[4649] - 1001
First Year B. Pharmacy (Semester - I)
1.1.1T - PHARMACEUTICS - I
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*
Instructions to the candidates :
   1)   Answers to the two Sections should be written in separate books.
   2)   Neat diagram must be drawn wherever necessary.
   3)   Figures to the right indicate full marks.

SECTION - I

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

   a)   Define Excipients, how excipients are classified? Add a note on preservatives and colors used in pharmaceuticals.

                                          OR

   b)   Write the history of pharmacy profession and industry in India, also write a note on career opportunities after pharmacy graduation.

Q2) Attempt any Five.   **[15]**

   a)   What is Pharmacopoeia? Add a note on European Pharmacopoeia.

   b)   What are excipients? Explain the different flavours used in pharmaceuticals.

   c)   Give the classification of dosage forms.

   d)   Describe Unani and Siddha as an alternate system of medicine.

   e)   Write the scope of pharmaceutical engineering.

   f)   Write the different sources of drug with suitable examples.

   g)   Enlist the different routes of drug administration.

Q3) Write short notes (any two) **[10]**

a) Principle of ayurveda.

b) Pharmacy code of ethics.

c) Scope of formulation development.

d) Indian Pharmacopoeia.

SECTION - II

Q4) Attempt any one. **[10]**

a) Discuss in detail concept of physicochemical properties involved in preformulation.

OR

b) Define solution. Explain methods of preparation of solution.

Q5) Attempt any Five. **[15]**

a) Which are the major factor affecting the stability of pharmaceutical products.

b) What are syrup? How invert syrup is prepared & stored.

c) Discuss formulation of linctus.

d) Explain importance of preformulation in formulation development.

e) Types of Aromatic water.

f) Explain in detail polymorphism.

g) Give the importance of partition coefficient as preformulation parameter.

Q6) Write short notes (any two) **[10]**

a) Solubility studies in preformulation.

b) Validation parameter of quality analysis.

c) Stability of solution.

d) Formulation additives in solution.

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[4649] - 1002

First Year B. Pharmacy (Semester - I)
1.1.2 : MODERN DISPENSING PRACTICES
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates :
1) *Answer to the two Sections should be written in separate books.*
2) *Figures to the right indicate full marks.*

SECTION - I

Q1) Answer any one.   **[10]**

a) Define compounding and dispensing of medication. Discuss steps involved in compounding and give auxiliary labeling condition for solution, suspension and emulsion.

b) Define posology and explain the factors affecting dose calculation.

Q2) Answer any Five.   **[15]**

a) Write a note on labelling of dispensed product.

b) Write a note on PMR.

c) Comment on building and housekeeping in terms of good compounding dispensing practices.

d) Write a note stability of medicine.

e) What would be the dose of child of 3 and 12 years; if the adult dose is 200 mg.

f) Give the importance of pictogram with suitable example.

g) 15 g of NaCl occupy a volume of 75 ml. What is percent of the solution.

P.T.O.

Q3) Answer any two [10]

    a) Write a note on pricing of prescription.

    b) Give pharmacopoeial storage condition for drug product.

    c) Write a note on drug profile.

    d) Using Freezing point method how will you prepare 1% solution of boric acid, iso-osmotic with blood plasma. (Hints : freezing point of 1% w/v solution of boric acid is 0.288 °C). The freezing point of 1%w/v solution of NaCl is - 0.576 °C)

SECTION - II

Q4) Answer any one. [10]

    a) Explain therapeutic incompatibility and give methods to remove it.

    b) Define posology and explain the factors affecting dose calculation.

Q5) Answer any five in short. [15]

    a) Write patient counseling note for hypertension.

    b) Write a brief on pharma - co - vigilance.

    c) Explain the role of pharmacists in family planning.

    d) Explain and give formulas for claculation of dose depending on age.

    e) Give formulas for calculation of dose depending on age.

    f) Give patient counseling for OTC products.

    g) Write a note on rational drug use.

Q6) Answer any two. [10]

    a) Write the legal requirement and forms to FDA license to open a retail pharmacy.

    b) Explain the steps in patient counseling for asthama.

    c) Write a short note on ADR.

    d) Write in detail note on self-medication.

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SEAT No. :

[4649] - 1003

First Year B. Pharmacy (Semester - I)
PHARMACEUTICAL INORGANIC CHEMISTRY
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

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) What is Hard water and soft water? Distinguish between permanent and temporary hardness of water. Discuss official tests for water.   **[10]**

OR

Define the term Monograph. Discuss in detail the different contents of official monograph   **[10]**

Q2) Attempt any five of the following.   **[15]**

  a) Write the principle and reaction involved in limit test for Lead.

  b) Explain the physiological role of sodium and potassium in body.

  c) Discuss the evaluation of antacid activity.

  d) Discuss the properties, uses and assay of carbon dioxide.

  e) Write the principle and reaction involved in assay of hydrogen peroxide.

  f) Write the principle and reaction involved in limit test for chloride.

  g) Discuss properties, storage and uses of sodium potassium tartarate.

Q3) Write a note on any two of the following. **[10]**

    a)   Limit test for Iron.

    b)   Saline cathartics.

    c)   Dentifrices.

    d)   Protectives and adsorbants.

SECTION - II

Q4) What are essential and trace ions? Discuss the preparation, properties and uses of official compounds of Iron. **[10]**

<div align="center">OR</div>

Discuss in detail about physiological acid base balance. **[10]**

Q5) Attempt any five of the following. **[15]**

    a)   What are antidepressants? Write properties, storage and uses of Lithium carbonate.

    b)   Discuss the properties, storage and uses of sodium fluoride.

    c)   Write about acidifying agent.

    d)   What are astringents? write the properties, storage and uses of Zinc sulfate.

    e)   Explain about sodium nitrite as antidote.

    f)   Discuss the mechanism of action of antimicrobials as topical agents.

    g)   Discuss the properties, uses and assay of oxygen.

Q6) Write a note on any two of the following. **[10]**

    a)   Combination antacids.

    b)   Radio opaque contrast media.

    c)   Physiological role of chloride and bicarbonate in body.

    d)   Properties, storage and uses of sodium hypochlorite.

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[4649] - 1004

First Year B. Pharmacy (Semester - I)

1.1.4 : PHARMACEUTICAL ORGANIC CHEMISTRY - I

(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates :

    1)   *All questions are compulsory.*

    2)   *Figures to the right indicate full marks.*

    3)   *Answer to the two Sections should be written in separate answer books.*
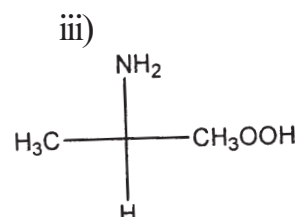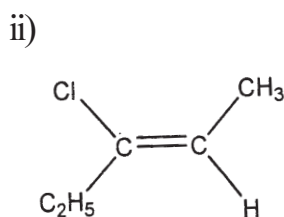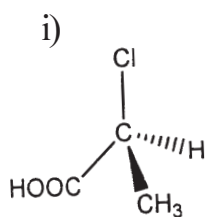
SECTION - I

Q1) What are elimination reactions. Explain mechanism, stereochemistry of E_1 and E_2 reactions. Compare E_1 and E_2 mechanism. **[10]**

OR

What is aromatic electrophilic substitution reaction? Mention any three. Write down the mechanism of Friedel Craft alkylation and acylation.
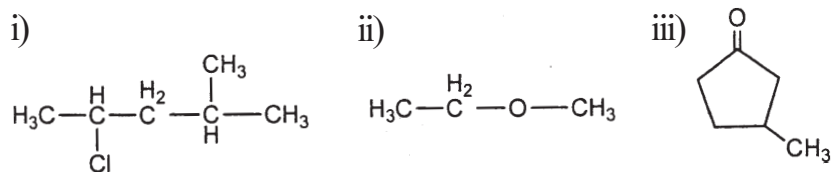
Q2) Answer the following (**any five**) **[15]**

    a)   Assign R/S or E/Z configuration to following.

b) Write IUPAC names for following structures.

i)

$$H_3C-\underset{\underset{Cl}{|}}{\overset{H}{\underset{|}{C}}}-\overset{H_2}{C}-\underset{\underset{H}{|}}{\overset{CH_3}{\overset{|}{C}}}-CH_3$$

ii)

$$H_3C-\overset{H_2}{C}-O-CH_3$$

iii)

c) Write any three methods of preparation of alkanes.

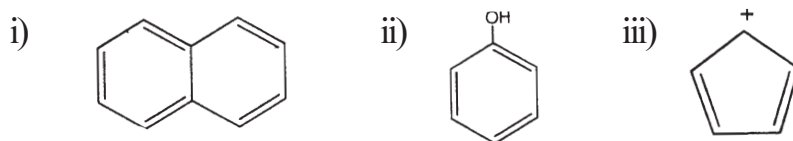d) Define following terms with suitable examples.

  i) Carbocation.

  ii) Carbanion.

  iii) Electrophile.

e) Discuss Anti-Markovnikoff rule with example.

f) Explain hyerconjugation with example.

g) Apply Hukel's rule of aromaticity and differentiate following compounds into aromatic and non-aromatic (anti-aromatic) compound.

i)

ii)

iii)

Q3) Solve any two [10]

a) Classify organic compounds on the basis of elemental composition (at least five classes with suitable examples).

b) Define hybridization. Mention different types of hybridization? Explain SP^3 hybridization.

c) Explain the addition-elimination and elimination-addition mechanisms of nucleophilic aromatic substitution.

d) Draw structures of following compounds from IUPAC names.

  i) 3, 3 - dimethylheptanoic acid.

  ii) 3-methyl-2butenal.

  iii) 4-ethyl-2-methylhexane.

  iv) 2-Pentanone.

  v) Ethyl butanoate.

SECTION - II

Q4) a) What is isomerism? Explain enantiomers and diastereomers with examples. **[10]**

b) Classify various types of chemical reactions with suitable examples.

OR

Explain the directing effects of following functional groups towards electrophilic substitutions on benzene :

i) $-OH$

ii) $-CH_3$

iii) $-COOH$

iv) $-NO_2$

Q5) Solve **any five** **[15]**

a) Arrange following in order of increasing acidity with explaination.

   i) Acetic acid.

   ii) Trichloroacetic acid.
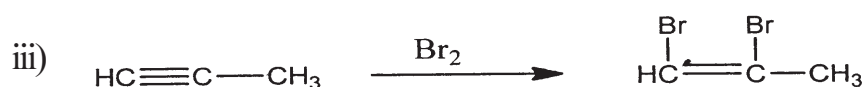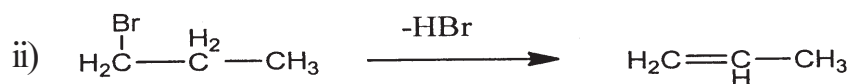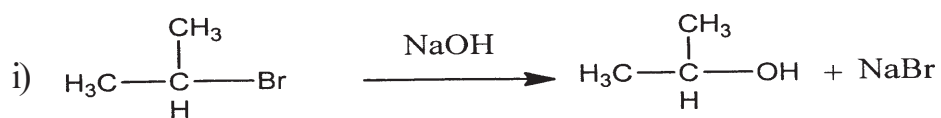
   iii) Chloroacetic acid.

b) Explain Hoffman rule for 1, 2 elimination reaction?

c) Write a note on Diels alder reaction.

d) Tertiary carbocations are more stable then secondary carbocations explain.

e) Explain Tautomerism with example.

f) Identify the type of chemical reaction (Addition, Substitution etc) in following :

i) $$H_3C-\underset{\underset{H}{|}}{\overset{\overset{CH_3}{|}}{C}}-Br \xrightarrow{NaOH} H_3C-\underset{\underset{H}{|}}{\overset{\overset{CH_3}{|}}{C}}-OH + NaBr$$

ii) $$H_2\overset{\overset{Br}{|}}{C}-\overset{H_2}{C}-CH_3 \xrightarrow{-HBr} H_2C=\underset{\underset{H}{|}}{C}-CH_3$$

iii) $$HC\equiv C-CH_3 \xrightarrow{Br_2} HC\overset{\overset{Br}{|}}{=}\underset{}{\overset{\overset{Br}{|}}{C}}-CH_3$$

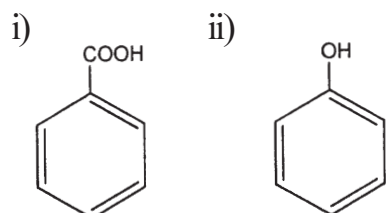g) Explain hyperconjugation and inductive effect with example.

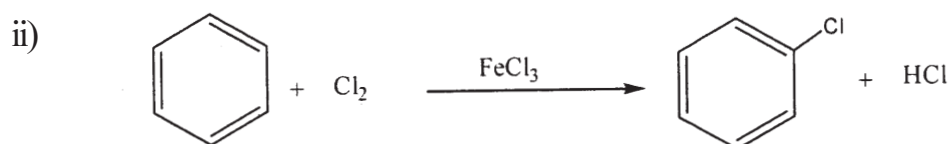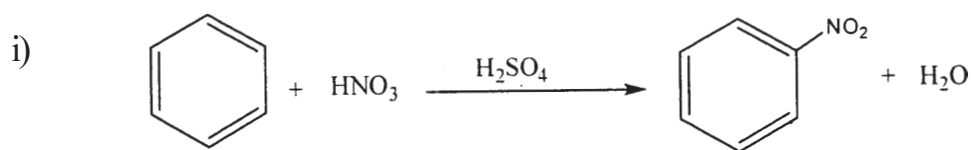*Q6)* Solve **any Two**   [10]

   a)   Inter and Intra molecular forces of attraction.

   b)   What are alkynes? Write their any two methods of preparation and two reactions.

   c)   Draw all possible resonating structures of following.

      i)   ii)

   d)   Write down stepwise mechanism for following reactions.

      i)

      ii)

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[4649] - 1005

First Year B. Pharmacy (Semester - I)

HUMAN ANATOMY AND PHYSIOLOGY - I

(2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

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) Enlist the basic types of tissues with their characteristics. Describe structure, location and function of various types of connective tissues. **[10]**

OR

Describe the processes that transport the substances across plasma membrane.

Q2) Answer the following (Any Five) **[15]**

a) Explain the properties of muscular tissues.

b) Explain the components and functions of feedback systems.

c) Explain structure and functions of endoplasmic reticulum.

d) Explain the ABO system of blood grouping.

e) Define inflammation and write the causes of it.

f) What are different types of WBCs and write the functions of each type.

g) Define the terms hyperplasia and thrombocytopenia.

P.T.O.

Q3) Write short note on. (Any Two) **[10]**

    a) Somatic cell division.

    b) Haemopoiesis.

    c) Acquired immunity.

    d) Microscopic anatomy and physiology of skeletal muscle.

SECTION - II

Q4) Define blood pressure. How it is regulated? Explain in detail factors affecting blood pressure. **[10]**

<div align="center">OR</div>

Draw neat labeled diagram of digestive system. Explain location, anatomy, histology and functions of small intestine.

Q5) Answer the following (Any Five) **[15]**

    a) Explain composition, circulation and functions of lymph.

    b) Explain location, histology and functions of stomach.

    c) Define the terms splenomegaly, lymphoma and lymphoedema.

    d) Describe the contraceptive devices for both male and female based on temporary method.

    e) Write a note on Renin-agiotesin-aldosterone system.

    f) Draw neat labeled diagram of heart.

    g) Explain the structure and functions of liver.

Q6) Write short note on (Any Two) **[10]**

    a) Structure and functions of spleen.

    b) Conduction system of heart.

    c) Blood circulation.

    d) Cardiac cycle.

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[4649] - 1006

First Year B. Pharmacy (Semester - I)
1.16 : COMMUNICATION & SOFT SKILL DEVELOPMENT
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates :

    1)   *Answer to the two sections should be written in separate books.*

    2)   *Figures to the right indicate full marks.*

    3)   *All questions are compulsory.*

<u>SECTION - I</u>

Q1) Answer any one.   **[10]**

    a)   Explain various parts of a business letter. Explain purpose and qualities of a business correspondence.

    b)   A pharmacy college wants to make an enquiry for optical microscopes. Write an enquiry letter and prepare a quotation in response to this.

Q2) Solve the following (any five)   **[15]**

    a)   Define communication. State the importance and objectives of communication.

    b)   Explain various types of communication.

    c)   Explain the importance of correct spelling and punctuation in communication.

    d)   Write a note on preparation of notice and agenda for a meeting.

    e)   Give types of commercial letters.

    f)   Explain the difference between technical communication and general writing.

    g)   Explain the importance of written business communication.

P.T.O.

Q3) Write short note on. (any two) **[10]**

    a)   Barriers for communication.

    b)   Business report.

    c)   Expressing ideas with minimum word limit.

    d)   Language as a tool for communication and give importance of message.

SECTION -II

Q4) As a fresher pharmacist prepare for application for job, Details of resume and forward the e-mail to Ranboxy pharmacist Mumbai. **[10]**

<div align="center">OR</div>

Give details about various formal writting skills in bussiness communication.

Q5) Solve the following (any five) **[15]**

    a)   Explain various phenetic symbols.

    b)   Role of empathy.

    c)   Notice and circular.

    d)   Problem solving.

    e)   Quotation letter.

    f)   Video conferencing.

    g)   Interview skills.

Q6) Write short notes on (any two) **[10]**

    a)   Interpersonal and negotiation skills.

    b)   Objectives and qualities of business letter.

    c)   Information technology in business communication.

    d)   Soft skills.

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SEAT No. :

[Total No. of Pages : 2

[4649] - 106

First Year B. Pharmacy

PHARMACEUTICAL ENGINEERING

(2008 Pattern)

Time : 3 Hours]   *[Max. Marks : 80*

Instructions to the candidates:

1) Answers 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) Explain various modes of heat transfer. Discuss Fourier's law and steady state heat transfer in detail.   **[10]**

OR

Explain the process of crystallization in detail. Explain Meier's theory of supersaturation.

Q2) Write short answers for the following: (Any 5)   **[15]**

a) Explain the working in double pass tubular heat exchanger.

b) Explain inverted bucket trap.

c) Discuss factors affecting rate of evaporation.

d) Draw a neat well labeled diagram of horizontal tube evaporator.

e) Explain process variables affecting working of circulating magma crystallizer.

f) What do you mean by Adiabatic evaporation? Name an equipment working on this principle.

g) Explain the use of Psychrometric charts.

Q3) Write notes on : (Any 3)   **[15]**

a) Radiation heat transfer.

b) Explain any one type of boiler.

c) Multiple Effect Evaporator.

d) Climbing film Evaporator.

e) Pool Boiling and boiling inside a vertical tube.

SECTION - II

Q4) What is extraction? Give various types of extraction processes and explain in detail principle construction and working of Basket extractor. **[10]**

OR

What do you mean by Fluid statics and Dynamics? Derive an equation for Bernoulli's Theorem.

Q5) Answer the following in brief : (Any 5) **[15]**
   a) Molecular Distillation.
   b) Rotameter.
   c) Pitot Tube.
   d) Bubble-cap plate column.
   e) Boiling point diagrams in distillation process.
   f) Use of surface coating in preventing corrosion.
   g) Reynolds Number and its significance.

Q6) Write notes on: (Any 3) **[15]**
   a) Poiseulli's capillary model for fluid flow through packed beds.
   b) Silver continuous diffusion battery.
   c) Theory of Drying.
   d) Fluidized Bed dryer.
   e) Packings used in packed columns.

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[4649] - 107

First Year. B. Pharmacy
1-7: COMPUTER APPLICATION AND BIO-STATISTICS
(2008 Pattern)

Time : 3 Hours]   *[Max. Marks : 80*

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) Explain the various steps involved in the testing a scientific hypothesis with suitable example.   **[10]**

OR

Define central tendency and find the mean and Median of the following data. **[10]**

Class limit (X)	0-4	4-8	8-12	12-16	16-20
Frequency (f)	05	12	23	27	03

Q2) a)   Explain Gaussian distribution of probability with suitable example.   **[5]**

   b)   If the ranks given by the judges out of 10 for seven students appeared in the competition are as follows; prove that their evaluation was mutually opposite or illogical.   **[5]**

Judge A	3	2	7	6	8	4	6
Judge B	7	5	4	3	6	7	2

   c)   Using regression analysis, show that there is significant linear relation between daily study hours and marks scored by a candidate in examination.   **[5]**

Daily Study Hours	5	8	3	4	9	6
Marks out of 20	11	15	7	9	17	12

Q3) Answer **any five** out of seven   **[15]**

    a)   Write formula for paired t test and explain it.

    b)   Define different types of errors in hypothesis testing with example.

    c)   Explain factors and levels in factorial design with example.

    d)   'Probability of success or failure in an experiment with finite number of binomial trials itself is normal probability distribution' explain.

    e)   Distinguish between crossover and parallel experimental design.

    f)   Expected frequencies and observed frequencies in chi square test.

    g)   Explain Data characteristics essential to judge and decide applicability of parametric or non-parametric evaluation.

SECTION - II

Q4) a)   Describe basic building blocks of Computer diagram with special emphasis on CPU,I/O devices   **[5]**

    b)   Give details about MICR and Bar codes   **[2]**

    c)   Elaborate extended and expanded memory   **[3]**

<div align="center">OR</div>

    a)   Explain architect of keyboard and mouse with their functions   **[5]**

    b)   Detail note on generations of computers with example   **[5]**

Q5) a)   Note on HDD and CD-ROM   **[6]**

    b)   Note on system software's and application software's   **[4]**

    c)   Explain GUI and WINDOWS   **[5]**

Q6) a)   Convert $(1011011010)_2$ to decimal and $(6832)_{10}$ to binary form   **[5]**

    b)   Attempt following   **[10]**

        i)   Explain functions of Compilers

        ii)   Note on interpreters.

SEAT No. :

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

[4649] - 2002
First Year B. Pharmacy (Semester - II)
1.2.1 T : DOSAGE FORM DESIGN
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

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) a)   Define and classify powders. Explain the method of preparation of effervescences granules.   **[10]**

OR

b)   Define and classify emulsion with examples and discuss instability of emulsions.

Q2) Solve any five from the following.   **[15]**

a)   Write note on Expression of solubility.

b)   Discuss units of radioactivity.

c)   Detail note on Glycero-gelatin Suppository Base.

d)   Discuss Concept and mechanism of dissolution.

e)   What is wet granulation?

f)   Formulation and evaluation of lotion.

g)   Write a note on jellies.

Q3) Write short note on. (Any Two)   [10]

    a)   Explain low energy emulsification technique.

    b)   How suspensions are evaluated for its quality?

    c)   Self emulsifying drug delivery system.

    d)   Compounding of Suppositories.

SECTION - II

Q4) a)   What are various approaches for enhancement of the solubility of drug.
                                                                      [10]

OR

    b)   Define and discuss ideal properties of suspension? Add and account of physical stability of suspension.

Q5) Solve any five from the following.   [15]

    a)   How suppository moulds are calibrated?

    b)   Give classification of suspension.

    c)   Differentiate between creams and ointments.

    d)   Evaluation tests for suspension.

    e)   What is the concept of radiopharmaceuticals.

    f)   What are gels? How it is formulated?

    g)   How suppositories are evaluated for quality?

Q6) Write short note on (Any Two)   [10]

    a)   Jellies as dosage forms.

    b)   Factors affecting stability of suspension.

    c)   Suspending agents.

    d)   Suppository bases.

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[4649]-2003

First Year B. Pharmacy (Semester - II)
PHARMACEUTICAL ANALYSIS - I
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

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) Discuss about different solvents used in non-aqueous titrations and explain leveling and differentiating effect of these solvents.   **[10]**

OR

Explain Buffer in detail. What is Buffer index? Derive an equation to calculate pH of buffer solution.

Q2) Attempt **any five** of the following :   **[15]**

a)   Write in brief about molecular weight and equivalent weight.

b)   Explain theories of Acids and bases.

c)   Explain Ostwald's theory

d)   Explain in brief about Primary standard with examples.

e)   What do you mean by descriptive statistics? Explain with suitable examples.

f)   Explain student T Test.

g)   Give neutralisation curve of Weak acid & weak base with example.

Q3) Write a note on **any two** of the following : [10]

    a)   Titration of Amino Acids

    b)   Errors in analysis

    c)   Inferential statistics

    d)   Applications of non-aqueous titrations

SECTION - II

Q4) What are complexes and chelates? Explain stability of complex and factors influencing it. Enumerate various methods of end point detection in complexometry. [10]

OR

What is co-precipitation & how it is reduced. Give applications of Gravimetric analysis.

Q5) Attempt **any five** of the following : [15]

    a)   Explain masking & demasking Phenomenon.

    b)   Discuss on Metallochromic indicator

    c)   Explain common ion effect. How it is utilized for controlling concentration of weak electrolyte.

    d)   What is aging of precipitate? What are its advantages?

    e)   Discuss advantages and limitation of Mohr's method.

    f)   Give method of standardization of 0.1 N $KMNO_4$ with arsenic trioxide.

    g)   How 0.05M Silver nitrate is prepared? Why it is standardized?

Q6) Write a note on **any two** of the following :　　　　　　　　　　**[10]**

　　a)　Volhard's method.

　　b)　Sodium nitrite titrations.

　　c)　Types of EDTA titrations.

　　d)　Unit operation in gravimetry.

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[4649]-2004

First Year B. Pharmacy (Semester - II)

PHARMACEUTICAL ORGANIC CHEMISTRY - II

(2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

SECTION - I

Q1) What are nucleophilic substitution reactions? Explain mechanism and stereochemistry of SN^1 reactions. **[10]**

OR

What are condensation reactions? Explain mechanism of Aldol condensation.

Q2) Answer the following: (Any five) **[15]**

a) Write any two methods of preparation of phenols.

b) Write the IUPAC names of following

i) $H_3C-\underset{\underset{Cl}{|}}{\overset{\overset{H}{|}}{C}}-\overset{H_2}{C}-\underset{\underset{H}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_3$

ii) $H_3C-\overset{H_2}{C}-O-CH_3$

iii)
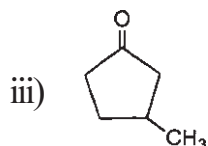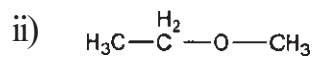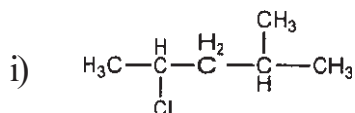
c) Explain acidity of benzene sulfonic acid.

d)   Explain why acetamide is feeble base.

e)   Give any two methods of reactions of carboxylic acids.

f)   Explain any two reactions of alkyl cyanides.

g)   Compare basicity between cyclohexylamine and aniline.

Q3) Answer the following (Any two)   **[10]**

a)   Explain Hoffmann's degradation of amides.

b)   Write about substitution nucleophilic internal.

c)   Write note on Cannizzaro's reaction.

d)   Explain acidity of phenols.

SECTION - II

Q4) What are amines? Explain separation methods of amines from the primary, secondary and tertiary amine mixture.   **[10]**

OR

What are carboxylic acid derivative? Give brief account on acidity of carboxylic acids and their two methods of preparation.

Q5) Answer the following. (Any five)   **[15]**

a)   Write any two methods of preparation of alkyl halides.

b)   Explain why boiling point of alcohols are much higher than those of corresponding alkanes.

c)   Write about Esterification.

d) Write any two reactions of amines.

e) Draw structures from IUPAC names of following compounds. (Any three)

    i)   1-Ethoxy propane   ii)   3-Hydroxy butanoic acid

    iii)   2-Ethyl butane nitrile   iv)   4-Methyl-2-pentanone

f) Explain Kolbe-Schimidt reaction of phenols.

g) Write about Lucas test of alcohols.

Q6) Answer the following. (Any two)   **[10]**

a) Explain addition of Grignard reagent and alcohol to aldehydes.

b) Compare and contrast between substitution and Elimination.

c) Explain Dieckmann condensation.

d) Write any two methods of preparation of amines.

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[4649] - 2005

First Year B. Pharmacy (Semester - II)
HUMAN ANATOMY AND PHYSIOLOGY - II
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

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 it indicate full marks.

SECTION - I

Q1) a)   Describe in detail the anatomy of cerebrum and focus on functional areas of cerebrum. **[10]**

OR

    b)   Draw neat labelled diagram of interior of eyeball. Explain physiology of vision. Add note on blind spot.

Q2) Answer the following (Any 5) :   **[15]**

    a)   Explain the structure of taste buds.

    b)   Explain the structure of internal ear.

    c)   Describe epidermis of skin.

    d)   Discuss the composition and functions of CSF.

    e)   Write a note on thalamus.

    f)   Discuss extra pyramidal system in brief.

    g)   Define any three disorders of respiratory system.

Q3) Write short notes on (Any 2) :   **[10]**

   a)   Physiology of respiration.

   b)   Sympathetic and parasympathetic nervous system.

   c)   Thermoregulation.

   d)   Structure and functions of spinal cord.

SECTION - II

Q4) a)   Describe in detail structure of Kidney with neat and labelled diagram.**[10]**

                                OR

   b)   Draw neat labelled diagram of Male Reproductive Organ. Enumerate the
        organs male reproductive system with functions of each organ.

Q5) Answer the following (Any 5) :   **[15]**

   a)   Draw a neat labelled diagram of Nephron.

   b)   Write a note on Seminiferous tubule

   c)   Write a note on Creatinine Clearance Test

   d)   Define the term Acromegaly and Cushing's Syndrome

   e)   Write a note on Pancreatic Islets

   f)   Write a note on Growth Hormone

   g)   Draw a neat labelled diagram of Ovary showing the developmental stages
        of an ovarian follicle.

Q6) Write short note on (Any 2) :   **[10]**

   a)   Glomerular filtration

   b)   Adrenal Glands

   c)   Menstrual cycle.

   d)   Posterior Pituitary Hormones

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[4649] - 2006
F.Y. B. Pharmacy (Semester - II)
PHARMACOGNOSY
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Answers 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 compoulsory.*

SECTION - I

Q1) Attempt any one :

a) Explain in detail History of structure of DNA and write a note on DNA structure. **[10]**

OR

b) Explain in detail general morphology and anatomy of fruit. **[10]**

Q2) Attempt any Five : **[15]**

a) Explain in brief general Anatomy of leaf.

b) Explain in brief economic botany.

c) List out important branches of biology.

d) Illustrate functions of plant cell components.

e) Explain in brief excretory products of plant origin.

f) Explain in brief permanent tissues.

g) Explain in brief secondary growth of plant.

Q3) Write short note on any two of following : **[10]**

   a) General Morphology of Bark.

   b) Genetic code.

   c) Cell division.

   d) Relevance of biology to pharmaceutical sciences.

SECTION - II

Q4) Attempt any one : **[10]**

   a) Define phytohormones and elaborate a detail role of each phytohormones in development of plant.

<div align="center">OR</div>

   b) Describe History, current status, scope and significance of pharmacognosy.

Q5) Attempt any five : **[15]**

   a) Differentiate between Autotropic and Heterotropic mode of nutrition.

   b) Explain in brief natural method of classification.

   c) Explain in brief Binomial nomenclature.

   d) Explain in brief dynamics of ecosystem.

   e) Explain in brief food chain.

   f) Explain in brief impact of pollution and global warming on ecosystem.

   g) Explain in brief significance of western ghat Biodiversity.

Q6) Write short note on any two of following : **[10]**

   a) Chemosynthesis.

   b) Polyploidy breeding.

   c) Conservation stratergies.

   d) Historial account of contribution to botanical systems of classification.

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[4649] - 3002

Second Year B. Pharmacy (Semester - III)
PHARMACEUTICAL MICROBIOLOGY & IMMUNOLOGY
(2013 Pattern)

Time : 3 Hours]   *[Maximum Marks : 70*

Instructions to the candidates:

    1)   *Answers to the two sections should be written in separate books.*

    2)   *Figures to the right indicate full marks.*

    3)   *All questions are compulsory.*

SECTION - I

Q1) Write in detail historical development of microbiology & Explain whittaker's five kingdom concept. **[10]**

OR

Write the different techniques used for preservation of microbial culture & Describe in detail the growth curve of bacteria.

Q2) Answer the following (Any five) : **[15]**

    a)   How viruses are different from typical living cell?

    b)   Differentiate between slime & capsule.

    c)   Write medical importance of yeasts & moulds

    d)   Write function of cell wall.

    e)   How will you detect presence of E. coli in nonsterile pharmaceutical preparations?

    f)   Explain in brief about the arrangement of bacteria.

    g)   What do you mean by reproduction by binary fission.

Q3) Write a short note on (Any Two) : **[10]**

    a)   Viable count methods

    b)   Nutritional requirements of bacteria

    c)   Prebiotics & Probiotics

    d)   Cultivation of viruses

SECTION - II

Q4) Explain in detail specific & nonspecific defense mechanism of host. **[10]**

OR

Explain in detail following points

a) Classification of vaccines.

b) General production vaccines.

c) Quality control of vaccines

Q5) Answer the following :(Any Five) **[15]**

a) Enlist the advantages & disadvantages of moist heat sterilization.

b) Define disinfection & write its ideal properties.

c) Differentiate between active & passive immunity.

d) What is Agglutination? Explain the principle of agglutination.

e) Define antigen & antibody

f) Draw basic structure of immunoglobulin

g) What do you mean by phagocytosis.

Q6) Write a short notes on (any two) : **[10]**

a) RW test

b) ELISA test

c) Methods of sterilization

d) Classes of immunoglobulin

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[4649] - 3003

Second Year B.Pharmacy (Semester - III) (Theory)
PHARMACEUTICAL BIOCHEMISTRY
(2013 Pattern)

Time : 3 Hours] *[Maximum Marks : 70*

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

SECTION - I

Q1) Attempt any one of the following

a) Define proteins. Describes in detail structure of proteins. **[10]**

b) Define and classify lipids with suitable examples. Give their functions in detail. **[10]**

Q2) Attempt any five of the following **[15]**

a) Write classification of enzyme.

b) Explain primary structure of protein.

c) Explain functions & Biological role of starch.

d) Write a note on co-enzymes & co - factors.

e) Write a note on fibrous protein.

f) Explain physicochemical properties of Amino acids.

g) Explain therapeutic uses of enzymes.

Q3) Attempt any two of the following **[10]**

a) Explain mechanism of enzyme action.

b) Define & classify fatty acids.

c) Write a note on structure of DNA

d) Explain medicinally important amino acids.

SECTION - II

Q4) Attempt any one of the following :

   a)   What are purines & pyrimidines? Explain biosynthesis of pyrimidines.**[10]**

   b)   Define metabolism & Explain in detail oxidative deamination.   **[10]**

Q5) Attempt any five of the following   **[15]**

   a)   Energitics of TCA cycle.

   b)   Write a note on ketone bodies.

   c)   Write a note on non - oxidative deamination of amino acid.

   d)   Write a note on Vit.A.

   e)   Explain in brief Replication.

   f)   Explain in brief Transcription.

   g)   Biochemical Functions of Nucleic Acid

Q6) Attempt any two of the following :   **[10]**

   a)   Glycogenolysis

   b)   Write in detail about structure & Biochemical functions of Vit. B_3

   c)   Beta oxidation of fatty acids

   d)   Write in detail about structure & Biochemical functions of Vitamin E.

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[4649]-3004

Second Year B. Pharmacy (Semester - III)

PHARMACEUTICAL ORGANIC CHEMISTRY- III

(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

 1)   All Questions are compulsory.

 2)   Answer 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) Define resolution of racemic mixture. Enlist the different methods used for resolution of recemic mixture. And explain in details each method.   **[10]**

OR

 a)   Establish E & Z configurations   **[6]**
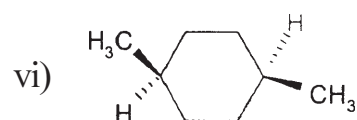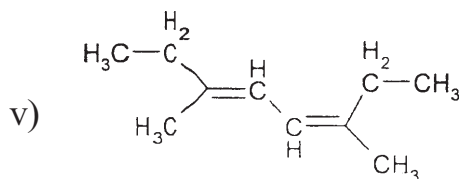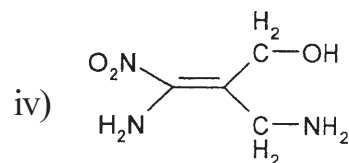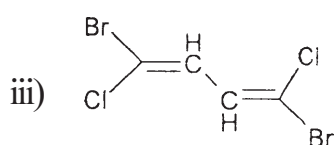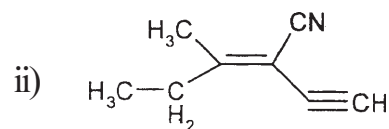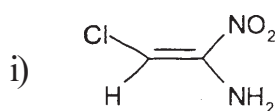
b) Explain   **[4]**

    i)   Staggered and eclipsed

    ii) Fischer projection formula

Q2) Answer the following : (ANY FIVE)   **[15]**

    a) Give significance of stereochemistry in biological activity.

    b) Define amino acid and add a note on peptide bond.

    c) Add a note on Koop synthesis.

    d) Define conformational isomerism and add a note on Fischer projection formula.

    e) Classify amino acids in details.

    f) Give conformational isomerism in ethane.

    g) Explain the term stereoisomerism in details.

Q3) Write short notes on any two :   **[10]**

    a) Conformations of n-butane

    b) Methods of synthesis of amino acids.

    c) Conformational isomerism of monoalkyl cyclohexanes

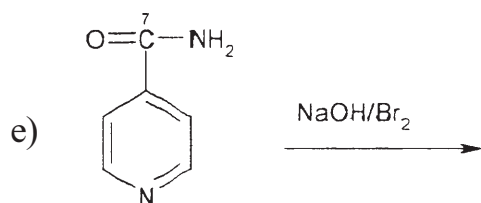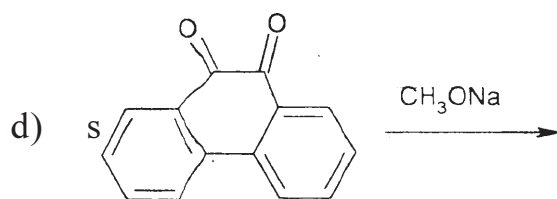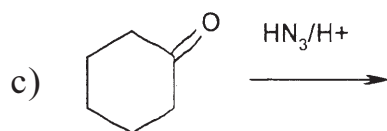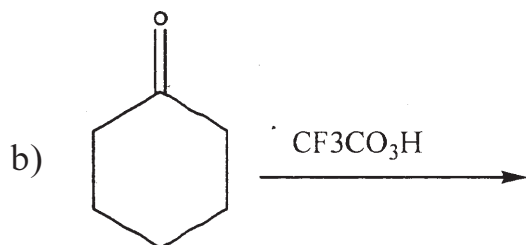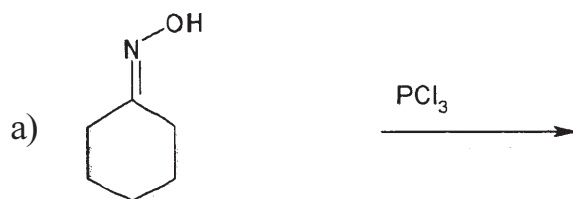   d) Diastereomerism.

Q4) Define molecular rearrangement reactions. Explain any two molecular rearrangements at electron rich oxygen. **[10]**

OR

Predict the product **[10]**

a)

PCl$_3$

b)

CF3CO$_3$H

c)

HN$_3$/H+

d) S

CH$_3$ONa

e)

O=C^7—NH$_2$

NaOH/Br$_2$

Q5) Answer the following (Any Five) [15]

a) Give mechanism involved in Fries rearrangement.

b) How will you convert allyl aryl ethers into allyl alcohols.

c) Give synthesis and reactions of naphthalene.

d) Explain Haworth synthesis of anthracene in detail.

e) Give brief account on cope rearrangement.

f) Discuss in brief Bayer-villager oxidation.

g) What is isoelectric point? Give its significance.

Q6) Write short notes on any two [10]

a) Beckmann rearrangement

b) Neber rearrangement

c) Pinacol-pinacolone rearrangement

d) Claisen rearrangement

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[4649]-3005

S. Y. B. Pharmacy (Semester - III)
PHARMACOLOGY - I
(2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

1) Answer to the two sections should be written in separate book.

2) Figures to the right indicate full marks.

3) All questions are compulsory.

SECTION - I

Q1) Explain in detail process of drug distribution & factors affecting drug distribution. **[10]**

OR

Explain in detail drug biotransformation. Enlist various reactions involved in biotransformation.

Q2) Answer the following (any five)

a) Enlist factors affecting bioavailability. **[3]**

b) Give advantages & disadvantages of oral route of drug administration.**[3]**

c) Therapeutic drug monitoring. **[3]**

d) Essential drug concept **[3]**

e) Factors affecting drug absorption. **[3]**

f) Structure & function of biological membrane **[3]**

g) Development of new drug **[3]**

Q3) Solve any two:

a) Explain how enzyme induction & enzyme inhibition can affect drug metabolism. **[5]**

b) Define apparent volume of distribution. Explain clinical significance of volume of drug distribution. **[5]**

c) Explain the term half life & bioequivalence. **[5]**

d) Explain the process of drug transportation across cell membrane. **[5]**

SECTION - II

Q4) What are different types of receptors? Explain in detail signal transduction mechanism of G - protein coupled receptors. **[10]**

OR

Explain synthesis, storage, release, metabolism and pharmacological actions of histamine

Q5) Attempt the following. (any five) **[15]**

a) Define & classify adverse drug reactions with examples.

b) Discuss pharmacological actions of prostaglandins.

c) Explain sites and mechanisms of drug action.

d) Enlist factors modifying drug action & explain in detail biological factors.

e) What are different types of drug toxicity? Justify with example.

f) Classify antihistaminics with examples.

g) Explain drug synergism with example.

Q6) Write short note on : (any two)   [10]

      a)   Drug therapy in pediatric patients

      b)   Drug antagonism

      c)   Dose response curve

      d)   Drug interactions

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