug delivery system.

g) What is targetted drug delivery? Give its application.

Q2) Answer in detail (Ans Two out of four) **[2×10=20]**

a) Discuss in detail types of occular drug delivery system?

b) Explain preparation and application of monoclonal Antibodies?

c) Explain in detail different methods for formulation of TDDS along with evaluation?

d) Explain in detail formulation & evaluation of nanoparticles.

P.T.O.

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

a) Explain the different barrier in occular drug delivery.

b) What are advantages and disadvantages of inplantable drug delivery system.

c) Explain the different theories of mucoadhesion.

d) Write a short note on biodegradable polymers.

e) Explain controlled and sustained drug delivery in detail.

f) Explain metered dose inhaler (MDI)

g) Explain glass transition temperature and TGA of polymer.

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

i) What are ion exchange resins. Give their mechanism.

j) Write short note on evaluation properties of niosomes.