Total No. of Questions : 3]

SEAT No. : ____

PC-2095

[Total No. of Pages : 2

[6372]-124
S.Y. B.Pharmacy
PHARMACEUTICAL ORGANIC CHEMISTRY - II
(2019 Pattern) (Semester - III) (BP301T)

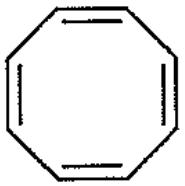
Time : 3 Hours] ***[Max. Marks : 75***

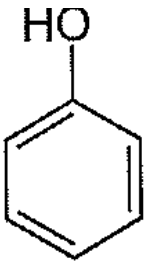
Instructions to the candidates :

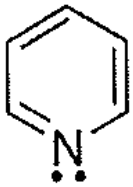
1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

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

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

1. 

2. 

3. 

b) What are cycloalkanes?

c) Comment on effect of substituents on acidity of Phenol.

d) Define rancidity? Give its significance.

e) Draw the structure of naphthalene, anthracene,triphenylmethane.

f) Define Aromaticity with suitable example..

g) Write any three methods of preparation of Amines.

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) Explain the stability of cycloalkanes in details.

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

P.T.O.

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

a) Write structure, reactions, synthesis of Phenanthrene.

b) Explain Friedel-Craft's alkylation

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

d) Explain stability of cycloalkanes.

e) Write effect of substituents on basicity of amines.

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

g) Explain aryl diazonium salts with uses.

h) Explain methods of determination of configuration of geometrical isomers.

i) Write general methods of preparation of phenols. Write uses of phenol.

j) Explain Sandmeyer Reaction in detail along with various products.

Total No. of Questions : 3]

SEAT No. :

PC2096

[Total No. of Pages :2

[6372]-125

S.Y.B. Pharmacy

BP - 302T : PHYSICAL PHARMACEUTICS - I

(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

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

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

a) Define polymorphism & Pseudopolymorphism. Explain the different types of Polymorphism, and the various detection techniques in detail.

b) How aerosols are working? Classify aerosols, add about advantages and disadvantages of aerosols.

c) Recall various solubility terms, write their significance in pharmacy.

d) How complexes are important? Explain solubility method and pH titration method of complex analysis in detail.

e) State the phenomena of wetting and detergency.

f) Summarize HLB values using suitable diagram, mentioning their significance.

g) Explain Eutectic mixtures with suitable example.

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

a) Define Surface tension. Explain the principle involved in determination of Surface Tension by the capillary rise method. Give its limitations.

b) Define solubility. Explain the various factors affecting the solubility of drugs in solids, liquids & gases.

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

d) Define and derive Raoult's law. Explain in detail the positive and negative deviations of Raoult's law along with its applications and limitations.

P.T.O.

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

a) Interpret the phase diagram of the phenol water system.

b) Justify the principle of liquefied propellant systems in aerosols.

c) List and explain applications of dissociation constants in pharmacy.

d) Illustrate glass transition temperature.

e) Explain Freundlich & Langmuir's adsorption isotherms.

f) List and explain in brief, significance of biological buffers.

g) Name and describe factors affecting the solubility of gases in liquids.

h) Elaborate on colligative properties.

i) State & explain Nernst Distribution Law along with its limitations.

j) Define various terms used to express solubility as per IP.

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Total No. of Questions : 3]

SEAT No. : ____

PC-2097

[Total No. of Pages : 2

[6372]-126
S.Y. B.Pharmacy
BP303T : PHARMACEUTICAL MICROBIOLOGY
(2019 Pattern) (Semester - III)

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

Instructions to the candidates :

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

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

a) Draw a neat and labeled diagram of HI V.

b) Define culture media. Enlist different types of culture media.

c) Define D value and give its significance.

d) Discuss the principle of Gram staining technique.

e) Enlist different types of spoilage.

f) Discuss general procedure to carry out cell culture.

g) How will you assess a new antibiotic?

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

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

b) Define sterilization. Enlist different methods used for sterilization, Explain moist heat sterilization in detail.

c) Define TVC. Discuss different methods of cell enumeration.

d) Define Microbial assays. Discuss different methods used to perform microbial assays.

P.T.O.

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

a) Write a note on multiplication of human virus.

b) Write a note on sterility indicators.

c) Discuss different factors affecting microbial spoilage of pharmaceutical products.

d) Write a note on Fungi.

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

f) How will you perform sterility testing of WFI?

g) Write a note on challenge test.

h) How will you calculate Rideal walker coefficient for cresol?

i) Write a note on cell culture.

j) How will you perform microbiological assay of vitamins?

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Total No. of Questions : 3]

SEAT No. : ____

PC-2098

[Total No. of Pages : 2

[6372]-127

S.Y. B. Pharmacy

BP-304T : Pharmaceutical Engineering

(2019 Pattern) (Semester - III)

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

Instructions to the candidates :

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

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

a) Define evaporation. How does it differ from drying? Classify types of evaporators.

b) Explain in short various mechanisms of filtration.

c) State the principle of cyclone separator.

d) State the applications of centrifugation ?

e) Define size reduction. What are its objectives?

f) Explain distillation under reduced pressure with its applications.

g) What is corrosion? Give methods to combat corrosion.

Q2) **Attempt anyTWO of the following:** **[20]**

a) Explain the construction, working and applications of spray dryer.

b) Explain heat transfer between fluid and solid boundary.

c) Describe Bernoulli's theorem with its applications.

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

P.T.O.

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

a) Explain the principle, construction and working of orifice meter.

b) Explain the concepts of HETP and HTU with respect to packed column for fractional distillation.

c) Explain the fluid energy mill.

d) Describe ferrous metal as meterial for plant construction.

e) Explain sigma blade mixer.

f) Write a short note on : Mechanisms and laws governing size reduction.

g) Explain Principle, construction & working of sieve shaker.

h) Define mixing. What are its objectives? Discuss factors affecting mixing.

i) Define drying. Explain objectives of drying with suitable examples.Add a note of phases of drying curve.

j) With the help of a digram explain filter leaf.

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Total No. of Questions : 3]

SEAT No. : [ ]

PC-2099

[Total No. of Pages : 2

[6372]-128

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) Discuss conditions for optical activity.

b) Draw the following heterocycles with numbering

i) Benzthiazole

ii) Thiazole

iii) Pyridine

c) Discuss two methods for synthesis of oxazole.

d) Give the structure and medicinal uses of Acridine.

e) What is hetero atom'? Name the compounds containing 3 hetero atoms.

f) Describe any three reactions of Quinoline.

g) Chair conformation of cyclohexane is more stable than boat conformation. Why?

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

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

b) Discuss reaction, mechanism and applications of benzilic acid rearrangement and Pinacol-Pinacolone rearrangement reaction.

c) Elaborate method of synthesis, reactions and medicinal uses of Imidazole.

d) Describe various method of resolution of racemic mixture.

P.T.O.

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

a) Describe chemistry and synthesis of Pyrrole.

b) Comment on conformational isomerism in n-butane.

c) Discuss the stereoisomerism in biphenyl compounds. Write its significance.

d) Discuss the mechanism and synthetic application of Beckman rearrangement.

e) Explain Paal-knorr synthesis of Pyrrole.

f) Discuss in detail on aromaticity in Pyridine.

g) Describe method of synthesis and chemical reactions of Isoquinoline.

h) Discuss the mechanism and synthetic application of Hofmann rearrangement.

i) Explain Stereospecific and stereoselective reactions.

j) What is Dakin reaction? Give its application.

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Total No. of Questions : 3]

SEAT No. :

PC-2100

[Total No. of Pages : 2

[6372] - 129
S.Y. B. Pharm
BP402T: Medicinal Chemistry - I
(2019 Pattern) (Semester - IV)

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

Instructions to the candidates:

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

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

a) Explain the effect of hydrogen bonding on biological action of drugs.

b) Explain biosynthesis and catabolism of Acetylcholine.

c) Describe the different factors affecting metabolism.

d) Sketch out synthetic route for Salbutamol.

e) Discuss chemistry and Mechanism of Action (MOA) of Phenobarbitone and Mephobarbital as anticonvulsant agents.

f) Discuss the chemistry and MOA of Phenothiazine and its derivatives as antipsychotic.

g) Explain the chemistry and MOA of Salicylic acid derivatives as Anti-inflammatory agents.

P.T.O.

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

a) Define and give classification of sedatives and hypnotics with examples. Discuss in detail chemistry and Structure Activity Relationship (SAR) of Benzodiazepines. Outline the synthesis of Diazepam.

b) Define narcotic analgesics and explain in detail SAR and MOA of Morphine analogues. Outline the synthesis of Fentanyl citrate.

c) Define and classify cholinergic blocking agents. Explain in detail SAR of cholinolytic agents. Sketch out synthetic route for Mefenamic acid.

d) Explain in detail SAR of direct acting sympathomimetic agents. Discuss chemistry, MOA and uses of Clonidine and Methyldopa.

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

a) Elaborate on chemistry, MOA and uses of pyrazolone and propionic acid derivatives as anti-inflammatory agents.

b) Elaborate on chemistry, MOA and uses alpha adrenergic blockers.

c) What is drug metabolism? Discuss in detail Phase I reactions of metabolism.

d) Give detail account on chemistry, mechanism of action and uses of Parathion and Malathion.

e) Write down synthesis and uses of Halothane and Ketamine Hydrochloride.

f) Discuss chemistry, MOA and uses of Ephedrine and Amphetamine.

g) Write synthesis and uses of Phenylephrine and Propranolol.

h) Explain chemistry, MOA and SAR of Carbachol and Bethanechol. Add a note on cholinesterase reactivator.

i) Give an account on chemistry, MOA and uses of Tropicamide and Cyclopentolate HCl.

j) Write a note on Flurobutyrophenones as Antipsychotics.

Total No. of Questions : 3]

SEAT No. : ____

PC2101

[Total No. of Pages : 2

[6372]-130

S.Y. 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) ***Neat labeled diagrams must be drawn wherever necessary.***
3) ***Figures to the right indcate full marks.***

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

a) Enlist applications of colloids in Pharmaceuticals.

b) What is meant by Bingham bodies?

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

d) Explain working of “Cone and Plate viscometer,”

e) Write note on accelerated stability studies.

f) Mention optical properties of colloids.

g) Differentiate between flocculated and deflocculated suspensions.

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

a) Enlist and explain methods for particle size analysis.

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

c) Derive rate constant equation for zero order reaction along with its half-life and shelf-life.

d) What are suspensions? Describe formulation of suspensions. Add notes on theory of sedimentation.

P.T.O.

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

a) Define order of reaction and molecularity of reaction.

b) Classify type of flow. Explain pseudoplastic flow.

c) Write a note on Kinetics and Optical properties of Colloids

d) Write note on “Thixotropy in pharmaceutical formulation”.

e) Explain derived properties of powders.

f) Write principle and working of Ostwald viscometer.

g) Explain particle size distribution.

h) What are kinetics of reaction?

i) What are physical and chemical factors influencing the chemical degradation of pharmaceutical product?

j) Elaborate the methods of purification of colloids.

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Total No. of Questions : 3]

SEAT No. :

PC2102

[Total No. of Pages : 2

[6372]-131
S.Y. 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) ***Figures to the right indicate full marks.***

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

a) Define volume of distribution with an example.

b) Define idiosyncrasy and give two examples.

c) Write the nature and sources of drugs.

d) Define tachyphylaxis and give two examples.

e) Explain enzyme induction with one example.

f) Define drug dependence with an example.

g) What are CNS stimulants? Provide examples and uses.

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

a) Define and classify sedatives and hypnotics with examples. Explain their pharmacological effects and uses.

b) Define and classify clinical trials. Add a note on pharmacovigilance.

c) Discuss the process of drug absorption and factors affecting it.

d) Explain the pharmacology of alcohol and its interaction with disulfiram.

P.T.O.

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

a) Define and classify general anesthetics. Write a note on the stages of anesthesia.

b) Classify alpha-adrenergic blockers and describe their therapeutic uses.

c) Explain bioavailability and half-life in detail.

d) Classify antiepileptic drugs and describe the uses and ADR or valproic acid.

e) Define and classify antidepressants. Discuss the uses and adverse effects of tricyclic antidepressants.

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

g) Define drug distribution. Write factors affecting it. Add a note on volume of distribution.

h) Write a note on rational drug prescribing.

i) Explain DRC, competitive and noncompetitive antagonism with examples.

j) Discuss the phases of clinical trials and the meaning of 'double-blind, placebo controlled, randomized clinical trial'.

Total No. of Questions : 3]

SEAT No. : ____

PC2103

[Total No. of Pages : 2

[6372]-132

Second Year B.Pharmacy

BP-405T : PHARMACOGNOSY AND PHYTOCHEMISTRY - I

(2019 Pattern) (Semester - IV)

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

Instructions to the candidates:

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

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

a) Enlist plant hormones with their applications

b) Classify various marine drugs and write a note on cardiovascular agents.

c) What are plant allergens Give examples

d) Give chemical tests for lipids

e) Give Biological source and chemical tests for papain

f) Describe various types of sources of drugs

g) What are stomata's. Give its types and functions

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

a) Explain marine potential in detail with respect to the medicinal value of cytotoxic marine drugs.

b) Explain various types of cultures used in tissue culture and give brief account on Callus culture and protoplast culture in detail.

c) Deflne and classify plant hormones and explain in detail auxins and brassinosteroids.

d) Define and Classify Alkaloids in detail. Give properties of alkaloids.

P.T.O.

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

a) Define and classify Primary and secondary metabolites

b) Write a note polyploidy. Explain its types

c) Explain types of adulteration and tests for detection of Adulteration.

d) Define the following terms, deterioration, admixture, sophistication, substitution, inferiority in terms of adulteration

e) Explain in detail history, scope and development of Pharmacognosy

f) Explain potato, peanuts, lettuce as edible vaccines along with its advantages

g) Describe general anatomy and morphology of subterranean organs

h) Explain in detail lycopodium spore method

i) Classify crude drugs and explain in detail

j) Define Acid value and saponification value along with exapmples

Total No. of Questions : 3]

SEAT No. : ____

PC-2104

[Total No. of Pages : 2

[6372]-133
T.Y. B.Pharmacy
BP-501 T : Medicinal Chemistry - II
(2019 Pattern) (Semester V)

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

Instructions to the candidates:

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

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

a) Write examples with structures of Carbonic Anhydrase inhibitors.

b) Explain mechanism of action of Rabeprazole.

c) Classify Anti-arrhythmic agents with examples.

d) What are autacoids? Write medicinal applications.

e) Outline synthesis of Atenolol.

f) What are Osmotic Diuretics? Write indications.

g) Write mechanism of action and medicinal applications of Nitroglycerine.

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

a) Classify agents used for treatment of hypertension with examples, write in detail SAR, mechanism of action and medicinal applications of drugs inhibiting biosynthesis of Angiotensin II and drugs inhibiting binding of angiotensin II.

b) Write examples and explain mechanism of action of following classes of diuretics; Thiazide, loop and potassium sparing diuretics, add a note on their indications.

c) Discuss Chemistry, Nomenclature, Stereochemistry and applications of Sex hormones and Corticosteroids.

d) Write mechanism of action, medicinal applications, adverse effects and examples of antidiabetic agents belonging to Metaglinides and Sulfonyl ureas classes.

P.T.O.

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

a) Write mechanism of action and medicinal applications of Cimetidine.

b) Write mechanism of action, medicinal applications and synthesis of Benzocaine.

c) Write mechanism of action, medicinal applications and synthesis of Atorvastatin.

d) Draw structure, write mechanism of action and medicinal applications of Phenytoin sodium.

e) Draw structure, write mechanism of action and medicinal applications of Chlorpheniramine maleate.

f) Write a note on Leukotrine antagonists.

g) Write mechanism of action and medicinal applications of Calcium channel blockers.

h) Outline synthesis of Amiodarone.

i) Write mechanism of action and medicinal applications of coagulants and anticoagulants.

j) Write a note on oral contraceptives.

Total No. of Questions : 3]

SEAT No. :

PC2105

[Total No. of Pages : 2

[6372]-134

T.Y.B. Pharm.

BP - 502T : PHARMACEUTICS

Industrial Pharmacy -I

(2019 Pattern) (Semester - V)

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

Instructions to the candidates:

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

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

a) Define capsules. Explain formulation consideration of hard gelatin capsule. Add a note on dosator and volumetric capsule filling.

b) Define tablet. Elaborate in detail the different additives used in tablet formulation.

c) Explain the importance of tablet coating. Elaborate excipients used in film coating. Explain in detail the evaluation of coated tablets.

d) Define parenterals. Describe different packaging materials used in pareterlas. Explain quality control tests of glass as per USP.

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

a) What is HLB? Give its significance in disperse system formulation.

b) Add a note on principle, construction and working of fluidized bed granulator.

c) Explain dissolution test as per USP.

d) Explain modified coating pans used in pharmaceutical coating.

e) What is controlled flocculation?

f) Define preformulation? Explain any two physicochemical parameters important in preformulation.

g) Define aerosols. Discuss propellants used in aerosols.

P.T.O.

h) Add a note on enteric coating. Explain the polymers used in it.

i) Write a note on sunscreen and SPF.

j) Write a note on ophthalmic preparations.

Q3) Short Answer (Any Five) : **[5×3=15]**

a) Give advantages and disadvantages of wet granulation.

b) What is LAL test of parenterlas?

c) Give the significance of friability test in solid oral dosage form development.

d) Define suspension. Give advantages and disadvantages.

e) Discuss formulation of Vanishing Cream.

f) What is Type A and Type B gelatin?

Total No. of Questions : 3]

SEAT No. :

PC-2106

[Total No. of Pages : 2

[6372]-135
Third Year B. Pharmacy
BP503T: Pharmacology - II
(Theory) (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) Enlist the functions of posterior pituitary hormones.

b) Give location and functions of histamine receptor.

c) Give the examples of Uterine relaxants and enlist their therapeutic uses.

d) Outline biosynthesis of prostaglandins.

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

f) Enlist Mechanism of actions of anti-gout drugs.

g) Justify peptic ulcer as an adverse effect of NSAIDs?

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

a) Classify antihypertensive drugs? Explain pharmacotherapy for hypertension.

b) Classify antihistamines. Describe Pharmacological actions & adverse effects of antihistamines.

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

d) Summarise regulation and production of testosterone in the male. Discuss pharmacological actions and therapeutic uses of it.

P.T.O.

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

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

b) Explain the calcium homeostasis.

c) Add note on bioassay of Oxytocin.

d) Describe physiological effect of glucagon.

e) Write a note on oral contraceptive pills.

f) Explain Pharmacological actions of nitrates?

g) Justify use of Calcium channel blockers for any two cardiovascular diseases.

h) Explain mechanism of actions of acetazolamide and spironolactone.

i) Write a note on platelet-activating factors?

j) Justify the use of "Sodium channel blockers in the treatment of cardiac arrhythmias.

Total No. of Questions : 3]

SEAT No. :

PC-2107

[Total No. of Pages : 2

[6372]-136

T.Y. B. Pharmacy

BP - 504T : PHARMACOGNOSY AND PHYTOCHEMISTRY - II

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

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

Instructions to the candidates :

1) ***All the 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) 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) :** **[2 × 10 = 20]**

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

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

c) Write the Pharmacognostical study of Senna.

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

P.T.O.

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

a) Explain Tracer technology and its significance in biogenetic studies.

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

c) Give the Pharmacognosy of Vinca.

d) Write the isolation and identification of Quinine.

e) Explain the industrial production of digoxin.

f) Describe HPTLC with its advantages and applications.

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

h) Write isolation and analysis of Glycyrrhizin.

i) Differentiate between Pale Catechu and Black Catechu.

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

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Total No. of Questions : 3]

SEAT No. : ____

PC-2108

[Total No. of Pages : 2

[6372]-137

T.Y.B.Pharmacy

BP - 505 T : PHARMACEUTICAL JURISPRUDENCE

(2019 Pattern) (Semester - V)

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

Instructions to the candidates :

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

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

a) What are Geographical indications?

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

c) What are schedule N and O?

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

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

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

g) What are misbranded drugs?

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

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

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

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

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

P.T.O.

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

a) Hathi Committee and Mudaliar Committee.

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

c) Prohibited class of advertisement as per Drugs and Magic Remedies Act.

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

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

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

g) Explain "Education Regulation" under pharmacy Act, 1948

h) Adulterated drugs.

i) Criteria for patentable inventions

j) Explain Bonded Manufactory

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Total No. of Questions : 3]

SEAT No. : ____

PC-2109

[Total No. of Pages : 2

[6372]-138

T.Y. B. Pharmacy

BP - 601T : MEDICINAL CHEMISTRY - III (Theory)

(2019 Pattern) (Semester - VI)

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

Instructions to the candidates :

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

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

a) Define and classify antimalarials with suitable examples.

b) Write MOA and medicinal uses of penicillin class of antibiotics.

c) Write the class of streptomycin, erythromycin and vancornycin antibiotics.

d) Write a note on antileprosy agents.

e) Define and classify antiviral agents with suitable examples.

f) Write MOA of vinca alkaloids as anticancer agents.

g) What are macrolide antibiotics explain its structure features with suitable example?

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

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

b) Discuss briefly the various approaches used in drug design and discuss various physiochemical parameters used in QSAR and add a note on Hansch QSAR analysis.

c) Define and classify sulphonamides and describe the chemistry and MOA of sulphonamides.

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

P.T.O.

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

a) Write a note on anti-tubercular agents.

b) Write a note on tetracycline antibiotics.

c) Write a note on anti-protozoal agents.

d) Write a note on anthelmintic drugs.

e) Describe the SAR and MOA of quinolones anti-infective agents.

f) Describe the chemistry and MOA of antifungal azoles.

g) Write a note on anti-HIV agents.

h) Write a note on Ferguson principle.

i) Draw the scheme of synthesis for chloramphenicol.

j) Draw the scheme of synthesis for metronidazole.

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Total No. of Questions : 3]

SEAT No. :

PC-2110

[Total No. of Pages : 2

[6372] - 139
T.Y. B. Pharmacy
BP602T: Pharmacology - III
(2019 Pattern) (Semester - VI)

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

Instructions to the candidates:

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

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

a) Elaborate Genotoxicity

b) Short note on rhythm and cycles

c) Draw Malaria life cycle

d) Short note on Anthelmintics.

e) Explain with example monoclonal antibodies

f) Write short note on organophosphorus poisoning

g) Write the significance of chronopharmacology.

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

a) Classify antiulcer agents with example. Write mechanism of action & theapeutic uses of PPIs.

b) Explain in detail Antitubercular agents.

c) What are sulphonamides? Classify then with examples. Write the mechanism of action and uses of Co-trimoxazole

d) Explain in detail HIV life cycle and AH HIV drugs

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

a) Explain in detail pharmacology of Respiratory Stimulants.

b) Give adverse effects and explain mechanism of action of Tetracycline

c) Write short note on antiviral drugs

d) Define and explain Teratogenicity & mutagenecity

e) Write MOA, adverse effect and uses of corticosteroids.

f) Classify types of anti-metabolites with examples

g) Explain the acute, subacute & chronic toxicity studies along with their purpose.

h) Classify Immunostimulants with examples. Write note on types and uses of interferons.

i) Write a short note on Anthelmantics.

j) Give adverse effects and explain mechanism of action of cephalosporins.

Total No. of Questions : 3]

SEAT No. : [ ]

PC2111

[Total No. of Pages : 2

[6372]-140

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 diagram must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

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

a) Define herbs and herbal preparations.

b) Explain importance of herbs in oral hygiene products.

c) Write note on natural disintegrants and binders.

d) Explain basic principles of Homeopathy.

e) Brief about advantages of Phytosomes.

f) Write note on Farmers right.

g) Write note on Antioxidants in herbal preparation.

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

a) Explain constitution of ASU DTAB & ASU DCC relating to ASU system of medicine. Brief about Schedule Z of drugs. and cosmetics act for ASU drug.

b) Explain WHO & ICH Guidelines for the Assessment of Herbal Drugs.

c) Explain preparation and standardization of Ayurvedic formulations- Arista and Bhasma.

d) Explain in detail cultivation parameter as per GAP for medicinal plants. Write note on importance of Organic farming.

P.T.O.

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

a) Explain preparalion and standardization of Churna.

b) Write in short components of GMP (schedule T).

c) Write a brief note on herb drug interactions with suitable examples.

d) Explain role of Biopesticides in pest management.

e) Discuss patenting of Neem as case study of Biopiracy

f) Explain basic principles, diagnosis and treatment involve in Ayurveda.

g) Explain about side effects and interactions of Pepper and Garlic.

h) Brief about present scope and future prospects of Herbal drug Industry

i) Write note on CITES certificate.

j) Write note on Spirulina and Resveratrol as Nutraceuticals.

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Total No. of Questions : 5]

SEAT No. : ____

PC-2112

[Total No. of Pages : 2

[6372] - 141
T.Y. B. PHARMACY
BP604T: BIOPHARMACEUTICS AND PHARMACOKINETICS
(2019 Pattern) (Semester - VI)

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

Instructions to the candidates:

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

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

a) Define Biopharmaceutics. State its importance in formulation development.

b) Define absolute bioavailability and relative bioavailability.

c) What are various drug binding sites on human serum albumin?

d) What is enzyme induction?

e) Write about the physiological model of pharmacokinetics

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

g) What is polymorphism and its effect on absorption of drug

P.T.O.

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

a) Explain methods for assessment of bioavailabi1ity

b) Describe pH partition hypothesis and explain its limitations.

c) How will assess different pharmacokinetic parameters if drug is administered as extravascular administration and follows one compartment open model.

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

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

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

b) Explain renal clearance and methods to measure the same.

c) Write a note on IVIVC

d) Write a short note on factors affecting drug metabolism process.

e) Elaborate on gastric emptying

f) Difference between linear and Non-linear pharmacokinetics

g) Write a note on Phase I biotran formation reaction

h) Discuss thc concept of loading dose and maintenance dose.

i) Discuss the method of residuals.

j) Elaborate on causes of non - linearity.

Total No. of Questions : 3]

SEAT No. : [ ]

PC2113

[Total No. of Pages : 2

[6372]-142

Third Year B.Pharmacy

PHARMACEUTICAL BIOTECHNOLOGY

(2019 Pattern) (Semester - VI) (BP605T)

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

Instructions to the candidates:

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

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

a) Write types of mutants

b) Give basic principle of genetic engineering.

c) Brief on application of biotechnology in pharmaceutical sciences.

d) Give the principle and application of Western blotting.

e) Explain humoral immunity.

f) Write types of vaccines.

g) Explain transformation in microbial genetics.

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

a) Give the application of rDNA technology. Explain the production of Insulin by genetic engineering.

b) Describe in detail various designs of fermenters. Give the production process of Penicillin's.

c) Explain various methods of enzyme immobilization with its application.

d) Describe in detailed microbial biotransformation with examples.

P.T.O.

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

a) Write note on working and application of biosensors in pharmaceutical industries.

b) Give brief introduction to PCR 139.

c) Explain structure and function of MHC.

d) Give principle and application of ELISA.

e) Describe in detail processing and storage of whole human blood samples.

f) Discuss the aeration process used in fermentation.

g) What is Hybridoma technology.

h) Give the general method of preparation of bacterial vaccines.

i) Write note on hypersensitivity reactions.

j) Give brief introduction of protein Engineering.

Total No. of Questions : 3]

SEAT No. :

PC-2114

[Total No. of Pages : 2

[6372]-143
T.Y B. Pharmacy
BP606T- Pharmaceutical Quality Assurance (Theory)
(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) Review the quality control tests for secondary packaging materials.

b) Provide the general guidelines for calibration.

c) Mention the benefits of ISO 9000 and ISO 14000.

d) How are returned and recalled goods handled in the Pharmaceutical industry?

e) Summarize the responsibilities of quality control and quality assurance departments in the Pharmaceutical industry.

f) Relate the importance of GLP for Pharma.

g) What is TQM? Justify the role of TQM elements in improving quality.

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

a) Outline different documents (BFR, MFR, and SOP) maintained in the Pharmaceutical Industry and give their importance.

b) Provide the guidelines for personnel and organization under GMP.

c) Narrate the importance and scope of validation. Elaborate the types of validation.

d) Give details of the major quality control tests for Glass Containers.

P.T.O.

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

a) Draft a brief procedure for handling and evaluating of complaints about product quality in the Pharmaceutical Industry.

b) Represent the guidelines for good warehousing practices.

c) Explain the general principles of analytical method validation.

d) Recommend the criteria for the selection and purchase of equipment in the Pharmaceutical industry.

e) Suggest the guidelines to control the contamination in pharmaceutical sterile manufacturing areas.

f) Correlate PIC/S as a regulatory agency in pharmaceuticals.

g) Make a note of the QbD overview.

h) Summarize CPCSEA guidelines.

i) Draft a brief procedure for NAB L accreditation.

j) Explain the quality control tests for rubber closures.

Total No. of Questions : 3]

SEAT No. :

PC-2115

[Total No. of Pages : 2

[6372]-144

Final Year B. Pharmacy

BP-701T : INSTRUMENTAL METHOD OF ANALYSIS

(2019 Pattern) (Semester - VII)

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

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

a) Differentiate between Paper chromatography and TLC.

b) Enlist the burners used in flame photometry and explain in detail anyone.

c) Classify Vibrational modes in IR Spectroscopy

d) Discuss the terms :

i) Singlet Excited State

ii) Triplet Excited State

iii) Ground Electronic State

e) Compare the applications and benefits of HPTLC versus HPLC.

f) How will you differentiate between Methyl Amine and N-Methyl Aniline by IR Spectra?

g) Explain the system suitability parameters of a chromatographic system.

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

a) Describe the process of gas chromatography in detail, including the roles of the injector, column, detector, and carrier gas.

b) Discuss the components in instrumentation of UV-Visible Spectrophotometer. Explain in details the radiation sources used in UV-Visible spectroscopy.

P.T.O.

c) Describe the working of an HPLC system, including its components their functions and applications in Pharmaceutical Analysis

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

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

a) Write the construction and working of Flame Ionization Detector and Electron Capture Detector.

b) Explain how the Rf value is calculated in TLC and its significance.

c) Explain the Rate Theory of Chromatography.

d) What factors influence the separation efficiency in ion exchange chromatography?

e) What is Quenching? Enumerate the various types of quenching effect.

f) Write a Note on methods of Single ComponentAnalysis.

g) Differentiate between normal-phase and reversed-phase partition chromatography.

h) Elaborate Auxochrome-Chromophore Theory.

i) What are the steps involved in performing an HPTLC analysis?

j) How will you differentiate between following pair of compounds by IR Spectra?

i) Acetaldehyde and Acetone

ii) Ethanol and Ethyl Amine

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Total No. of Questions : 3]

SEAT No. : ____

PC2116

[Total No. of Pages : 2

[6372]-145

Fourth Year B. Pharmacy

BP - 702T : INDUSTRIAL PHARMACY - II

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

Q1) Short Answers (Any 5) **[5×3 = 15]**

a) Define Total Quality Management (TQM) and explain its application in pharmaceutical industries.

b) Discuss the significance of ISO 14000 series standards in pharmaceutical manufacturing.

c) What is the Six Sigma concept, and how does it contribute to quality improvement?

d) Explain the role of confidentiality agreements and MoUs in technology transfer documentation.

e) What are the Indian regulatory requirements for the approval of new drugs?

f) Write a short note on APCTD.

g) Role of Central Drug Standard Control Organization (CDSCO).

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

a) Explain the pilot plant scale-up considerations for semisolid dosage forms. Discuss the importance of space, raw materials, and personnel in this context.

b) Describe the Technology Transfer (TT) process as per WHO guidelines. Discuss the stages of transfer from research and development (R&D) to production, including packaging and cleaning.

c) What are the regulatory requirements for drug approval? Explain the roles of Investigational New Drug (IND) applications and New Drug Applications (NDA) in the approval process.

d) Explain ISO 9000 in detail.

P.T.O.

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

a) Write a note on SUPAC guidelines and their significance in pharmaceutical manufacturing.

b) Discuss the role of regulatory affairs professionals in the pharmaceutical industry.

c) Explain the concept of Quality Risk Management in technology transfer.

d) What are the critical process parameters involved in the scale-up of solid dosage forms?

e) Explain the biostatistics applications in pharmaceutical product development.

f) Describe the process of analytical method transfer during technology transfer.

g) What is Change Control? Discuss its importance in quality management.

h) Write a note on Good Laboratory Practices (GLP) and their role in ensuring product quality.

i) Explain the Certificate of Pharmaceutical Product (COPP) and its importance in drug approval procedures.

j) Explain Clinical research / BE studies.

k) Explain concept Quality by Design (QbD).

Total No. of Questions : 3]

SEAT No. :

PC-2117

[Total No. of Pages : 2

[6372]-146
Final Year B. Pharm.
BP703T - Pharmacy Practice
(2019 Pattern) (Semester - VII)

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

Instructions to the candidates:

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

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

a) Define clinical pharmacy. Enlist functions of clinical pharmacists.

b) Define therapeutic drug monitoring (TDM). Explain need of TDM.

c) What are different kidney function tests?

d) Give organisation structure of hospital pharmacy.

e) Describe unit dose dispensing system.

f) Enlist objectives of Drug Information Centre.

g) Explain importance of communication with prescribers.

Q2) **Attempt any two out of four:** **[20]**

a) Elaborate about preparation and revision of hospital formulary.

b) Explain process of dispensing of drugs to in-patients.

c) Define adverse drug reactions. Explain various adverse drug reactions with example.

d) Discuss in brief about budget preparation and implementation.

P.T.O.

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

a) Classify investigational drugs in hospital.

b) Explain role of Pharmacy and Therapeutic Committee (PTC) in emergency drug list preparation.

c) Discuss pharmacokinetic drug interactions with example.

d) Define community pharmacy. Explain different types of layout of community pharmacy.

e) Explain in brief contents of hospital formulary.

f) What is role of pharmacists in education and training program in the hospital.

g) Describe principles and procedures of purchasing.

h) Discuss different sources of drug information.

i) Explain role of hospital pharmacists in investigational drug studies.

j) Explain legal requirements for prescribed medication orders.

Total No. of Questions : 3]

SEAT No. :

PC-2118

[Total No. of Pages : 2

[6372]-147
Final Year B. Pharmacy
BP704T : NOVEL DRUG DELIVERY SYSTEM
(2019 Pattern) (Semester - VII)

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

Instructions to the candidates :

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

Q1) Answer the following (solve 5 out of 7) **[5×3=I5]**

a) What is Microeneapsulation? Discuss components of Microencapsulation.

b) What are Polymers? Give applications of polymers in formulation of parenteral preparations.

c) What are gastroretentative drug delivery systems- Give advantages of GRDDS.

d) What are Mucoadhesive drug delivery systems, what is the need to develop MDDS.

e) Explain liposomes as a targeted drug delivery systems with diagram and examples.

f) Elaborate on components of Transdermal patch.

g) Write note on Copper bearing IUD's.

Q2) Answer in detail (Answer 2 out of4) **[2×10=20]**

a) Elaborate Coacervation phase separation by Non-solvent addition method.

b) Explain Physico-Chemical Properties of drug relevant to controlled release formulation.

c) Give factors affecting mucoadhesive drug delivery systems and elaborate on polymers related factors.

d) What are different nasopulmonary Drug delivery systems. Elaborate on formulation of dry powder inhalers.

P.T.O.

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

a) Write a note on Spray drying and spray congealing technique of microencapsulation.

b) Write a note on Biodegradable Polymers.

c) Write a note on Ion-exchange resins for obtaining Controlled release drug delivery systems.

d) Explain -Gas generating floating drug delivery systems.

e) Write a note on Metered dose inhalers.

f) Explain in detail Osmotic Pressure Activated Drug Delivery implants.

g) Write about ideal characteristics of ocular drug delivery system. Classify ocular inserts.

h) Elaborate on nanoparticles as a Targeted drug delivery system.

i) How to determine Tack properties of adhesive used in transdermal patches.

j) Write about factors affecting intraocular bioavailability.

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Total No. of Questions : 3]

SEAT No. : ____

PC-2119

[Total No. of Pages : 2

[6372]-148
F.Y. B.Pharmacy
BP801T : Biostatistics and Research Methodology
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates :

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

Q1) **Attempt the following (Any five)** **[15]**

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

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

c) Explain in brief about response surface plot.

d) Enlist steps in writing a research report.

e) Write a note on “Random Sampling”.

f) Weights of 10 tablets in mg in a sample data are 256, 252, 248, 255, 258, 254, 257, 247, 246 and 250. Find out the sample mean.

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

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

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

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

c) Explain in detail about design and phases of clinical trials.

P.T.O.

d) Obtain the two lines of regression for the following table:

Age (Year)	66	38	56	42	72	36	63	47	55	45
Blood Pressure	145	124	147	125	160	118	149	128	150	124

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

a) Write about sample and population with suitable example.

b) Enlist the steps for constructing a frequency distribution.

c) Write note on statistical measures of dispersion.

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

e) What are the characteristics of good statistical measure? Write about Median and mode as the measures of central tendency.

f) Explain in brief about ANOVA.

g) Write in brief about statistical analysis using Excel.

h) Define statistics. Write applications of statistics.

i) Write a note on "Probability Distributions".

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

X: 40,42, 43, 44, 44, 42, 40, 45, 43, 44, 45, 46.

♦ ♦ ♦

Total No. of Questions : 3]

SEAT No. :

PC2120

[Total No. of Pages : 2

[6372]-149

Fourth Year B.Pharmacy

BP-802 (T) : SOCIAL AND PREVENTIVE PHARMACY

(2019 Pattern) (Semester-VIII)

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

Instructions to the candidates:

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

Q1) Answer any Five. (05 out of 07) **[15]**

a) Explain the avoidable habits for health.

b) Explain how evaluation of public health is performed?

c) Write the causative agent, symptoms and treatment of dengue.

d) Write a note on drug addiction.

e) Write a note on control of deafness.

f) Give the objectives of WHO in Indian National Program.

g) Discuss Health promotion in schools.

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

a) Explain different vitamin deficiency disorders and their prevention.

b) Describe in detail the sign, symptoms, causes, diagnosis, prevention & control of Cholera.

c) Discuss in detail about national Tuberculosis control programmes.

d) Explain National Tobacco Control Program in detail. Also discuss the measures to prevent and control the Malaria.

P.T.O.

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

a) Explain measures for improvement in rural sanitation.

b) What are the functions of Primary Health Centres?

c) Discuss objectives of the national family welfare program.

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

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

f) What is SARS write its symptoms and prevention?

g) Discuss treatment and management of cancer.

h) Which are the causes of Malnutrition? Write a note on relation of nutrition and health.

i) What is Hypertension? How do you prevent and control hypertension?

j) Write a short note on Pulse Polio program.

Total No. of Questions : 3]

SEAT No. : ____

PC-2121

[Total No. of Pages : 2

[6372]-150
Foutrh Year B. Pharmacy
BP803ET: PHARMA MARKETING MANAGEMENT THEORY
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) Discuss the concept of product portfolio analysis.

b) Explain the concept of personal selling of OTC Products.

c) What do you understand by market analysis?

d) Enumerate the various factors related to selection of appropriate channel in marketing.

e) What is the importance of detailing?

f) Write an overview of future prospects of Professional Sales Representative.

g) Which are the various issues in price management.

Q2) **Long Answers (Any2 out of 4) :** **[2 × 10 = 20]**

a) Discuss the concept of Competitive Analysis in pharma marketing.

b) How to launch a new product in market discuss with examples.

c) Describe the various techniques for OTC Product promotion.

d) What is Pricing of an product? Explain the various factors affecting price of pharmaceutical product.

P.T.O.

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

a) Discuss the various factors affecting prescribing habits of physician.

b) What is the role of market research in new product launch.

c) Give an account of impact of direct mail & journals on sale of OTC product.

d) Describe the various distribution channels of pharmaceutical marketing.

e) Discuss in detail the new emerging concepts in marketing.

f) What is performance appraisal of PSR (Professional sales representative).

g) Describe the various components contributing in price management of brand.

h) Which are various skill sets required for selection of PSR.

i) What are roles and responsibilities of Group Product manager in pharma marketing.

j) Differentiate between primary sales and secondary sales and add a note on inventory management at stockiest level.

Total No. of Questions : 3]

SEAT No. :

PC-2122

[Total No. of Pages : 2

[6372]-151
Final Year B. Pharm.
BP804 ET - Pharmaceutical Regulatory Science
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) Give the stages of drug discovery.

b) Give the Constitution of Australian authority.

c) Write about Organogram of CDSCO:

d) Differentiate between brand and generic products.

e) Discuss structure and function of ethics committee.

f) Discuss Basic terminologies in regulatory concept.

g) Write a note on Orange book.

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

a) Explain the organization and functions of regulatory bodies of EU and Japan.

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

c) Explain in detail development of clinical trial protocol.

d) Explain in detail Managing and Monitoring clinical trials. Add a note on Pharmacovigilance.

P.T.O.

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

a) Explain the concept of generics and Generic drug product development.

b) Explain organization structure and functions of USFDA.

c) Explain the roles and responsibilities of the regulatory authority.

d) Explain the preclinical studies involved in drug discovery.

e) Write a note on Purple book -

f) Summarize ASEAN Common Technical Document (ACTD) research.

g) Discuss in detail Federal Register.

h) Explain formation and working procedures for Institutional Review Board.

i) Write a note on GCP obligations of Investigators, sponsors & Monitors.

j) Explain in detail Procedure for export of pharmaceutical products.

Total No. of Questions : 3]

SEAT No. :

PC-2123

[Total No. of Pages : 2

[6372]-152
Final Year B. Pharmacy
BP805 ET: PHARMACOVIGILANCE
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) What is Drug event monitoring.

b) Write down the different grading scale for casuality asessment.

c) What are the applications of Daily Define Doses?

d) Write a note on vaccine pharmacovigilance.

e) What is Phase - IV of Clinical Trial.

f) What are CIOMS working groups.

g) What is role of post approval phase?

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

a) Discuss in detail basic & specialized drug ingormation resources in pharmacovigilance.

b) Discuss in detail about cohort & case control study. Explain the application of MedDRA & standardised MedDRA queries.

c) Explain the drug safety evaluation in geriatrics and pediatrics.

d) Classify ADRs? How will you detect and report ADR along with casually assessment scale.

P.T.O.

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

a) Write a short note on WHO Casuality Assessment.

b) Explain establishing pharmacovigilance programme in Hospital.

c) Define vaccine. Write the reasons for vaccination failure?

d) Write a note on Drug Safety crises managment.

e) What is role of pre-clinical & clinical phase in safety data generations.

f) Illustrate the organisation and objectives of ICH.

g) What is role of CDSCO in pharmacovigilance.

h) Write in detail about good clinical practice in PV.

i) Write down the history & development of PV & explain the pharmacovigilance program of India.

j) Write a short note on International Classification of Disease?

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

PC2124 **[Total No. of Pages : 2**

[6372]-153
Fourth year B.Pharmacy
BP 806 ET : QUALITY CONTROL AND STANDARDIZATIONS OF HERBALS
(2019 Pattern) (Semester -VIII)

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

a) Comment on various types of solubility as per WHO QC methods for herbal materials.

b) Comment on various types of containers as per WHO QC methods for herbal materials.

c) Add a note on Product recall as per WHO GMP.

d) Explain 'Systemic Toxicity Testing' as per WHO Research guidelines.

e) Explain 'Ethics Review Board' as per WHO Research guidelines.

f) What provisions are given for herbal drugs in the Drugs and cosmetic act?

g) Compare any two herbal Pharmacopoeia.

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

a) Explain Hemolytic index determination as per WHO guidelines.

b) Explain in detail the 'Premises' (w.r.t layout & design, ancillary areas, Stores, weighing areas, Production area, QC area) of herbal drug industry as per WHO GMP.

c) What is Chromatography? Explain the importance of HPTLC method in the standardization of herbal drugs with example.

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

P.T.O.

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

a) Add a note on Harvesting & Post harvest processing WHO GAP.

b) Add a note on Rejected, recovered, reprocesses, reworked, recalled and returned products as per WHO GMP.

c) Explain Guidelines for pharmacodynamics and General pharmacological studies of Herbal Medicines as per WHO Research guidelines.

d) Explain Guidelines for Toxicity Investigations of Herbal Medicines as per WHO research guidelines.

e) Enlist the document required for export registration.

f) What are the GMP requirements for herbal products?

g) Explain the importance of TLC method in the standardization of herbal drugs with example.

h) Give challenges in monitoring safety of herbal medicines.

i) Explain 'Equipment' as per WHO GMP.

j) Comment on Complaints, types, documentation & their handling as per WHO GMP.

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Total No. of Questions : 3]

SEAT No. : ____

PC-2125

[Total No. of Pages : 2

[6372]-154

F.Y.B.Pharmacy

BP - 807 ET : COMPUTER AIDED DRUG DESIGN

(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates :

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

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

a) Explain the term bioinformatics. Outline applications of bioinformatics

b) Explain Pharmacophore mapping and its applications.

c) Write an elaborative note on "Free -Wilson analysis"

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

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

f) Write a note on Pharmacophore-based screening.

g) Write a note on the drug bank

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

a) Explain the terms drug discovery and drug development Comment on various steps and methods in the identification of lead compound

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

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

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

P.T.O.

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

a) Explain molecular docking. Comment on protein preparation and ligand preparation aspects involved in docking

b) What is energy minimization? Comment on different energy minimization methods.

c) Explain Hansch analysis along with its advantages and disadvantages.

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

e) Explain rigid and flexible docking techniques followed in molecular docking.

f) Write an elaborative note on the virtual screening.

g) Explain the terms COMFA and COMSIA.

h) Write a note on molecular mechanics.

i) Write an elaborative note on 2D-QSAR

j) What is meant by drug likeness? Explain the process of drug-likeness screening

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Total No. of Questions : 3]

SEAT No. :

PC2126

[Total No. of Pages : 2

[6372]-155
Fourth Year B. Pharmacy
BP - 808 ET : CELL AND MOLECULAR BIOLOGY
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) Explain the terms Gl, S, G2 phase

b) Define mutation

c) Define Catabolism

d) Define Cell adaptation

e) Properties of Cell Membrane

f) Define molecular biology

g) Critique the function of protein kinases enzyme

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

a) Explain the transducer mechanism of GPCR

b) Explain Cell death and its events, regulators and pathways

c) Examine the mechanism of Transcription and Translation

d) Explain cell signaling and give appropriate example for the same

P.T.O.

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

a) Describe the process of Meiosis

b) Enlist all cell organelles and its functions in eukaryotic cell

c) Explain different check point in cell cycle

d) What are the types of receptors and explain any pathway associated with it ?

e) Explain the mechanisms of Necrosis and Apoptosis

f) Write a note on the applications of Proteomics

g) Write a note on regularities in protein synthesis

h) Explain the role of Secondary messengers in metabolic pathways

i) Write a note on mechanisms of DNA transcription

j) Explain the mechanism gene expression

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Total No. of Questions : 3]

SEAT No. : ____

PC-2127

[Total No. of Pages : 2

[6372] - 156
Final Year B. Pharmacy
BP 809ET: COSMETIC SCIENCE
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) Summarize the different types of wrinkles.

b) Write the evaluation test for tensile strength of hair.

c) What are Hair conditioners? Discuss its formulation.

d) Explain the evaluation tests of conditioning shampoo.

e) Comment on formulation aspects of hair oils.

f) Write down the principle and formulation of antidandruff shampoo.

g) Write down the formulation consideration of tooth paste for bleeding gums.

P.T.O.

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

a) Describe what do you mean by an antiperspirant? What are its actives? Explain its mechanism of action?

b) Describe the formulation of permanent hair dyes and write down its evaluation tests

c) Develop the formulation of toothpaste for sensitive teeth. State its evaluation tests.

d) Discuss the formulation and evaluation tests of sunscreen lotion.

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

a) What are the different causes of body odour and its remedies?

b) Explain how blemishes can be prevented and treated?

c) Write a note on soap and syndet bars.

d) What are humectants? Write down its classification with examples

e) Explain the role of emollients in cosmetics with examples

f) Give the classification preservatives with examples

g) Comment on role of preservatives used in cosmetics.

h) Discuss the formulation and evaluation test of face wash

i) Summarize the formulation consideration of cold cream

j) Demonstrate the evaluation tests for vanishing cream

Total No. of Questions : 3]

SEAT No. :

PC2128

[Total No. of Pages : 2

[6372]-157

Fourth Year B. Pharmacy

BP 810 ET : EXPERIMENTAL PHARMACOLOGY

(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) Write short note on euthanasia.

b) Discuss phases of clinical trial.

c) Write applications of different species and strains of animals.

d) Give importance of sham negative and positive control groups.

e) Discuss screening animal models for alzheimer's disease.

f) Enlist screening models for coagulants and anticoagulants.

g) Explain screening animal models for parasympathomimetic.

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

a) Discuss importance of Research methodology in research. Explain bio-statistics interpretation using Students 't' test and One -way ANOVA.

b) Discuss in vivo and vitro preclinical screening models for antidiabetic drugs.

c) Explain preclinical screening animal models for analgesic and anti-inflammatory drugs.

d) Discuss preclinical screening animal models for sympathomimetics and drugs.

P.T.O.

Q3) Solve any eight out of ten. **[40]**

a) Explain CPCSEA guidelines for laboratory animals.

b) Discuss screening animal models for antihypertensive drugs.

c) Discuss preclinical screening animal models for anticancer drugs.

d) Discuss screening animal models for local anaethetics.

e) Discuss screening animal models for sedative and hypnotic drugs.

f) Enlist screening animal models for antiulcer drugs.

g) Discuss screening animal models antiasthmatics.

h) Discuss screening animal models for antidepressants.

i) Explain OECD guidelines for acute oral toxicity.

j) Write rational for selection of animal species and sex for the study.

Total No. of Questions : 3]

SEAT No. :

PC-2129

[Total No. of Pages : 2

[6372]-158

F.Y. B. Pharmacy

BP - 811ET : ADVANCED INSTRUMENTATION TECHNIQUES

(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates :

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

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

a) Explain in brief about X-ray monochromators.

b) Explain principle of isoelectric focusing.

c) Explain the terms 'shielding' and 'de shielding' with reference to Proton NMR.

d) How the parameter 'Control of Wavelength' is calibrated for UV spectrophotometer?

e) How the 'Injection Volume Accuracy' in HPLC is evaluated?

f) Write in brief about Solvents used for Proton NMR.

g) What is the difference between TGA, DTA and DSC?

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

a) Write in detail about Polyacrylamide Gel Electrophoresis.

b) Suggest suitable chemical structure for following spectroscopic data:
Molecular Formula: C_6H_6O
IR: 3400 cm - 1, 3000 cm - 1, 1600 cm - 1, 1200 cm - 1
Proton NMR: δ 7.2 (m, 5H), δ 5.3 (s, 1H)
Mass (m/z): 94, 77

c) Give an exhaustive account of various X-ray diffraction methods.

d) Explain about various factors affecting Chemical Shift.

P.T.O.

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

a) MALDI

b) HPTLC-MS

c) Power Compensation DSC

d) Calibration of Fluorimeter

e) Liquid-Liquid Extraction

f) Fragmentation pattern in Carboxylic acid

g) Quadrupole mass analyzer

h) Capillary Electrophoresis

i) Applications of Radio Immuno Assay

j) MS/MS

Total No. of Questions : 3]

SEAT No. : ____

PC2130

[Total No. of Pages : 2

[6372]-159

Fourth Year B. Pharmacy

BP-812-ET : DIETARY SUPPLEMENTS AND NUTRACEUTICALS

(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) Write health benefits of sulfides as Nutraceuticals.

b) Write role of prebiotic and probiotics as nutraceuticals.

c) Brief about wheat bran and rice bran as functional foods.

d) Brief a note on nutrition education in community.

e) Write about vitamins as nutraceuticals.

f) Comment on Adulteration of foods.

g) What is full form of FPO and for which product category its license is mandatory.

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

a) Define and differentiate between Dietary supplements and nutraceuticals, Classify Nutraceuticals with example. Discuss Nutraceuticals role for prevention or cure for Stress.

b) Explain chemistry of carotenoids and detail out occurrence and medicinal benefits of Lycopene, xanthophylls and leutin.

c) Describe effect or processing, storage and interaction of various environmental factors on potential of nutraceuticals.

d) Describe medicinal uses and health benefits of Spirulina. Broccoli and Flaxseeds.

P.T.O.

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

a) Write free radical theory of aging and its effect in atherosclerosis.

b) Explain role of nutraceuticals for prevention and cure of cancer.

c) Detail out role of antioxidant Vitamin C and glutathione.

d) Discuss regulatory aspects on food safety by FSSAI.

e) Discuss Dietary fibers as functional foods with example.

f) Write occurrence, chemical nature and medicinal benefits for Rutin.

g) Describe pharmacopoeial specification for dietary supplements.

h) Write health benefits of functional beverages with example.

i) Detail out chemical nature of flavonoids and medicinal benefits of Quercetin.

j) Discuss role of free radicals for arousal of disorders.

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Total No. of Questions : 3]

SEAT No. :

PC-5061

[Total No. of Pages : 2

[6372]-301
S.Y. B.Pharmacy
BP-301 T : Pharmaceutical Organic Chemistry - II
(2019 Pattern) (Semester III)

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

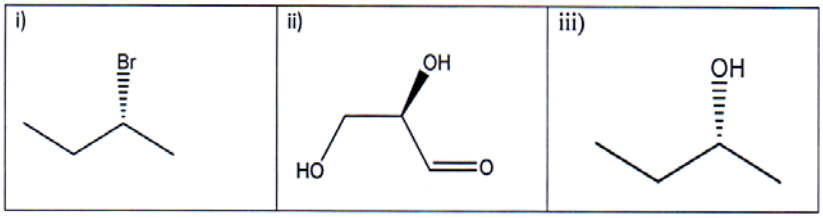
Instructions to the candidates:

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

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

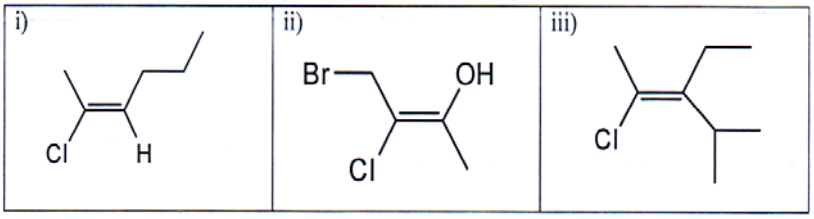
a) Explain with example Geometric isomerism.

b) Assign R & S Configuration



c) Explain orbital structure of Benzene.

d) Assign E & Z configuration.



e) Comment briefly on the orientation of substitution in substituted benzene derivatives.

f) Write any three Methods of preparation for phenol.

g) The amino group acts as o & p director, Justify?

P.T.O.

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

a) Explain the terms 1°, 2° and 3° aromatic amines with suitable example and how will you distinguish between them? Give any three methods of preparations and reactions of amines with suitable examples.

b) Write a note on :

i) Coulson and Moffitt's modification,

ii) Sachse Mohr's theory

c) What are substitution reactions? Explain the mechanism involved in Friedel Craft acylation and Sulphonation reactions of Benzene.

d) Discuss in detail about different methods to determine configuration of geometrical isomers.

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

a) Discuss on sequence rules.

b) Explain in brief Elements of Symmetry in Optical Isomerism.

c) Mention three reactions and synthesis of Phenanathrene.

d) Explain Nitrosation and coupling of aromatic amines.

e) Write a note on synthetic uses of aryl diazonium salts.

f) Explain effect of substituent on acidity of phenols.

g) Explain *Syn & Anti* systems of geometrical isomers with suitable examples.

h) Define saponification value. Explain in brief Hydrolysis and Hydrogenation reaction of Facts and oils.

i) What is angle strain? Explain about Bayer's Strain theory of cycloalkanes.

j) Write reactions of Anthracene.

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Total No. of Questions : 3]

SEAT No. : ____

PC-5062

[Total No. of Pages : 2

[6372]-302
S.Y. B.Pharmacy
BP-302 T : Physical Pharmaceutics- I
(2019 Pattern) (Semester III)

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

Instructions to the candidates:

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

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

a) What is the nature of solvent and cosolvent and give examples?

b) Define surfectants. Explain classification of surfactants with suitable examples.

c) Explain in brief about mechanisms of solute solvent interactions.

d) Write the different between hypotonic and hypertonic solution.

e) Differentiate between crystalline and amorphous solids.

f) Define critical temperature, ctitical pressure and critical volume.

g) What is protein - drug binding?

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

a) Explain the different methods used to measure surface tensions.

b) State Nenst distibution law along with limitation and applicaiton.

c) Elaborate on colligative properties.

P.T.O.

Q3) **Attempt any eigth** **[8 × 5 = 40]**

a) Methods to analysis complexs.

b) Various methods to determine pH.

c) Application of surface active angent.

d) Critical solution temperature of Phenol - water system.

e) Factors influencing solubility of drugs.

f) Factors affecting protien drug binding.

g) Liquefaction of gases.

h) One component system.

j) Solubility of parameter

i) Explain crystals and its method of analysis in detail

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Total No. of Questions : 3]

SEAT No. : ____

PC-5063

[Total No. of Pages : 2

[6372]-303

S.Y. B.Pharmacy

BP-303T : PHARMACEUTICAL MICROBIOLOGY

(2019 Pattern) (Semester - III)

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

Instructions to the candidates :

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

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

a) Write the classification of bacteria depending on arrangement of flagella.

b) Write the principle of simple staining.

c) Differentiate between Bacteria and fungi.

d) Write ideal properties of disinfectants.

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

f) List different preservatives used in pharmaceutical formulations..

g) How viruses are different from typical living cell?

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

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

b) Write in detail growth curve of bacteria and explain methods used for quantitative measurement of bacterial growth.

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

d) What are different methods used for evaluation of disinfectants? Explain in detail phenol coefficient test.

P.T.O.

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

a) Explain in detail scanning electron microscopy.

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

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

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

e) Write identification of bacteria using Gram staining techniques.

f) Explain general procedure for cell culture.

g) Explain various nutritional requirements for culture media.

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

i) Explain the different sterility indicators with examples.

j) Write in detail the different sources & types of microbial contamination of pharmaceutical products.

Total No. of Questions : 3]

SEAT No. :

PC-5064

[Total No. of Pages : 2

[6372]-304

S.Y. B.Pharmacy

BP-304T : PHARMACEUTICAL ENGINEERING

(2019 Pattern) (Semester - III)

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

Instructions to the candidates :

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

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

a) State and explain Fourier's law of heat Transmission with equation.

b) Explain: Membrane Filters

c) Give factors influencing selection of materials for the construction of plant.

d) Discuss about: Mechanisms governing size reduction.

e) What do you mean by Fractional distillation? Explain in brief

f) How evaporation differs from drying and distillation?

g) Explain principle and pharmaceutical applications of freeze dryer.

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

a) Define distillation. Explain the basic principle and applications of steam distillation with a neat sketch.

b) State and derive Bernoulli's equation. Give its applications.

c) What do you understand by size reduction? Explain construction, working and applications of Fluid energy Mill.

d) Explain the theory and applications of centrifugation. Add a note on perforated basket centrifuge.

P.T.O.

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

a) Describe Reynolds's Experiment elucidating different types of flow patterns.

b) Draw neat and labelled diagram of Shell Tube Heat Exchanger. Explain its working.

c) Explain: Multiple effect evaporator.

d) Explain Principle, construction, working & uses of Fluidized Bed Dryer.

e) Write a note on types of corrosion and methods to combat it.

f) Distinguish between solid and liquid mixing. Explain: Ribbon blender

g) Discuss the mechanisms of drying. Add a note on rate of drying curve

h) Explain theories of filtration. Add a note on rotary drum filter.

i) Define size reduction. Discuss about the factors affecting size reduction

j) Describe: Cyclone separator with diagram.

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Total No. of Questions : 3]

SEAT No. :

PC5065

[Total No. of Pages :2

[6372]-401

S.Y.B.Pharmacy

BP401T : 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) Discuss medicinal uses of pyrrole.

b) Write conditions for optical activity.

c) Write a note on stereospecific & stereoselective reaction.

d) Draw the following heterocycles with numbering

i) Oxazole

ii) Benzimidazole

iii) Quinoline

e) Discuss principal behind Clemmensen reduction.

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

g) Describe any three reactions of imidazole.

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

a) Give a detail account of chemistry, methods of synthesis & reactions of Thiophene.

b) What is meant by racemic modification. Explain various methods of resolution of racemic mixture.

c) Discuss reaction, mechanism and applications of Wolff rearrangement and schmidt rearrangement.

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

P.T.O.

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

a) Atropisomerism with examples.

b) Comment on conformational isomerism in *n* - butane with energy profile diagram.

c) Elaborate Asymmetric synthesis.

d) Discuss methods of synthesis and medicinal uses of furan.

e) Explain reaction & mechanism inovlved in Claisen - Schmidt condensation.

f) Discuss synthesis & medicinal uses of Pyrazole.

g) Explain in detail about Birch reduction.

h) Discuss mechanism involved in Baeyer - Villiger oxidation.

i) Describe synthesis & medicinal uses of Imidazole.

j) Elaborate synthesis, reactions & medicinal uses of Azepines.

Total No. of Questions : 3]

SEAT No. :

PC5066

[Total No. of Pages :2

[6372]-402

Second Year B.Pharm.

BP402 T : MEDICINAL CHEMISTRY - I

(2019 Pattern) (Semester- IV)

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

Instructions to the candidates:

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

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

a) Write a note on adrenergic receptors and their distribution.

b) Outline the synthesis of Tolazoline.

c) Discuss GABA analogues.

d) Discuss chemistry of Beta 2 agonist and their MOA.

e) Write a note on biosynthesis of catecholamines.

f) Discuss salicylate and aniline derivatives as anti-inflammatory.

g) Define Psychosis and discuss atypical antipsychotics.

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

a) Discuss in detail structure activity relationship (SAR) of cholinolytic agents. Write down MOA and uses of Atropine sulphate and Tropicamide.

b) Discuss structure activity relationship (SAR) and MOA of sympathomimetic agents. Outline the synthesis of Phenylephrine.

c) Classify centrally acting analgesics. Discuss the chemistry and SAR of Benzomorphan and methadone series. Outline synthesis of Fentanyl citrate.

d) Explain the SAR and MOA of Benzodiazepines with therapeutic uses. Outline the synthesis of Diazepam.

P.T.O.

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

a) Explain chemistry, MOA and uses of reversible cholinesterase inhibitors with examples.

b) Discuss chemistry, MOA and uses of Alpha-adrenergic blockers with examples.

c) Discuss biosynthesis and catabolism of Acetylcholine. Explain the SAR of Acetylcholine analogues.

d) Explain Chemistry and MOA of nonsteroidal anti-inflammatory drugs.

e) Write in brief the Phase I metabolism with examples.

f) Enlist physicochemical properties of drugs which affect the drug action with examples.

g) Give the IUPAC name, uses and synthesis of mefenamic acid.

h) Discuss the narcotic antagonists.

i) Discuss the chemistry and uses of barbiturates with examples.

j) Discuss the Beta blockers.

Total No. of Questions : 3]

SEAT No. :

PC5067

[Total No. of Pages :2

[6372]-403

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) ***Neat labeled diagrams must be drawn whenever necessary.***
3) ***Figures to the right indicate full marks.***

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

a) Write the difference between flocculated and deflocculated suspension.

b) Write applications of chemical kinetics.

c) Explain application of micromeritics.

d) Discuss selection of viscometers for Newtonian & non Newtonian fluids.

e) Explain reaction rate and rate law.

f) Differentiate dilatant flow and negative thixotropy.

g) Explain Hardy and Schultze rule with example.

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

a) Describe DLVO theory and their applications for stability of colloidal dispersion.

b) Discuss single point viscometer.

c) Write note on flowability of powder and factors affecting it.

d) Define order of reaction & discuss the method used for the determination of 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) Elastic modulus and Heckel equation.

b) Stability of suspension.

c) Electrical Double Layer.

d) Chemical degradation.

e) Particle size distribution.

f) Emulsion theories.

g) Air adsorption method.

h) Thixotropy.

i) First-order reaction.

j) Optical Properties of colloids.

Total No. of Questions : 3]

SEAT No. :

PC5068

[Total No. of Pages :2

[6372]-404

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

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

a) Define efficacy, affinity and therapeutic index.

b) Define drug, pharmacokinetics and pharmacodynamics.

c) What do you mean by essential drug concept?

d) Classify sedative & hypnotics.

e) What are CNS stimulants? Write their examples and uses.

f) Explain allergy with example.

g) Give therapeutic uses of atropine.

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

a) What is drug absorption? Describe various mechanisms of drug absorption and explain factors affecting absorption.

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

c) Discuss the pharmacology of Parkinson's diseases.

d) Define and Classify Clinical Trials with details of design and data collected. Add a note on Pharmacovigilance.

P.T.O.

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

a) Classify antiepileptic drugs. Describe the mechanism of action, therapeutic uses and adverse effects of valproic acid.

b) Define & classify drug interaction .Explain drug receptor interaction.

c) Organophosphate poisoning.

d) Classify various beta blockers. Describe clinical uses of beta blockers.

e) Pharmacotherapy of Myasthenia gravis.

f) What is rational drug therapy? Which important points are considered before beginning of any drug therapy?

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

h) Write a note on various receptors.

i) Describe neurohumoral transmission with example.

j) Explain pharmacology of ethyl alcohol.

Total No. of Questions : 3]

SEAT No. :

PC5069

[Total No. of Pages :2

[6372]-405

Second Year B. Pharmacy

BP405T : PHARMACOGNOSY AND PHYTOCHEMISTRY - I

(2019 Pattern) (Semester - IV)

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

Instructions to the candidates:

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

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

a) Calculate the Water soluble ash in % w/w w.r.t. air dried crude drug, if the crude drug incinerated is 2 g, Total ash obtained is 0.3 g, Water insoluble ash is 0.2 g.

b) Write a note on cytokinin.

c) Explain therapeutic uses of Gelatin.

d) Enlist factors influencing cultivation of medicinal plants.

e) Difference between organized and unorganized drugs.

f) What is Garbling a process in preparation of crude drug?

g) Comment on the Micro-nutrient requirements in PTC.

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

a) What are crude drugs? Classify crude drugs on chemical and pharmacological basis. State Merits and demerits of Chemical and Pharmacological classification.

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

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

d) Explain different methods of cultivation in detail.

P.T.O.

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

a) What is Chemotaxonomy? Classify with examples.

b) What is adulteration of crude drugs? Explain the four methods of adulteration of crude drugs.

c) Enlist different types of soil. Explain cause of infertility and measures to restore soil fertility.

d) Enlist applications of Plant tissue culture for production of secondary metabolites.

e) Classify Resins in detail along with examples.

f) Classify Marine drugs with examples.

g) Explain Natural allergens.

h) Write a note on Castor oil.

i) Write a note on Hemp.

j) Draw well labelled anatomical diagram of Bark.

Total No. of Questions : 3]

SEAT No. :

PC-5070

[Total No. of Pages : 2

[6372]-501
Third Year B. Pharmacy
BP501T: 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 mark.***

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

a) Write mechanism of action and medicinal applications of digitoxin.

b) Write a note on Potassium sparing diuretics.

c) Draw structure and write medicinal applications of Ranitidine.

d) Outline synthetic scheme of nifedipine.

e) Write a note on Anti-thyroid agents.

f) Draw structure and write medicinal applications of cetrizine.

g) Write a note on drugs for erectile dysfunction.

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

a) Discuss chemistry, nomenclature, Classification and mechanism of action of corticosteroids.

b) Discuss in detail development of H_2 antagonist. Add a note on Gastric Proton pump inhibitors.

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

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

P.T.O.

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

a) Write method of synthesis for Atenolol and Furesomide.

b) Explain SAR and MOA of calcium channel blockers.

c) Write mechanism of action and medicinal applications of drugs belonging to class HMG Co-A reductase inhibitors.

d) Explain in detail ACE Inhibitors;

e) Draw structure wnte mechanism of action and medicinal applications of promethazine

f) Discuss SAR and MOA of estrogens.

g) Write mechanism of action and medicinal applications of acetazolamide and mannitol.

h) Discuss SAR of local anesthetics.

i) Explain in detail Prostaglandins.

j) Explain in brief Oral contraceptives

Total No. of Questions : 3]

SEAT No. :

PC-5071

[Total No. of Pages : 2

[6372]-502
Third Year B. Pharmacy
BP502T: INDUSTRIAL PHARMACY - I
(2019 Pattern) (Semester - V)

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

Instructions to the candidates:

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

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

a) Define aerosols. Describe in details various manufacturing technique of pharmaceutical aerosols.

b) Define tablet. Explain wet granulation technique for oral solid dosage forms. Explain fluidized bed granulators in detail.

c) Explain in details about necessities of parenteral preparations.

d) Discuss in detail formulation development of hard gelatin capsule, standards & defects there of. Explain the volumetric and dosator principle in capsule filling.

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

a) Add a brief note on Sugar coating.

b) Explain dissolution test as per IP.

c) What is Coring ? Give fragmentation test and self seal-ability test for rubber closure.

d) Differentiate between cold cream and vanishing cream.

e) Formulation of lipstick

f) Add a note on LVP

g) Define Lyophilization. Explain the steps involved in Lyophilization process.

h) Write a note on evaluation of aerosol

i) Describe about vials used for parenterals.

j) Describe Powder glass test with their limits for parenterals.

P.T.O.

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

a) Explain in brief formulation aspects of sunscreens.

b) Justify the sentence pH adjustment of ophthalmic prepration is important'.

c) Give significance of plasticizer in capsule dosage form.

d) What is Limulus amebocyte lysate test?

e) Describe an environmental control zones in parenteral.

f) Describe metal test for ophthalmic ointment.

Total No. of Questions : 3]

SEAT No. : ____

PC-5072

[Total No. of Pages : 2

[6372]-503
Third Year B. Pharmacy
BP503T: PHARMACOLOGY - II
(2019 Pattern) (Semester - V)

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

Instructions to the candidates:

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

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

a) Define osmotic diuretics. Enlist their therapeutic uses.

b) Write mechanism of action of ACTH.

c) Define Fibrinolytics. Give mechanism of action of Tissue Plasminogen Activators (TPA)

d) Define and classify antithyroid drugs.

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

f) Give location and functions of histamine receptor.

g) Enlist the functions of posterior pituitary harmone.

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

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

b) Classify NSAIDs and write pharmacological details of Aspirin.

c) Write advantage, disadvantage and types of the bioassay. Add a note on bioassay of Insulin.

d) Classify oral hypoglycarmic agents. Explain pharmacotherapy of type 2 diabetes.

P.T.O.

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

a) Write a note on β - Blocker (Beta-Blocker)

b) Explain the role of Anabolic steroids in male.

c) Describe the therapeutic utility of vasodilators in angina pectoris.

d) Write note on salfasalazines.

e) Explain pharmacology of thiazide diuretics?

f) Write a note on calcium channel Blockers.

g) Add note on therapeutic effects of corticosteroid.

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

i) Write a note on oral contraceptive pills.

j) Discuss pharmocological action of digitals for the treatment of congestive heart failure.

Total No. of Questions : 3]

SEAT No. : ____

PC-5073

[Total No. of Pages : 2

[6372]-504
T. Y. B. Pharmacy
BP504T: PHARMACOGNOSY AND PHYTOCHEMISTRY - 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.***
3) ***Neat labelled diagrams must be drawn whenever necessary***

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

a) Describe utilization of Digitalis alkaloids.

b) Write the isolation and identification test for menthol.

c) Write applications of microwave assisted extraction.

d) Write the murexide test for Caffeine.

e) Define extraction and give classification.

f) Draw neat labelled diagram of microscopy of Coriander.

g) Define glycosides, alkaloids with suitable examples.

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

a) Explain utilization of radioisotopes in biogenetic studies.

b) Explain the principle, instrumentation and applications of Microwave-assisted extraction.

c) Describe industrial production, estimation and utilization of Diosgenin.

d) Discuss the role of Shikimic acid pathway in the biogenesis of secondary metabolites.

P.T.O.

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

a) Write isolation and identification of Curcumin.

b) Explain froth floatation with its application.

c) Give biological source, chemical constituents and uses of any two Glycoside drugs.

d) Explain features with a neat labelled microscopic diagram of Fennel fruit.

e) Explain isolation, identification and analytical profile of Artemisin.

f) Write comprehensive note on Resin drugs with examples.

g) Discuss the solid phase extraction and electrophoresis.

h) Write note on industrial production and estimation of Forskolin.

i) Write process and principle of Soxhlet extraction for crude drugs.

j) Explain morphology and microscopic feature of Senna leaf.

Total No. of Questions : 3]

SEAT No. : ____

PC-5074

[Total No. of Pages : 2

[6372]-505
T. Y. B. Pharmacy
BP505T : PHARMACEUTICAL JURISPRUDENCE
(2019 Pattern) (Semester - V)

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

Instructions to the candidates:

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

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

a) Write the qualification and duties of Government Analyst?

b) Write the objective of Drugs (Price Control) Order, 1995 and what is ceiling price and retail price?

c) What are schedule G and H?

d) What were the recommendations by Drug Enquiry Committee?

e) What are the classification of medicinal and toilet preparations containing alcohol and write in brief Ayurvedic preparations containing alcohol?

f) Write offenses and penalties under Drugs and Magic Remedies Act, 1954 and rules 1955.

g) What is illicit traffic?

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

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

b) Write the constitution and composition of the central and state pharmacy councils, also explain the registration procedure of Pharmacist.

c) Discuss in detail objectives and salient fatures of The Prevention of Cruelty to Animals Act, 1960.

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

P.T.O.

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

a) Drug Technical Advisory Board

b) Procedure for obtaining license to manufacture Medicinal Toilet Preparations containing alcohol.

c) Prices of bulk drugs,

d) Classes of Exempted advertisement

e) Sehedule V.

f) Experience or training of registered medical practitioner for termination of pregnancies and write the circumstances under which the pregnancies may be terminated.

g) What are Pharmaceutical code of ethics and write code of ethics in relation to job and medical profession.

h) Write in brief Right to Information Act, 2005

i) Offences and penalties under Narcotic Drugs and Psychotropic Substances Act & Rules.

j) Repacking license

Total No. of Questions : 3]

SEAT No. :

PC5075

[Total No. of Pages :2

[6372]-601

T.Y.B.Pharmacy

BP 601 T : MEDICINAL CHEMISTRY - III

(2019 Pattern) (Semester- VI)

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

Instructions to the candidates:

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

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

a) Write MOA and medicinal uses of cephalosporin antibiotics.

b) What are anthelmintics? Give examples.

c) Define antineoplastic agents, draw structure of any two antimetabolites use as antineoplastic agent.

d) What are first line anti-tubercular drugs? Write the structure of any two anti- tubercular drugs.

e) Write medicinal uses of sulphonamides class of drugs.

f) Enlist RNA virus inhibitors with their therapeutic uses.

g) List out anti-viral agents. Give the structure and uses of any two anti-viral drug.

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

a) Describe the chemistry, SAR and MOA of tetracycline antibiotics.

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

c) Describe the chemistry, SAR and MOA of sulphonamides.

d) Define and classify antimalarials with suitable examples, Describe the SAR and MOA of quinolines antimalarial agents.

P.T.O.

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

a) Write a note on Ferguson principle.

b) Describe the SAR and MOA of antifungal azoles.

c) Discuss MOA of anti-neoplastic alkylating agents.

d) Explain MOA of plant products as anti-neoplastic agents.

e) Describe the SAR and MOA of quinolones anti-infective agents.

f) Discuss chemistry of penicillins antibiotics. Give their uses and side effects.

g) Why sulfonamide medications increase the risk of crystalluria and discuss ways to minimize this adverse effect.

h) Write a note on beta lactamase inhibitors.

i) Draw the scheme of synthesis for ciprofloxacin.

j) Draw the scheme of synthesis for ethambutol.

Total No. of Questions : 3]

SEAT No. :

PC5076

[Total No. of Pages :2

[6372]-602

T.Y.B.Pharmacy

BP602T : PHARMACOLOGY - III

(2019 Pattern) (Semester- VI) (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 (Answer 5 out of 7): **[5×3=15]**

a) What are leukotaine antagonist? Give example.

b) Write a note on causes & prevention of antimicrobial resistance.

c) Mention one sexual transmitted disease and its treatments.

d) Write the uses of corticosteroids.

e) What are Diagestants and carminatives?

f) Classify antibiotics with examples.

g) Elaborate Carcinogenicity.

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

a) Classify antimalarial agents with examples. Discuss pharmacology of chloroquine.

b) What are macrolides? Give examples. Discuss their antimicrobial spectrum, MOA and therapeutic uses.

c) What are Immunosupressants and Immunostimulants? Give examples. Write their applications.

d) What is cancer? Classify anticancer agents with examples & explain any one.

P.T.O.

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

a) Explain rational behind combined therapy of antimicrobial agents with examples.

b) Classify penicillin. Write mechanism of Action, Adverse effect and uses of penicillin.

c) Write MOA, adverse effect and uses of chloroquine.

d) Give Pharmacology of sulfonamides & cotrimoxazole.

e) Write short note on Expectorants and antitussives.

f) Give Adverse effect and explain Mechanism of Action of Macrolides Antibiotics.

g) Classify and explain Antileprotic Agents.

h) Explain with examples of Monoclonal Antibodies.

i) Classify Anti TB agents.

j) Write in detail clinical symptoms of heavy metals poisonings.

Total No. of Questions : 3]

SEAT No. :

PC5077

[Total No. of Pages :2

[6372]-603

Third Year B.Pharmacy

BP603T : HERBAL DRUG TECHNOLOGY

(2019 Pattern) (Semester - VI)

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

Instructions to the candidates:

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

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

a) Write a note on Bioprospecting and Biopiracy.

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

c) Brief note herbal origin perfumes.

d) Define natural binders along with classification and advantages.

e) Write a note on Natural sweetener.

f) Discuss Homeopathic system of medicine.

g) Write a note on Ashwagandha as Neutraceutical

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

a) Describe in detail Good agriculture practices for medicinal plants.

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

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

d) Define Bhasma? Describe in detail method of preparation and standardisation of bhasma.

P.T.O.

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

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

b) Deseribe method of preparation and standardization of *Asava-Arishta*.

c) Describe the manufacturing process and evaluation parameters for herbal syrup.

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

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

f) CITES.

g) What is drug interactions and explain about the herb drug interactions with examples.

h) Explain role of neutraceuticals and health benefits in ailment CVS diseases.

i) Explain in detail case study of Neem and curcumin.

j) Write a note on Biodynamic agriculture.

Total No. of Questions : 3]

SEAT No. :

PC5078

[Total No. of Pages :2

[6372]-604

T.Y. B. Pharmacy

BP604T : BIOPHARMACEUTICS AND PHARMACOKINETICS

(2019 Pattern) (Semester - VI)

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

Instructions to the candidates:

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

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

a) Define bioequivalence, pharmaceutical equivalence and therapeutic equivalence.

b) What is the influence of G1 pH on drug absorption?

c) Write a short note on bio-waivers.

d) Explain clearance, renal clearance and renal clearance ratio.

e) Name and define the pharmacokinetic processes involved in the termination of drug action.

f) What are limitations of pH - partition hypothesis?

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

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

a) Discuss in detail the various factors affecting drug metabolism.

b) Explain different methods to enhance the dissolution of poorly soluble drugs.

c) Define Absorption. Discuss in detail the various physico-chemical and pharmaceutical factors affecting drug absorption.

d) Explain the concept of BCS. Give its significance and add note on BDDCS.

P.T.O.

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

a) Explain the influence of gastric emptying and intestinal transit time on absorption of drugs.

b) Explain in detail about active transport of drug.

c) Write a note on determination of K_m and V_{max} at steady state concentration.

d) Enumerate various factors affecting protein binding and explain protein related factors.

e) Discuss about different pharmacokinetic parameters.

f) Write a note on enterohepatic cycling of drug.

g) Write a detail note on kinetics of protein binding.

h) Explain permeability limited drug distribution.

i) Differentiate between active transport and a facilitated diffusion.

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

Total No. of Questions : 3]

SEAT No. :

PC5079

[Total No. of Pages :2

[6372]-605

Third Year B. Pharmacy

PHARMACEUTICS

BP605T : Pharmaceutical Biotechnology

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

a) Explain method of preparation of toxoids.

b) Elaborate role of restriction endonuclease and DNA ligase in r-DNA technology.

c) Explain storage condition of official vaccines.

d) Give basic principle of genetic engineering.

e) Give principle and application of Western blotting.

f) Explain types of Mutants.

g) Explain role of peroxidase and lipase enzyme in biotechnological processes.

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

a) Explain in detail the method of preparation of Interferon by r-DNA technology.

b) Write in detail different methods of enzyme immobilization.

c) What are biosensors? Explain types with pharmaceutical application.

d) Describe in detail PCR 139.

P.T.O.

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

a) What is scope of biotechnology in pharmaceutical sciences?

b) Write note on hypersensitivity reactions.

c) Explain production of Penicillin.

d) Describe construction and working of Fermenter.

e) Give principle and application of ELISA.

f) Write on processing and storage of blood products.

g) Give the general method of preparation of bacterial vaccines.

h) Explain production and application of Monoclonal antibodies by hybridoma technology.

i) Give brief introduction of protein Engineering.

j) Write note on transposons.

Total No. of Questions : 3]

SEAT No. :

PC5080

[Total No. of Pages :2

[6372]-606

Third Year B. Pharmacy

BP606T : PHARMACEUTICAL QUALITY ASSURANCE

(2019 Pattern) (Semester - VI) (Theory)

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

Instructions to the candidates:

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

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

a) Give quality control parameters for rubber closures.

b) Relate QbD and its elements to Pharmaceutical products.

c) Highlight personnel responsibilities under GMP.

d) What are returned goods? Recommend the procedure for handling returned goods.

e) State guidelines for waste disposal handling in the pharmaceutical industry.

f) Discuss the importance and scope of validation.

g) Illustrate IQ, OQ and PQ with suitable examples.

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

a) Elucidate the major quality control tests for paperboards and cartons.

b) What is pharmaceutical validation? Elaborate the types of validation.

c) Provide detailed guidelines for handling recalled products in the Pharmaceutical Industry.

d) Summarize the concept of Total Quality Management.

P.T.O.

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

a) Distinguish BFR and MFR.

b) Review the quality control tests for plastic containers for parenteral preparations.

c) Express the functions of WHO in the regulation of Pharmaceuticals.

d) Write criteria for the selection and purchase of equipment in the Pharmaceutical industry.

e) Present the guidelines for environmental control in the Pharmaceutical industry.

f) Compile CPCSEA Guidelines.

g) Describe in brief good warehousing practices.

h) Justify the role of Quality control and Quality assurance in the Pharmaceutical industry.

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

j) What is SOP? Draft SOP on SOP.

Total No. of Questions : 3]

SEAT No. :

PC5081

[Total No. of Pages :2

[6372]-701

Fourth Year B.Pharmacy

BP701 T : 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 labelled diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

Q1) Attempt any five: **[5×3=15]**

a) Differentiate between TLC and HPTLC.

b) Define terms

i) Bathochromic shift

ii) Hypsochromic shift

iii) Hypochromic effect

c) Explain the system suitability parameters of a chromatographic system.

d) Draw a neat schematic diagram of fluorimeter. Give Reason, the light source and detectors are placed perpendicular to each in fluorimeter.

e) Discuss types of Paper chromatography.

f) Write similarity and difference between colorimetry and turbidimetry.

g) What is fingerprint region in IR spectroscopy?

Q2) Attempt any two: **[2×10=20]**

a) Discuss the Rate Theory and Plate Theory.

b) Differentiate between atomic absorption and atomic emission spectroscopy. Write brief note on flame photometry.

c) Explain the detectors of gas chromatography and add a note on carrier gases.

d) Write down the theory of fluorescence and phosphorescence spectroscopy. Discuss factors affecting fluorescence.

P.T.O.

Q3) Attempt any eight: **[8×5=40]**

a) State Beer-Lamberts law and derive an equation for it.

b) Why is gel chromatography also called size exclusion chromatography? What is the elution order of molecules in gel chromatography?

c) Explain significance of Functional Group Region and Fingerprint Region with example

d) What factors influence the separation efficiency in ion exchange chromatography?

e) Write a note on solvents used in UV spectroscopy.

f) Write a Note on Spectrophometric Titrations

g) Differentiate between normal-phase and reversed-phase partition chromatography.

h) Explain DRS and ATR Technique of Sample Handling in IR Spectroscopy.

i) What are the steps involved in performing an HPTLC analysis?

j) What is the purpose of the pump in an HPLC system? Explain any two types of HPLC pumps.

Total No. of Questions : 3]

SEAT No. :

PC5082

[Total No. of Pages :2

[6372]-702

Fourth Year B.Pharmacy

BP702 T : INDUSTRIAL PHARMACY - II

(2019 Pattern) (Semester- VII)

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: (Any 5) **[15]**

a) Explain role of ICH guidelines in technology transfer.

b) Write a brief note on quality risk management.

c) Briefly explain SIDBI.

d) Enlist benefits of ISO 14000.

e) Explain about personnel requirements in pilot plant scale up.

f) Write a note on SUPAC guidelines.

g) Describe in brief about state licensing authority.

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

a) Explain in detail scale up consideration in tablet coating.

b) Explain in detail WHO guidelines for Technology Transfer.

c) Elaborate on Total Quality Management (TQM) and Quality by Design (QbD).

d) Explain various stages in development of new drug.

P.T.O.

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

a) What is platform technology?

b) Explain concept of six sigma in Quality Improvement.

c) Give detailed account of documentation, premises and equipments in technology transfer.

d) Discuss about GLP.

e) What are various phases of clinical trials?

f) Explain scale up considerations in drying of granules.

g) Elaborate on organization and responsibilities of CDSCO.

h) What are the general considerations of Investigational New Drug Application (INDA).

i) Explain scale up considerations in semi solids.

j) What are the responsibilities of regulatory affairs professionals?

Total No. of Questions : 3]

SEAT No. :

PC5083

[Total No. of Pages :2

[6372]-703

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 labelled diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

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

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

b) Define patient counseling and give its objectives.

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

d) Summarize the causes of drug interactions.

e) Explain with examples toxicity following sudden withdrawal of drugs.

f) Enlist the risks associated with self medication.

g) Give the composition of Pharmacy & therapeutic Committee and enlist the primary functions of it.

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

a) Explain various adverse drug reactions with examples.

b) Discuss about preparation and revision of hospital formulary.

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

d) Discuss role of pharmacist in medication adherence.

P.T.O.

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

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

b) Discuss pharmacokinetic drug interactions with example.

c) Explain methods of labelling of drugs in hospital.

d) Clarify process of addition and deletion of drugs from hospital formulary.

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

f) Define community pharmacy. Explain different types of layout of community pharmacy.

g) Describe principles and procedures of purchasing of drugs.

h) Explain role of hospital pharmacists in investigational drug studies.

i) Discuss various kidney function test parameters and their clinical relevance.

j) Discuss the dispensing of drugs to ambulatory patients.

Total No. of Questions : 3]

SEAT No. :

PC5084

[Total No. of Pages :2

[6372]-704

Fourth Year B.Pharmacy

BP704T : NOVEL DRUG DELIVERY SYSTEM

(2019 Pattern) (Semester - VII)

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

Instructions to the candidates:

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

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

a) What is Microencapsulation? Give the Ideal properties for Coating material along with examples.

b) What are Polymers? Give the Ideal characteristics of polymers for formulation of Controlled drug delivery systems.

c) What are gastroretentive drug delivery systems, what is the deal characteristics of drug to be developed as GRDDS?

d) What are Mucoadhesive drug delivery systems and what are the Routes of targeting of Mucoadhesive systems?

e) Explain monoclonal antibodies as a targeted drug delivery systems with diagram and examples.

f) What are nehulizers and nasal sprays?

g) Write note on non medicated lUDs.

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

a) Elaborate Coacervation phase separation by Incompatible Polymer Addition method.

b) Explain pharmaceutical Approaches to design-controlled release formulation based on diffusion-controlled matrix and encapsulated type.

c) Give formulation of mucoadhesive drug delivery systems and elaborate on penetration enhancers.

d) Explain concept of Targeted drug delivery systems with advantages and disadvantages.

P.T.O.

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

a) Write a note on pan coating technique of microencapsulation.

b) Write note Non Biodegradable Polymers.

c) Explain the Concept of Modified Drug delivery systems and write the Merits.

d) Explain Non-effervescent Colloidal gel barrier systems and Swellable systems for GRDDS.

e) What are Transdermal drug delivery systems? Describe Physical evaluation tests for Transdermal patches.

f) Explain in detail Polymer membrane permeation controlled drug delivery implants.

g) Write about factors affecting intraocular bioavailability.

h) Note on Evaluation of mucoadhesive strength of buccal delivery systems.

i) What are the Physico-chemical factors affecting of drug delivery system through skin in Transdermal drug delivery system?

j) Elaborate on Adhesive-dispersion type approach in development of transdermal patches.

Total No. of Questions : 3]

SEAT No. : ____

PC-5085

[Total No. of Pages : 2

[6372] - 801
Final Year B. Pharmacy
BP 801T: Biostatistics and Research Methodology
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) What is 2^2 factorial design?

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

c) What is sampling? Write about “Random Sampling”.

d) Explain in brief about response surface plot.

e) What is descriptive and inferential statistics?

f) Weights of 10 tablets in mg in a sample data are 256, 252, 248, 255, 258, 254, 257, 247, 246 and 250. Find out the sample mean.

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

P.T.O.

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

a) What are the statistical measures? Describe in detail the types of measures of central tendency and their characteristics.

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

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

d) Obtain the two lines of regression for the data given in following table:

Age (years)	66	38	56	42	72	36	63	47	55	45
Blood Pressure	145	124	147	125	160	118	149	128	150	124

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

a) Explain about report writing.

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

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

d) Write a note on Binomial distribution.

e) Write a note on Plagiarism.

f) Write note on MINITAB®.

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

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

i) Write in brief about statistical analysis using Excel.

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

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

Total No. of Questions : 3]

SEAT No. :

PC-5086

[Total No. of Pages : 2

[6372] - 802
Final Year B. Pharmacy
BP 802T: Social and Preventive Pharmacy
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

Q1) **Answer any five (05 out of 07) :** **[15]**

a) Write salient features of National programme for prevention and control of deafness.

b) How to prevent and control Dengue

c) Explain the effect of Ebola virus, mode of transmission and prevention.

d) Explain the implications of Vit. B_{12} Deficiency?

e) Explain the importance of personal hygiene.

f) Write about psychological problems of elders

g) Explain poverty and health

P.T.O.

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

a) Elaborate on National program for prevention and control of Tuberculosis.

b) Write general principles of prevention and control of acute respiratory infection.

c) What is lymphatic filariasis? Write a detail note on its prevention and treatment.

d) Explain objectives and functions of universal immunization programme

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

a) Write the causative factors, signs, and symptoms of influenza

b) Write a note National AIDS control programme

c) What are the objectives of the community services in rural areas

d) Write a note on General principles and control of cancer

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

f) What are the objectives of the national family welfare program

g) Explain the concept of diseases.

h) Explain in detail Prevention and control of malaria.

i) Explain drug addiction and drug substance abuse.

j) Explain Community services in urban health.

Total No. of Questions : 3]

SEAT No. : ____

PC-5087

[Total No. of Pages : 2

[6372] - 803
Final Year B. Pharmacy
BP 803 ET: Pharma Marketing Management
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) What is the difference between marketing and selling.

b) Explain the product life cycle.

c) Write on skim pricing strategy

d) What are the responsibilities of professional sales representative?

e) Discuss different types of purchase or buying situation

f) Write about pharmaceutical marketing channels

g) Write on importance of packaging.

P.T.O.

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

a) Describe in detail product management in pharmaceutical industry.

b) Discuss in details of marketing research and mention its importance

c) Discuss in detail about the different pricing methods and strategies involved in pharmaceutical industry.

d) Discuss about industrial marketing and add note on marketing channel members

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

a) Write about size and composition of the pharma market.

b) Describe types of conflicts in marketing channel.

c) Write in detail about sources of market research.

d) Discuss about how to promote OTC products

e) Discuss about concept of detailing in pharmaceutical marketing.

f) Explain the important steps in pricing.

g) Write a note on Drug price control order.

h) Write about rural marketing and its importance.

i) Explain about e-detailing.

j) Which are demographic characteristics in customer profile.

Total No. of Questions : 3]

SEAT No. :

PC-5088

[Total No. of Pages : 2

[6372] - 804
Final Year B. Pharm.
BP 804ET: Pharmaceutical Regulatory Science
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

1) Write in brief about Regulatory authorities of Canada.

2) Write a note on purple book.

3) Enlist different applications used for approval in EU.

4) Write the various functions of CDSCO.

5) Differentiate between brand and generic products.

6) Explain Federal register.

7) What is clinical trial?

P.T.O.

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

1) Explain clinical trial protocol. Give brief note on Institutional review board.

2) Explain the approval process of timeline involved in Investigational New Drug.

3) Explain export of pharmaceutical products in detail.

4) Discuss the application and approval process for ANDA.

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

1) Write about the regulatory authorities of Australia.

2) Give brief account on electronic common technical document.

3) Summarize ACTD research.

4) Explain organization structure and functions of USFDA.

5) Explain the approval process for implementing the changes to an approved NDA.

6) Write a note on DMF (Drug Master File).

7) What is orange book? Give its application.

8) Explain the concept of generics and Generic drug product development.

9) Explain procedures of GCP of investigators, sponsors and monitors.

10) Write a note on Pharmacovigilance-safety monitoring in clinical trials.

Total No. of Questions : 3]

SEAT No. :

PC-5089

[Total No. of Pages : 2

[6372] - 805
Final Year B. Pharmacy
BP 805ET: Pharmacovigilance
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) Define serious adverse event side effect & adverse drug reaction

b) Define PvPI, (Pharamacovigilance Program in India).

c) What is mean by Extra Vigilance .

d) Discuss the daily reflex dose.

e) Differentiate between passive & active surveillance.

f) Define crisis & how to manage the crisis.

g) What are the objectives of ICH?

P.T.O.

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

a) Define pharmacovigilance. Discuss in detail reporting & management of ADR along with causality assessment scale.

b) Discuss the international classification of Disease in detail.

c) Discuss in detail about Cohort & case control study. Explain the application of MedDRA and standardized MedDRA queries.

d) Write in detail about good clinical practices in pharmacovigilance studies.

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

a) Discuss WHO drug dictionary & costing in pharmacovigilance

b) Explain the Naranjo scale?

c) Write a note on contract research organization

d) Explain vaccine safety surveillance

e) Write a note on drug safety crises management

f) Write a note on schedule Y.

g) How will you carry out drug safety evaluation in geriatric & pediatric population.

h) What is mean by comparative observational studies?

i) Write a note on pharmacogenomics in adverse drug reactions

j) Write a short note on ICH guidelines.

Total No. of Questions : 3]

SEAT No. :

PC-5090

[Total No. of Pages : 2

[6372]-806
F. Y. B. Pharmacy
BP806ET : QUALITY CONTROL AND STANDARDIZATIONS OF HERBALS
(2019 Pattern) (Semester - VIII)

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

Instructions to the candidates:

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

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

a) Write applications of paper chromatographic techniques for standardization.

b) Note on determination of extractable matter as per WHO for quality control of Herbal drugs.

c) Brief 'Safety' parameter of GLP.

d) Note on 'Water supply' as per schedule T.

e) Discuss biological evaluation of crude drugs.

f) Write in short organoleptic evaluation of crude drugs.

g) Write in short 'documentation' as per GLP.

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

a) Elaborate quality control of herbal drugs as per WHO guidelines.

b) Elaborate GMP for herbal drug industry with respect to Schedule T in Part - II.

c) Explain stability studies parameters with respect to shelf life of herbals.

d) Write in detail research guideline for evaluating efficacy of herbal drugs.

P.T.O.

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

a) Write in brief cGMP for quality assurance of in herbal drug industry.

b) Explain basic tests for herbal extracts containing dosage forms.

c) Discuss application of HPTLC for quality control of herbals.

d) Write various parameters of monograph study in Indian Herbal pharmacopoeia.

e) Explain soil and irrigation condition for cultivation as per GAP of medical plants.

f) Write in detail 'Harvest' as for GAP for medicinal plants.

g) Discuss EU guidelines for quality control of herbal drugs.

h) Write in detail 'identification/authentication' of cultivated medicinal plants as per GAP.

i) Describe new drug application for export registration for herbals.

j) Explain 'regents' and 'reference standards' as per GLP.