

Total No. of Questions : 6]

SEAT No. :

[Total No. of Pages : 2

**P1468**

**[5049]-1001**

**F. Y. B. Pharmacy**

**PHARMACEUTICS - I**

**(2015 Pattern) (Credit System) (Semester - I)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *Answers to the two Sections should be written in separate answer books.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*

**SECTION - I**

**Q1)** Attempt any one:

- a) What are different branches of Pharmacy? Write about career oppotunities in Pharmacy. **[10]**

OR

- b) Write about various compendia and pharmacopoeia used in Pharmacy.

**Q2)** Attempt any Four:

**[12]**

- a) Quality assurance concept.
- b) Write about code & ethics.
- c) What is drug and New drug according to regulatory aspects.
- d) What is Pharmacy? Write about scope in pharmacy.
- e) Write about Ayurveda System of Medicine.
- f) Explain routes of admmission.
- g) Explain sources of drugs with examples.

**Q3)** Write Note on Any Two:

**[8]**

- a) History of Pharmacy.
- b) Quality Control.
- c) Siddha Medicine.
- d) Dosage forms.

**P.T.O.**

## SECTION - II

**Q4)** Attempt any one:

- a) Define concept of preformulation and formulation. **[10]**

OR

- b) Explain types of solutions. Give account on formula and formulation process of fixers.

**Q5)** Attempt any Four: **[12]**

- a) Explain formulation of dry syrup.
- b) Describe preservatives used in formulation.
- c) Define Viscosity. Explain how it is important in formulation of solution.
- d) What are aromatic waters? Differentiate between aromatic and Concentrated aromatic waters.
- e) Enlist physiochemical studies in preformulation.
- f) Give account on additives in formulations.
- g) Describe antioxidants used in formulations.

**Q6)** Solve any Two: **[8]**

- a) Explain in short ENT preparations.
- b) Define excipients, classify with examples.
- c) Explain the formulation and evaluation linctus and fixers.
- d) Factors affecting rate of solutions.



Total No. of Questions : 6]

SEAT No. :

**P1469**

**[5049]-1002**

[Total No. of Pages : 2

**F.Y.B.Pharmacy**

**MODERN DISPENSING PRACTICES**

**( 2015 Pattern) (Semester-I)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two Sections should be written in separate books.*
- 3) *Figures to the right indicate full marks.*

**SECTION-I**

**Q1)** Explain in detail any One: **[10]**

- a) Explain in detail storage and stability of medicines.
- b) Define Prescription and explain parts of prescription.

**Q2)** Answer in brief. (solve any Four) **[12]**

- a) Comment on Personnel and housekeeping with respect to compounding.
- b) Calculate the amount of 5% and 20% of povidone iodine ointment to produce 500 gm of 10% ointment.
- c) What is the proof strength of 80% v/v and 45% v/v ethanol?
- d) What are the content and advantages of Cash Memo?
- e) Explain labeling of dispensed product.
- f) Write the importance of pictograms with example.
- g) Define compounding and Dispensing.

**Q3)** Solve any Two from following: **[8]**

- a) Explain in detail documentation in good compounding practices.
- b) Write a note on PMR.
- c) Find the concentration of NaCl required to make 1.5% solution of cocaine HCl isosmotic with blood plasma(Freezing point of 1% w/v solution of cocaine HCl is-0.9°C).
- d) Write a note on expired medicine and return medicine record.

**P.T.O.**

## SECTION-II

**Q4)** Answer any One from the following. **[10]**

- a) Define posology and Factors affecting the dose.
- b) Write in detail Physicochemical incompatibility.

**Q5)** Answer in brief (Solve any four) **[12]**

- a) Explain idiosyncrasy.
- b) Write a note on rationale use of drugs.
- c) What are Dispensing errors?
- d) Explain precaution to be taken by asthma patient.
- e) Explain concept of Self Medication and its disadvantages.
- f) Write the formulas for the calculation of dose depending upon age.
- g) Write a note on patient counseling for OTC Products.

**Q6)** Answer any Two from following. **[8]**

- a) Explain in brief Drug information services.
- b) Explain role of pharmacist in HIV/AIDS
- c) Explain the steps and importance of patient counseling.
- d) Write a note on reporting of ADR.

✓   ✓   ✓

Total No. of Questions : 6]

SEAT No. :

**P1470**

**[5049]-1003**

[Total No. of Pages : 2

**F.Y. B.Pharmacy**

**PHARMACEUTICAL INORGANIC CHEMISTRY**

**(2015 Pattern) (Semester - I)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two Sections should be written in separate answer books.*
- 3) *Figures to the right indicate full marks.*

**SECTION - I**

**Q1)** Attempt any ONE from the following: **[10]**

- a) Classify gastrointestinal agents along with examples of each class. Write in detail about saline cathartics. Add a note on Acidifying agents.
- b) Explain in detail Absorption, distribution and Physiological role of Iron and Iodine. Give properties, uses and storage of Ferrous Sulphate and Potassium Iodide.

**Q2)** Solve any FOUR from the following: **[12]**

- a) Write a note on ORS.
- b) Discuss role of Potassium and chloride in our body.
- c) Explain why combination of Aluminum and Magnesium antacid is used?
- d) Define Monograph. Write in brief storage conditions of monograph.
- e) Write principle and reaction involved in limit test of Iron.
- f) Give role of ethanol, potassium sulphate and barium chloride in limit test of sulphate.
- g) Write in brief history of Indian Pharmacopoeia.

**Q3)** Solve any TWO from the following: **[8]**

- a) Explain limit test of Arsenic in detail.
- b) Explain GIT protective and Adsorbent along with one example each.
- c) Write a note on electrolytes used in Acid base Therapy.
- d) Discuss different official waters.

**P.T.O.**

## SECTION - II

**Q4)** Attempt any ONE from the following: **[10]**

- a) What are topical agents? Explain mechanism of action of Antimicrobial agents. Discuss preparation Properties, assay and uses of Hydrogen Peroxide.
- b) Define and classify Antacids. Explain ideal properties of Antacids. how they are evaluated? Write Properties uses calcium carbonate and Magnesium Hydroxide.

**Q5)** Solve any FOUR from the following: **[12]**

- a) Define along with examples:
  - i) Anticaries agents.
  - ii) Astringents.
  - iii) Antidotes.
- b) Write storage and labeling conditions for Nitrogen, Oxygen and Helium as inorganic gases.
- c) Write short note on properties and uses of sodium thiosulphate.
- d) Write in brief about Sodium Fluoride as Anticaries agent.
- e) Write a note on Zinc as trace ion.
- f) Define Hardness of Water. Enlist methods used to remove temporary and permanent hardness of water.
- g) Define Antacids. Enlist the compounds of calcium and magnesium used as antacids.

**Q6)** Solve any TWO from the following: **[8]**

- a) Explain Barium Sulphate as Radio opaque Contrast Media.
- b) Write a note on Ammonium Chloride as an expectorant.
- c) Explain Properties and uses of Sodium nitrite and sodium potassium tartarate.
- d) What are topical protective agents? Explain in detail Talc and Zinc oxide as protectives.



Total No. of Questions : 6]

SEAT No. :

**P1471**

**[5049]-1004**

[Total No. of Pages :3

**F.Y.B.Pharmacy**

**PHARMACEUTICAL ORGANIC CHEMISTRY-I**  
**(2015 Pattern)(Credit System) (Semester-I)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate answer sheet.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

**SECTION-I**

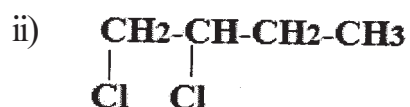
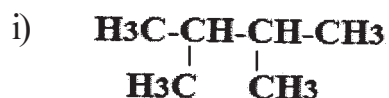
**Q1)** What are elimination reactions? Discuss in detail about E1 and E1 cb reaction. **[10]**

OR

Write a bout various classes of organic reactions with examples? Explain SN1 and SN2 reaction with mechanism and stereochemistry by giving suitable example. **[10]**

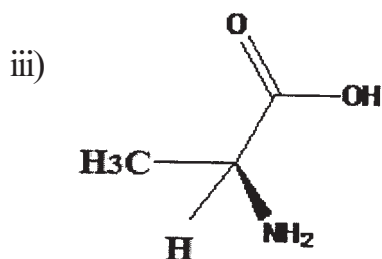
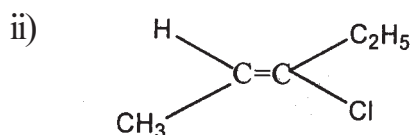
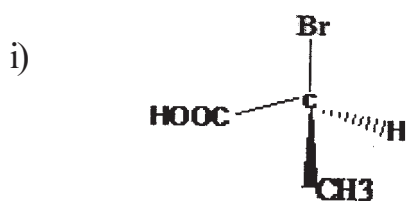
**Q2)** Answer the following(Any four): **[12]**

- a) Compare stability of primary, secondary and tertiary carbocation with suitable example?
- b) Define hybridization? Enlist various types with suitable example.
- c) Write IUPAC names for,



**P.T.O.**

d) Assign R/S or E/Z configuration to following,



- e) Explain enantiomerism with suitable example?
- f) What is inductive effect? Explain it with suitable example.
- g) Give any three methods of preparation of carboxylic acids?

**Q3)** Answer the following(Any Two):

**[8]**

- a) Explain Markonikov rule with suitable examples?
- b) Discuss in detail about Diels-Alder reaction with example?
- c) Explain the terms electrophile, nucleophile and carbene with example?
- d) Write in detail about tautomerism with example?



## SECTION-II

**Q4)** What are aromatic electrophilic substitution reactions? Explain the mechanism involved in nitration and sulphonation of benzene. [10]

OR

What are addition reactions of alkene? Explain reaction mechanism of addition of hydrogen halide, halogen and hydrogen to alkene with examples. [10]

**Q5)** Answer the following(Any four): [12]

- a) Define isomerism? Write about geometrical isomerism.
- b) Give difference between sigma bond and pi bond?
- c) Trichloroacetic acid is stronger than chloroacetic acid, give reason?
- d) What is hyperconjugation effect? Explain with suitable example.
- e) Give any three reactions of Phenols?
- f) Write about ozonolysis with example?
- g) Define and explain Huckel's rule of aromaticity with example.

**Q6)** Answer the following(Any two): [8]

- a) Give and explain types of intermolecular forces of attraction? Discuss in brief about H- bonding with example.
- b) Draw the resonance structure of following,
  - i) Phenol
  - ii) Aniline
  - iii) Toluene
  - iv) Benzoic acid.
- c) Give two methods of preparation of alkyenes? Write any two reactions of alkyenes.
- d) Explain Friedel craft alkylation with example?



Total No. of Questions : 6]

SEAT No. :

**P1472**

**[5049]-1005**

[Total No. of Pages : 2

**F.Y. B. Pharmacy**

**1.1.5 : HUMAN ANATOMY AND PHYSIOLOGY-I  
(2015 Pattern) (Semester-I) (Credit System)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Neat labelled diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

**SECTION-I**

**Q1)** Explain the stages of erythropoiesis. Discuss in detail life cycle of RBCs.

**[10]**

OR

Explain the structure of nucleus. Describe in detail the sequence of events during protein synthesis.

**Q2)** Answer the following (Any 4):

**[12]**

- a) Discuss the example of negative feedback loop with the help of diagram.
- b) Describe structure and functions of Mitochondria.
- c) Explain the structure and functions of lymph nodes.
- d) Write an account on ABO & Rh blood groups.
- e) Explain the structure of skeletal muscles.
- f) Define the terms: Hemostasis, Homeostasis and Hemopoiesis.
- g) Write a note on Organization of human body.

**Q3)** Write short note on (Any 2):

**[8]**

- a) Mechanism of Blood Clotting.
- b) Physiology of muscle contraction.
- c) Epithelial tissue.
- d) Structure and functions of Spleen.

**P.T.O.**

## SECTION-II

**Q4)** Draw neat labeled diagram of digestive system. Explain in detail layers of GIT. Add a note on mechanical & chemical digestion in stomach. [10]

OR

With neat labelled diagram explain conduction system of heart. Add note on phases of action potential in cardiac muscles.

**Q5)** Answer the following (Any 4): [12]

- a) Explain location, functions and operation of the heart valves.
- b) Explain types, histology and functions of salivary glands.
- c) Define health. Add note on health promotion.
- d) Explain the role of Renin-Angiotensin-Aldosterone system in regulation of B.P.
- e) Describe the structure and functions of Pericardium.
- f) Describe the structure of blood vessels.
- g) Define the terms: Achalasia, Peptic ulcers, and Cirrhosis.

**Q6)** Write short note on (Any 2): [8]

- a) Cardiac cycle.
- b) Electrocardiogram (ECG).
- c) Structure and functions of liver.
- d) Structure and functions of small intestine.



Total No. of Questions : 6]

SEAT No. :

**P1473**

**[5049]-1006**

[Total No. of Pages : 2

**F.Y.B.Pharmacy**

**COMMUNICATION AND SOFT SKILL DEVELOPMENT**

**(2015 Pattern) (Semester - I) (Credit System)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Neat labeled diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

**SECTION - I**

**Q1)** Define communication. Enlist the types of Communication. Explain in detail the types of Non verbal Communication. **[10]**

OR

Prepare the agenda and minutes of meeting for social activity in your premises.

**Q2)** Answer the following (Any 4) **[12]**

- a) Explain importance of Punctuation marks in english language.
- b) Draw the communication cycle. Write important elements.
- c) Write a note on enquiry letter.
- d) Enlist barriers for communication.
- e) State various purposes of writing.
- f) Write the salient features of technical communication.
- g) Explain language as a tool for communication.

**P.T.O.**

**Q3) Write short note on (Any 2) [8]**

- a) Differentiate between technical communication and general writing.
- b) Graphic Language.
- c) Knowing the audience.
- d) Formal report.

**SECTION - II**

**Q4) Define Intrapersonal and Interpersonal skills. Explain various Interpersonal skills with their importance. [10]**

OR

What is globalization? State the advantages and disadvantages of globalization. Add a note on Email.

**Q5) Answer the following (Any 4) [12]**

- a) Write the importance of group discussion.
- b) Format of leave letter.
- c) Importance of written business correspondence.
- d) Describe components of business letter.
- e) Explain steps in problem solving.
- f) Write the different conventional media.
- g) Write email etiquettes.

**Q6) Write Short notes on (Any 2) [8]**

- a) Cover letters.
- b) Phonetic symbols.
- c) Role of information technology in modern era.
- d) Empathy.



Total No. of Questions : 6]

SEAT No :

**P1474**

**[5049]-2001**

[Total No. of Pages : 2

**F.Y.B. Pharm.**

**PHARMACEUTICS - II**

**(2015 Credit Pattern) (Semester -II)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All question are compulsery.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary.*

**SECTION - I**

**Q1)** Attempt any one:

**[10]**

- a) Discuss the factors affecting rate of filtration and explain construction, working and advantages of rotary filter.

OR

- b) Write principal, construction, working, advantages and disadvantages of Colloidal mill.

**Q2)** Attempt any four:

**[12]**

- a) Why ball mill should be operated at optimum speed?
- b) Give the function of primary packaging materials.
- c) Write a note on hydroextractor.
- d) Elaborate on 'Glass as ideal packaging material'.
- e) Discuss the Coulter counter.
- f) Give the advantages and disadvantages of metal as packaging material.
- g) List the specifications and standards for sieves.

**Q3)** Write short notes on any two:

**[8]**

- a) Child resistant packs.

**P.T.O.**

- b) Size gradation of powders according to IP.
- c) Filter leaf.
- d) Hammer Mill.

**SECTION - II**

**Q1) Attempt any one: [10]**

- a) Explain the mechanism of liquid mixing and write about propeller and paddle mixer.

OR

- b) Explain good manufacturing practices with regards to premises, plant layout and environment.

**Q2) Attempt any four: [12]**

- a) Discuss the factors affecting mixing.
- b) Explain concept of distribution of drug.
- c) Write a note on planetary mixer.
- d) Enlist the various departments of pharmaceutical manufacturing unit and give the importance of central store.
- e) Elaborate aeration and foam prevention during mixing.
- f) Differentiate between bioavailability and bioequivalence.
- g) Discuss on excretory organs of body.

**Q3) Write short notes on any two: [8]**

- a) Flow chart of liquid manufacturing.
- b) Sigma blender.
- c) Fate of drug.
- d) Factors affecting absorption of drug.

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Total No. of Questions : 6]

SEAT No. :

**P1475**

**[5049]-2002**

[Total No. of Pages : 2

**F.Y. B.Pharmacy**

**DOSAGE FORM DESIGN**

**(2015 Pattern) (Semester - II) (Credit System)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *Answers to the two sections should be written in separate answer books.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*

**SECTION - I**

**Q1)** Define emulsion and write methods of preparation. Add note on HLB. [10]

OR

Define suspension and write its types. Discuss evaluation parameters for suspensions.

**Q2)** Answer following (any four): [12]

- a) What is Carr's index?
- b) Comment on plastic or interfacial film theory of emulsification.
- c) Write note on suspension containing poorly wettable solids.
- d) Define dosage forms. mention their advantages.
- e) Explain angle of repose.
- f) Explain Stoke's law.
- g) What is self emulsifying drug delivery system?

**Q3)** Answer following (any two): [8]

- a) What are advantages of granulation? Write note on effervescent granules.
- b) Write note on conventional dosage form with example.
- c) Discuss stability of emulsions.
- d) Write note on formulation aspects of tooth powder.

**P.T.O.**



## SECTION - II

**Q4)** What are different approaches for enhancement of solubility of drug? [10]

OR

Write about factors affecting drug absorption from rectal suppositories.

**Q5)** Answer the following (any four): [12]

- a) Differentiate between ointment and pastes.
- b) Define fundamental unit of radioactivity.
- c) Write briefly about solubilization.
- d) Write note on creams.
- e) Write importance of solubility in development of dosage forms.
- f) Write ideal properties of ointment base.
- g) Write note on Carbon-11 radiopharmaceutical.

**Q6)** Answer the following (any two): [8]

- a) Write note on Positron emission tomography.
- b) Discuss factors affecting solubility and dissolution.
- c) Write about evaluation of semisolid dosage forms.
- d) Define and classify jellies. Write note on gelling agent.



Total No. of Questions :6]

SEAT No. :

**P1476**

[Total No. of Pages :2

**[5049] - 2003**

**F.Y.B. Pharmacy**

**PHARMACEUTICAL ANALYSIS - I**

**(2015 Pattern) (Semester - II)**

*Time : 3 Hours]*

*[Max. Marks :60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two Sections should be written in separate answer books.*
- 3) *Figures to the right indicate full marks.*

**SECTION - I**

**Q1)** Classify the errors in analysis and explain in detail methods to minimize the errors. **[10]**

OR

What are the solvent used in non-aqueous titrations and explain leveling and differentiating effect of these solvents.

**Q2)** Attempt any four of the following: **[12]**

- a) What is buffer index? Write equation to calculate buffer index.
- b) Differentiate between Accuracy and Precision.
- c) Explain terms - Equivalent weight & Secondary standard.
- d) What is Polyprotic acid. Explain in brief polyfunctional titration.
- e) Explain theories of Acids and bases.
- f) What are pH indicators.
- g) Explain Significant Figures.

***P.T.O.***

**Q3)** Write a note on any two of the following: [8]

- a) Neutralisation curve for Strong Acid & Strong Base.
- b) Preparation and Standardisation of 0.1 N Perchloric Acid.
- c) Primary Standards.
- d) Titration of Amino Acids.

**SECTION - II**

**Q4)** Explain in detail end point detection methods in precipitation titration. [10]

OR

Discuss masking and demasking process with suitable examples. Add a note on metalochromic indicators.

**Q5)** Answer the following (Any 4): [12]

- a) Differentiate between co-precipitation and post-precipitation.
- b) How will you prepare and standardize 0.1 M EDTA solution?
- c) Explain assay of Ascorbic acid.
- d) Discuss the conditions for iodometric titration.
- e) Add a note on common ion effect.
- f) Write applications of gravimetry.
- g) Define ligands. Classify ligands by giving suitable examples.

**Q6)** Write short notes on (any 2): [8]

- a) Redox indicators.
- b) Filter media in gravimetry.
- c) Types of complexometric titrations.
- d) Factors affecting solubility.



Total No. of Questions : 6]

SEAT No. :

P1477

[5049]-2004

[Total No. of Pages : 3

F.Y.B.Pharmacy

**PHARMACEUTICAL ORGANIC CHEMISTRY - II**  
**(2015 Pattern) (Semester - II) (Credit System)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

**Q1)** Explain the structure and reactivity of carbonyl group.

Write the reactions for formation of acetal, oxime and enamine with suitable examples. [10]

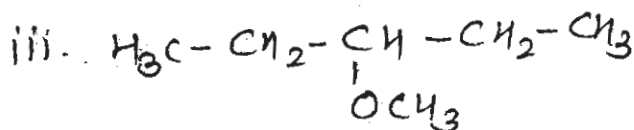
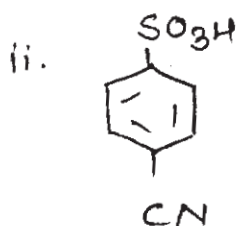
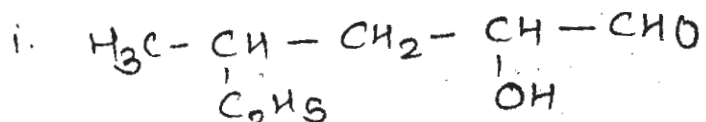
OR

What are amines? Classify Amines with suitable examples. Comment on basicity of amines and Explain methods to separate different types of amines. [10]

**Q2)** Solve the following (ANY 4)

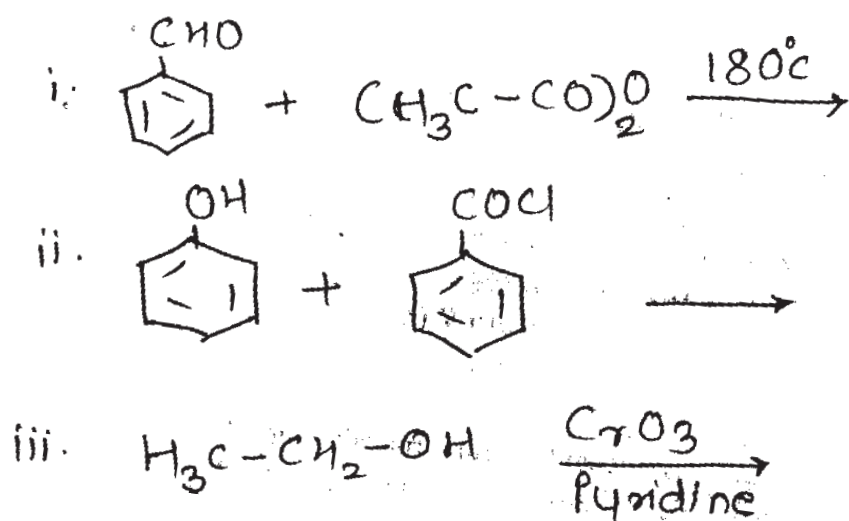
[12]

- a) Explain why phenols are acidic in nature?
- b) Write any three methods for preparation of sulphonic acids.
- c) Describe properties of ethers and write the reaction for Williamson's synthesis.
- d) Write the distinguishing tests for 1°, 2° and 3° alcohols.
- e) Write IUPAC names for:



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f) Predict the major products in each of the following reactions:



g) Write the mechanism for Knoevenagel reaction.

**Q3)** Write short notes on : (ANY 2)

[8]

- Aldol Condensation.
- Ring substitution reactions of phenols.
- Methods of preparation of alcohols.
- Reactions of diazonium salts.

### SECTION - II

**Q4)** Explain the substitution Nucleophilic unimolecular reaction, with mechanism and stereochemistry giving suitable examples. [10]

OR

Give the reaction, mechanism and applications of Claisen and Dieckmann reactions. [10]

**Q5)** Solve any four of the following: **[12]**

- a) Give any two methods of synthesis of amides.
- b) Give any two methods of synthesis of esters.
- c) Discuss the effects of substituents on the acidity of monocarboxylic acids.
- d) Explain any two reaction of cyanides.
- e) Alkyl isocyanides usually have lower boiling points than the corresponding alkyl cyanides. Give reason.
- f) How will you convert benzonitrile to acetophenone?
- g) Explain any two reactions of acid chlorides.

**Q6)** Write short notes on any two of the following: **[8]**

- a) S<sub>N</sub>i reaction.
- b) Substitution versus Elimination.
- c) Michael addition reaction.
- d) Dicarboxylic acids.



Total No. of Questions :6]

SEAT No. :

**P1478**

**[5049]-2005**

[Total No. of Pages :2

**First Year B. Pharmacy**

**HUMAN ANATOMY AND PHYSIOLOGY -II  
(2015 Pattern) (Credit System) (Semester - II)**

*Time : 3 Hours]*

*[Max. Marks :60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Neat labelled diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

**SECTION-I**

**Q1)** Draw neat labeled diagram of respiratory system. Describe in detail pulmonary ventilation. Add a note on physiological factors affecting respiration. **[10]**

OR

Describe in detail the anatomy of cerebrum. Explain the functional areas of cerebrum.

**Q2)** Answer the following (Any four): **[12]**

- a) Discuss the physiological functions of autonomic nervous system.
- b) Describe the cranial nerves with their functions.
- c) Explain in brief the olfactory receptors with physiology of olfaction.
- d) Explain the anatomy of the eyeball.
- e) Explain the role of larynx in respiration and voice production.
- f) Explain in brief the structure and functions of the medulla oblongata.
- g) Write the composition, functions and circulation of cerebrospinal fluid (CSF).

**P.T.O.**

**Q3)** Write short note on (Any two): **[8]**

- a) Physiology of hearing.
- b) Structure of neuron.
- c) Structure and functions of the limbic system.
- d) Reflex Arc.

**SECTION-II**

**Q4)** Discuss in detail mechanism of formation of urine. **[10]**

OR

Enlist the endocrine glands with their hormones. Explain the structure of adrenal gland. Discuss in detail the functions of adrenocorticoid hormones.

**Q5)** Answer the following (Any four): **[12]**

- a) Discuss the physiological actions of parathyroid hormone and calcitonin.
- b) Describe the structure of nephron.
- c) Write in brief about phases of female reproductive cycle.
- d) Describe the anatomy and physiology of pancreas.
- e) Discuss the renin-angiotensin-aldosterone system.
- f) Explain renal clearance test.
- g) Explain the structure and functions of ureter and urinary bladder.

**Q6)** Write short note on (Any two): **[8]**

- a) Structure and functions of the organs of male reproductive system.
- b) Physiological role of hormones of anterior pituitary gland.
- c) Process of oogenesis and follicular development.
- d) Thyroid gland.

*EEE*



Total No. of Questions : 6]

SEAT No. :

**P1479**

**[5049]-2006**

[Total No. of Pages : 2

**F.Y. B.Pharmacy**

**PHARMACOGNOSY**

**(2015 Pattern) (Semester - II) (Credit System)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *Answer to the two sections should be written in separate books.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *All questions are compulsory.*

**SECTION - I**

**Q1)** Define Biology. Enumerate the different branches of applied biology. Explain the relevance of biology to pharmaceutical sciences. **[10]**

OR

Define seed. Explain in detail morphology and microscopy of seed. Write the functions of seeds.

**Q2)** Answer any four: **[12]**

- a) Enumerate the diagnostic characters as seen in a powder of wood drug.
- b) Write a brief account on genetic code.
- c) Explain in brief secretory products of plants.
- d) Explain how stomata and trichomes help in identification of crude drugs.
- e) Differentiate between mitosis and meiosis.
- f) Explain in brief palmate venation.
- g) What are vascular bundles? Give its types.

**Q3)** Write short notes on any two: **[8]**

- a) Laticiferous tissue.
- b) DNA replication.
- c) Collection of bark.
- d) Meiosis.

**P.T.O.**

## SECTION - II

**Q4)** What is an ecosystem? Describe in detail different components of ecosystem. Give the significance of ecosystem. **[10]**

OR

Explain the different systems of classification. What are crude drugs?

**Q5)** Answer any four: **[12]**

- a) What are organized and unorganized drugs?
- b) Write a note on auxins.
- c) Explain the contribution of Charaka.
- d) Write a note on polar vegetation.
- e) Enlist the stages of ecological succession.
- f) Explain the Binomial nomenclature of plants.
- g) What is point mutation?

**Q6)** Write short notes on any two: **[8]**

- a) Photosynthesis.
- b) Polyploidy.
- c) Global warming.
- d) Western Ghats Biodiversity.



Total No. of Questions : 6]

SEAT No. :

**P1480**

**[5049]-3001**

[Total No. of Pages : 2

**S. Y. B. Pharmacy**

**PHYSICAL PHARMACEUTICS-I**  
**( 2015 Pattern)(Credit System)(Semester-III)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two Sections should be written in separate books.*
- 3) *Neat diagram must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

**SECTION-I**

**Q1)** Attempt any One **[10]**  
Explain the different terms used in the Gibbs phase rule, explain the phase diagram for one component system with its pharmaceutical significance.

OR

What are aerosols? Explain the principle involved in the two phase system aerosols.

**Q2)** Attempt any Four **[12]**  
a) What are ideal and real solutions?  
b) Explain the Raoult's law?  
c) Explain the Lind's process for liquefaction of gases.  
d) Draw a neat labeled phase diagram for two component system containing liquid phases.  
e) A solution containing 10g of sucrose dissolved in 100g of water has a boiling point of 100.149°C. What is the molecular weight of sucrose if ebullioscopic constant ( $K_b$ ) for water is 0.51?  
f) Write the van't Hoff and Morse Equations for Osmotic Pressure.  
g) Explain the Boiling point diagram of an ideal binary mixture.

**Q3)** Write short notes (any Two) **[8]**  
a) Lowering of the Vapor Pressure as colligative property.  
b) Conductometric titrations.  
c) Three component system.  
d) Depression of freezing point as colligative property.

**P.T.O.**

## SECTION-II

**Q4)** Attempt any one. **[10]**  
Explain crystallization and factors affecting crystallization and crystal habit.

OR

- a) Write a note on solubility of gases in liquids
- b) Discuss BCS classification in detail

**Q5)** Attempt any Four. **[12]**

- a) Describe methods of Crystal analysis.
- b) Explain Factors affecting Distribution coefficient.
- c) Define glass transition temperature and its significance in pharmacy.
- d) Define and differentiate Entropy and Enthalpy.
- e) Write note on laws of thermodynamics.
- f) Discuss Solute solvent interactions.
- g) Explain combined effect of pH and Solvents on solubility.

**Q6)** Write short notes (any Two). **[8]**

- a) Solubility Parameter.
- b) Distribution coefficient.
- c) Polymorphism.
- d) X-Ray Crystallography.

✓   ✓   ✓

Total No. of Questions : 6]

SEAT No. :

**P1481**

**[5049]-3002**

[Total No. of Pages : 2

**S.Y. B.Pharmacy**

**PHARMACEUTICAL MICROBIOLOGY & IMMUNOLOGY**  
**(2015 Pattern) (Credit System) (Semester - III) (Theory)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Neat diagram must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*
- 5) *Assume suitable data, if necessary.*

**SECTION - I**

**Q1)** Attempt any ONE:

- a) Write in details structure, reproduction, nutritional requirement and growth curve of Bacteria. **[10]**

OR

- b) Write in details scope & application of microbiology to pharmaceuticals. Write a note on “Whittaker’s Five Kingdom Concept”.

**Q2)** Attempt any FOUR:

**[12]**

- a) Justify-bacterial endospore impart heat resistance to bacteria.
- b) Write Medical importance of *Saccharomyces cerevisiae*.
- c) How will you detect presence of *E. coli* in nonsterile pharmaceutical Preparation’s?
- d) Define:
  - i) Prebiotics
  - ii) Probiotics
  - iii) Synbiotics
- e) Write general properties of viruses.
- f) Write the contribution of Louis Pasteur.
- g) Write advantage and disadvantages of embryonated egg technique.

**P.T.O.**

**Q3) Write short notes on any TWO: [8]**

- a) Multiplication of Human Virus.
- b) Preservation of Microbial culture.
- c) Bacterial cell.
- d) Viable Count Method.

**SECTION - II**

**Q4) Attempt any ONE:**

- a) Define Antigen and Antibody. Describe five different classes of Immunoglobulin. [10]

OR

- b) Define Vaccine. Write the general method of preparation and Quality control of bacterial vaccine.

**Q5) Attempt any FOUR: [12]**

- a) Write a principle and characteristics of antigen-antibody reactions.
- b) Differentiate between Active and Passive Immunity.
- c) Comment on 'Bacteria are good friends of human being'.
- d) Write a principal of ELISA test.
- e) Write a note on Pasteurization.
- f) Comment "Moist heat sterilization is more superior to dry heat sterilization"?
- g) Differentiate between endotoxin and exotoxin.

**Q6) Write short notes on any TWO: [8]**

- a) Microbial Virulence.
- b) Phenol Coefficient test.
- c) Radiation sterilization.
- d) HMI and CMI.



Total No. of Questions : 6]

SEAT No. :

[Total No. of Pages : 2

**P2923**

**[5049] - 3003**

**S.Y. B.Pharmacy**

**PHARMACEUTICAL BIOCHEMISTRY**

**(2015 Pattern) (Semester - III) (Theory)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates :*

- 1) *All questions are compulsory.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

**SECTION - I**

**Q1)** Explain the primary, secondary & tertiary Protein Structure giving examples.  
What are oligomeric proteins? **[10]**

OR

What are the two models of Enzyme action? Explain the Feedback inhibition and its importance.

**Q2)** Attempt short notes on any five of the following : **[12]**

- a) Coenzyme sand Cofactors
- b) Heteroploysachharides
- c) Biological functions of proteins
- d) Two color reactions of aminoacids
- e) Cholesterol
- f) Isoelectric point
- g) Biological role of lipids

**Q3)** Write notes on any two of the following: **[8]**

- a) Fibrous and Globular proteins with suitable examples.
- b) Give Classification of lipids. Write briefly on PUFAs.
- c) Michealis Menten graph and Significance of Km and Vmax.
- d) Classify Amino acids based on R group giving examples.

**P.T.O.**

## **SECTION - II**

**Q4)** Explain the process of deamination. Give a detailed account of Urea Cycle and its significance. **[10]**

OR

Explain the synthesis of Purines in detail.

**Q5)** Attempt short note on any five of the following : **[12]**

- a) Glycogenesis
- b) Amino acid catabolism
- c) Fate of Pyruvate
- d) Amphibolic nature of TCA cycle
- e) Cori cycle
- f) Glucose homeostasis
- g) Vitamin C

**Q6)** Write notes on any two of the following : **[8]**

- a) What is Translation? Explain the steps in this process.
- b) Explain what is oxidative phosphorylation and ETC.
- c) Give an account of Cholesterol synthesis.
- d) Explain beta oxidation of even Carbon saturated fatty acids.





Total No. of Questions : 6]

SEAT No. :

**P3848**

[Total No. of Pages : 3

**[5049]-3004**

**S.Y.B. Pharmacy**

**Pharmaceutical Organic Chemistry - III**

**(2015 Pattern) (Semester - III) (Theory)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

*All questions are compulsory.*

**SECTION - I**

**Q1) Attempt any one of the following [10]**

i) Describe various methods for resolution of racemic mixture.

OR

ii) Establish the open chain structure of D-(+)-glucose. Site the evidences leading to cyclic structure of D-(+)-glucose. Draw Haworth projection formulae of  $\alpha$ - and  $\beta$ -D-(+)-glucose.

**Q2) Attempt any four out of the following [12]**

i) Explain Ruff degradation of glucose.

ii) Enlist pharmaceutical uses of carbohydrates

iii) Explain conformational and geometric isomerism in 1,2-dimethylcyclohexane

iv) How will you convert ketose to aldose and vice versa

v) What is meant by geometric isomerism.? What are the conditions to be fulfilled by a compound to exhibit geometric isomerism?

vi) Explain the terms “enantiomers” and “diastereomers”. How do they differ?

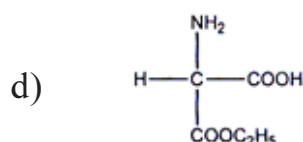
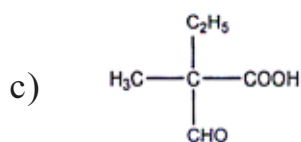
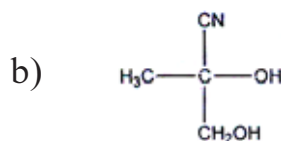
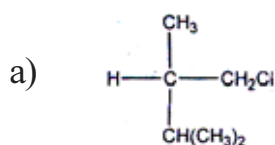
vii) Discuss Newmann and Sawhorse representations of ethane

**P.T.O.**

**Q3)** Attempt any two out of the following

**[8]**

- i) Write Fischer projection and Haworth projection for fructose and explain the conversion of Fischer formula to Haworth structure
- ii) Explain the terms
  - a) Anomer
  - b) Epimer
  - c) Reducing sugar
  - d) Non-reducing sugar
- iii) Explain the conformational analysis of n-butane
- iv) Assign R & S nomenclature to following:



### SECTION - II

**Q4)** Attempt any one of the following

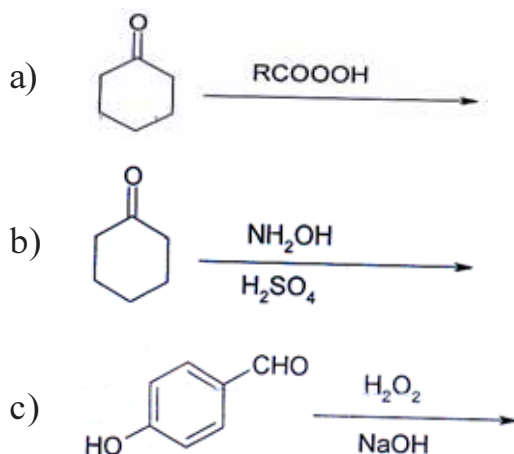
**[10]**

- i) Explain in detail molecular rearrangements of electron deficient nitrogen.
- OR
- ii) Explain pericyclic reactions in detail with examples.

**Q5)** Attempt any four out of the following

[12]

i) Predict the products of the following.



ii) Classify rearrangement reactions

iii) Explain Fries rearrangement

iv) Explain Curtius rearrangement

v) Enlist various methods for synthesis of amino acids. Explain any two in details.

vi) Classify natural amino acids and give structures of any three.

vii) Explain synthesis of peptides.

**Q6)** Attempt any two out of the following

[8]

i) Explain Baeyer-Villiger oxidation.

ii) Explain Favorskii rearrangement.

iii) Explain N-terminal assay of amino acids.

iv) Explain Cope rearrangement.



Total No. of Questions : 6]

**P3849**

SEAT No. :

[Total No. of Pages : 2

**[5049]-3005**

**S.Y.B. Pharm. (Semester - III)**

**PHARMACOLOGY - I**

**(2015 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 60*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Write answers for section 1 and section 2 in separate answer sheets.*

**SECTION - I**

**Q1)** Enlist various parenteral routes of drug administration. Write advantages and disadvantages of intravenous, intramuscular and subcutaneous route. [10]

OR

Explain various phases of drug metabolism with examples

**Q2)** Solve any four

- a) Define absorption, bioavailability and bioequivalence. [3]
- b) What is significance of volume of distribution and half-life of drug? [3]
- c) What are advantages and disadvantages of oral route of drug administration? [3]
- d) Enlist factors affecting drug metabolism. [3]
- e) Write a brief note on routes of drug elimination. [3]
- f) What is role of physiological barrier in drug distribution? [3]
- g) Explain enzyme induction and inhibition with example. [3]

***P.T.O.***

**Q3)** Solve any two

- a) Explain factors affecting drug absorption. [4]
- b) Explain nature and sources of drugs. [4]
- c) Discuss phases of clinical trials. [4]
- d) Write a short note on transport of drugs across plasma membrane. [4]

### **SECTION - II**

**Q4)** Explain in detail structure and transduction mechanism of G-protein coupled receptors. [10]

OR

Discuss synthesis, storage, release and pharmacological actions of histamine.

**Q5)** Solve any four

- a) What are mechanisms of drug action? [3]
- b) Define agonist, antagonist and inverse agonist. [3]
- c) What is significance of dose response curve? [3]
- d) What do you mean by drug antagonism? What are its types? [3]
- e) What are iatrogenic diseases? Give examples. [3]
- f) Classify histamine antagonists with examples. [3]
- g) Enlist changes in pharmacokinetic parameters in pediatric patients. [3]

**Q6)** Solve any two

- a) Write a brief note on Drug Interactions. [4]
- b) Discuss drug treatment in geriatric patients. [4]
- c) Explain pharmacology of 5-HT. [4]
- d) Discuss transduction mechanism of ion channel linked receptors. [4]



Total No. of Questions :6]

SEAT No. :

**P1482**

**[5049]-3006**

[Total No. of Pages :2

**S.Y. B. Pharmacy**

**PHARMACOGNOSY AND PHYTOCHEMISTRY - I**  
**(2015 Pattern) (Semester - III)**

*Time : 3 Hours]*

*[Max. Marks :60*

*Instructions to the candidates:*

- 1) Answers to the two sections should be written in separate books.*
- 2) All questions are compulsory.*
- 3) Figures to the right indicate full marks.*
- 4) Neat diagrams must be drawn whenever necessary.*

**SECTION-I**

**Q1)** Which are different types of plant metabolites? Explain functions of different plant metabolites in plant. **[10]**

OR

What are carbohydrates? Give in detail occurrence, classification, properties of carbohydrates along with suitable example.

**Q2)** Answer Any Four Questions: **[12]**

- a) Write method of extraction of starch.
- b) Write different chemical tests for identification of agar and castor oil.
- c) Write biological source and uses of shark liver oil and cod liver oil.
- d) Which are different plant fibers? Write note on wool fiber.
- e) What is PUFA? Write example and use of PUFA.
- f) Explain detail chemistry of lipids. Differentiate fat and wax.
- g) Which are different enzyme drugs? Explain general properties and uses.

**P.T.O.**

**Q3)** Write short notes on any two: [8]

- a) Okra mucilage.
- b) Papain.
- c) Bromelin.
- d) Cocoa butter.

**SECTION-II**

**Q4)** Define and Classify the Glycosides. Explain the method of extraction of Glycosides. [10]

OR

Define and classify Tannins. Explain their methods of extraction.

**Q5)** Answer Any Four questions: [12]

- a) Differentiate between Cardenolides and Buffadenolides.
- b) Give the biological source, chemical constituents of Artemisia.
- c) Explain the Chemical tests for Cardiac glycosides.
- d) Give the chemical tests for Saponin Glycosides.
- e) Chemical tests for Tannins.
- f) Give the chemical tests for Accacia Gum.
- g) Give the biological source, chemical constituents of Dioscorea.

**Q6)** Write short notes on any two: [8]

- a) Give the method of preparation of Black Catechu.
- b) Give the method of preparation of Shark liver oil.
- c) Digitalis.
- d) Varieties of Aloe.

*EEE*