

Total No. of Questions—6]

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[5145]-11

First Year B. Pharmacy EXAMINATION, 2017

1.7 : COMPUTER APPLICATION AND BIO-STATISTICS

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 80

N.B. :— (i) All questions are compulsory.

(ii) Answers to the two Sections should be written in separate answer-books.

(iii) Figures to the right indicate full marks.

SECTION I

1. Define the central limit theorem of normal probability distribution. Explain the different types of probability distributions with suitable example. [10]

Or

Calculate Pearson's correlation coefficient ' r ' to comment on strength of relation between doses of a drug and activity recorded in animals. [10]

Dose (X)	Activity (Y)
4	8
6	10
2	4
5	9
3	7
5	8
2	5

P.T.O.

2. (A) A batch of tablets was tested for surface abnormality and coating defect manually. There were 20% tablets with abnormal surface texture, 30% tablets with defective coating and about 13% tablets with both abnormalities simultaneously. Prove that occurrence of one abnormality fevers the occurrence of the other. [5]
- (B) Using correlation coefficient show that there is always a significant relation between a gear applied and speed of the vehicle at a particular instant : [5]

Gear Applied	Average speed
2	21
1	8
3	36
4	47
5	67
2	22
4	45

- (C) Find the two equations for lines of regression for variables X and Y having means 18 and 11 with standard deviations 4 and 3 simultaneously ($r = 0.9$). [5]

3. Answer any *five* out of seven : [15]
- (A) Explain any three methods of randomization used in experiments.
 - (B) Define control, blind, and placebo in experimental designs.
 - (C) Comment on mathematical and statistical data distinguishing characteristics.
 - (D) Define mean, mode, median with example.
 - (E) Explain different types of errors in hypothesis testing.
 - (F) Comment on the scope of non-parametric tests
 - (G) Short note on sign rank tests.

SECTION II

4. (A) Discuss in detail binary system. [5]
- (B) Write note on Windows. [2]
- (C) Elaborate binary numbers system and its drawback. [3]

Or

- (A) Explain types of printers. [5]
- (B) Explain compiler and interpreter in comparison. [5]
5. (A) Write short note on tape as secondary memory. [6]
- (B) Explain different features of computers. [4]
- (C) Details about hard disc in computers. [5]

6. (A) Convert $(0001001101)_2$ to decimal and $(8723)_{10}$ to binary form. [5]
- (B) Attempt the following : [10]
- (a) Write note on plotter memory devices
- (b) Explain application of computers in pharmacokinetic and pharmacodynamics study.

Total No. of Questions—6]

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[5145]-42

Fourth Year B. Pharm. EXAMINATION, 2017
BIOPHARMACEUTICS AND PHARMACOKINETICS
(2008 PATTERN)

Time : Three Hours

Maximum Marks : 80

- N.B. :—**
- (i) Answers to the two sections should be written in separate answer-books.
 - (ii) Neat diagrams must be drawn wherever necessary.
 - (iii) Figures to the right indicate full marks.
 - (iv) *All* questions are compulsory.

SECTION I

1. Describe the mechanism of drug transport by comparing passive and facilitated diffusion. [10]

Or

Describe the factors influencing protein binding of drug. Give significance of protein binding. [10]

2. Answer any *five* : [15]
- (i) Describe briefly influence of excipients on drug bioavailability.
 - (ii) What are the characteristics of microsomal enzymes ?
 - (iii) List the factors influencing renal excretion of drug.
 - (iv) Define and differentiate absolute and relative bioavailability.

P.T.O.

- (v) Explain the objectives of bioavailability studies.
 - (vi) What are various approaches used to enhance bioavailability of drug from its dosage form ?
 - (vii) Give the merits and demerits of healthy volunteers as subjects in bioavailability study.
- 3.** Write short notes on (any *three*) : [15]
- (i) Assessment of bioavailability
 - (ii) Theories of drug dissolution
 - (iii) Permeability limited drug distribution
 - (iv) pH-partition hypothesis
 - (v) Biliary excretion of drug.

SECTION II

- 4.** What is compartmental modeling ? Explain *one* compartmental open model for i.v. infusion of the drug. [10]

Or

Explain in detail various methods used to estimate absorption rate constant (K_a) when the drug is given by oral administration and follows one compartment model. [10]

- 5.** Answer any *five* : [15]
- (i) Which parameters are monitored in therapeutic drug monitoring ?
 - (ii) Differentiate between mammillary and catenary model.

- (iii) Describe in brief individualization of dosage regimen.
- (iv) Explain in short volume of distribution.
- (v) Explain in short V_{\max} and K_m .
- (vi) Explain advantages of physiological model over compartmental model.
- (vii) Explain in short AUC.

6. Write short notes on (any *three*) : [15]

- (i) IVIVC (In Vitro-in Vivo Correlation)
- (ii) Dissolution models
- (iii) Therapeutic drug monitoring
- (iv) Two Compartmental Model
- (v) BCS.

Total No. of Questions—8]

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[5145]-44

Fourth Year B. Pharm. EXAMINATION, 2017

PHARMACEUTICAL ANALYSIS—III

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 80

N.B. :— (i) Write answer to Section I and Section II in separate answer-book.

(ii) Question Nos. 1 and 5 are compulsory. Out of the remaining attempt *two* questions from Section I and *two* questions from Section II.

(iii) Neat diagrams must be drawn wherever necessary.

Section I

1. (a) Explain principle of IR spectroscopy and factors affecting vibrational frequencies. [6]
- (b) Describe various modes of IR vibrations. [4]

2. (a) Explain principle, working, advantages and applications of TOF-MS. [8]
- (b) Discuss various aspects of LC-MS technique. [7]

P.T.O.

3. (a) Explain principle, instrumentation and applications of XRD techniques. [8]
(b) Explain structure determination of simple molecules by HNMR. [7]
4. Write notes on any *three* of the following : [15]
(a) FES principle and applications
(b) Internal quality audit
(c) Applications of MID IR
(d) ESR principle and applications
(e) AES applications.

Section II

5. (a) Explain Van Deemter equation. How does it help to improve column performance ? [6]
(b) Explain band broadening and HETP in gas chromatography. [4]
6. (a) Discuss various types of pumps used in HPLC. [8]
(b) Write in brief about troubleshooting and quantitation technique in HPLC. [7]
7. (a) Give the applications of HPLC. [7]
(b) Discuss in detail about detectors in gas chromatography. [8]

8. Write notes on any *three* of the following : [15]

- (a) Applications of HPLC
- (b) Gas chromatography sample handling
- (c) Capillary zone electrophoresis
- (d) Pharmaceutical applications of radio chemical methods
- (e) Principle and applications of SEM.

Total No. of Questions—6]

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[5145]-45

Final Year B. Pharmacy EXAMINATION, 2017

4.5 : PHARMACOLOGY-III

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 80

N.B. :— (i) Answer to the two sections should be written in separate answer-books.

(ii) Figures to the right indicate full marks.

(iii) All questions are compulsory.

SECTION I

1. Define antibiotics. Discuss in brief mechanism of action, adverse effects, therapeutic uses and bacterial resistance of penicillin. [10]

Or

Classify angina pectoris. Give brief pharmacological account on organic nitrates with respect to mechanism of actions, therapeutic uses and adverse effects. [10]

2. Solve any *five* : [15]

(a) Write the sign, symptoms and treatment of snake bite. [3]

(b) Explain the immunosuppressant mechanism of glucocorticoids. [3]

(c) Write the mechanism of action and therapeutic uses of acetazolamide. [3]

(d) Classify anti-arrhythmic drugs based on their mode of action. [3]

P.T.O.

- (e) Discuss the role of phosphodiesterase inhibitors in the treatment of heart failure. [3]
- (f) Explain the mode of action and contraindications of chloroquine. [3]
- (g) Justify the use of sulfamethoxazole and trimethoprin as fixed dose combination. [3]
- 3** Write short notes on any *three* : [15]
- (a) Monoclonal antibodies. [5]
- (b) Calcium channel blockers in hypertension. [5]
- (c) Anti-metabolites in cancer chemotherapy. [5]
- (d) General principles of treatment of poisoning. [5]
- (e) Nucleoside reverse transcriptase inhibitors. [5]

SECTION II

- 4** Discuss in brief the importance of pharmacy and therapeutic committee and hospital formulary in hospital pharmacy. [10]

Or

Explain the responsibilities, composition and function of Institutional review board (IRB). Write a note on informed consent of trial subject.

- 5** Solve any *five* : [15]
- (a) Explain bed side pharmacy and Satellite pharmacy. [3]
- (b) Discuss the drug interaction during drug metabolism and absorption. [3]
- (c) Write the role of hospital pharmacist in health care programs. [3]
- (d) Define patient counseling. Explain different stages of patient counseling. [3]
- (e) Classify ADRs. Write about teratogenicity. [3]

- (f) Write about patient medication profile. [3]
- (g) Write the advantages of unit dose system. [3]
- 6** Write short notes on any *three* : [15]
- (a) The Nuremberg code. [5]
- (b) Pharmacodynamic drug interaction. [5]
- (c) Inpatient drug dispensing system. [5]
- (d) Contract research organizations (CRO). [5]
- (e) Patient recruitment in clinical trials. [5]

Total No. of Questions—6]

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[5145]-46

Final Year B. Pharmacy EXAMINATION, 2017

PHARMACOGNOSY—III

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 80

- N.B. :—**
- (i) All questions are compulsory.
 - (ii) Figures to the right indicate full marks.
 - (iii) Answers to the two sections should be written in separate answer-books.
 - (iv) Neat diagrams must be drawn wherever necessary.

SECTION I

1. Describe systematic pharmacognostic study of Opium. [10]

Or

What are flavonoids ? Give their chemical classification with at least 2 examples of each. Mention chemical test for their detections. [10]

2. Solve any *five* : [5×3=15]

- (a) Differentiate between *D. metel* and *D. stramonium*.
- (b) Give pharmacological significance of Ergot alkaloids.
- (c) Explain in short about Bhilwa and Gokhru.
- (d) Draw well labelled diagram of T.S. of Ipecac.

P.T.O.

- (e) Discuss about one allied species of Rauwolfia.
- (f) Describe microscopical diagnostic features of Kurchi bark.
- (g) Write note on flavanolignans.
3. Write elaborate notes on the following : [3×5=15]
- (a) Anti-inflammatory agent of marine sources.
- (b) Amino alkaloids.
- (c) Chemical profile of Rauwolfia.
- (d) Life cycle of ergot.
- (e) Isoflavanone.

SECTION II

4. Explain principles of Ayurveda. Describe different Ayurvedic formulations. Write note on evaluation of Asava and Arista. [10]

Or

Discuss application of chromatographic techniques in evaluation of herbal drugs. [10]

5. Solve any *five* questions from following : [5×3=15]
- (a) Write note on estimation of moisture value.
- (b) Describe herbal drug interactions of Digitalis.
- (c) Enlist 3 drugs used in hair care cosmetics.
- (d) Give spectroscopic details of Atropin.

- (e) Write principle behind extraction of Hesperidin.
- (f) Give examples of three plant based industries.
- (g) Write note on Churnas.

6. Write notes on the following : [3×5=15]

- (a) Preliminary phytochemical screening.
- (b) Skin care cosmetics.
- (c) Structure elucidation of Reserpine.
- (d) Extraction of Quinine from Cinchona.
- (e) Regulations for import and export of herbal drugs.

Total No. of Questions—6]

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[5145]-47

Final Year B.Pharmacy EXAMINATION, 2017

4.7 : PHARMACEUTICAL JURISPRUDENCE

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 80

N.B. :— (i) Question Nos. 1 and 4 are compulsory.

(ii) Out of the remaining solve *two* questions from Section I and *two* questions from Section II.

SECTION I

1. Discuss in detail about constitution and working of state and joint state PCI. [10]

Or

Write in detail about objectives and salient features of Consumer Protection Act. [10]

2. Attempt any *five* (3 marks each) : [15]

(a) Write about retail price of formulation.

(b) Write in brief about cyber law.

(c) Write salient features of education regulations as per Pharmacy Act 1948.

(d) Explain schedule Y.

P.T.O.

- (e) Write objectives of Drug and Magic Remedies Act.
 - (f) Write responsibilities of food inspector.
 - (g) Explain Narcotic Drugs and Psychotropic Substances Act, 1985
- 3.** Attempt any *three* (5 mark each) : [15]
- (a) Explain the classes of prohibited advertisements.
 - (b) Differentiate between bonded and non-bonded manufactory.
 - (c) Write requirements of drug store as per D & C Act 1940
 - (d) Write a note on industrial safety and health.
 - (e) Write objectives of Pharmacy Act 1948.

SECTION II

- 4.** Write importance, types and criteria of patents. [10]

Or

Explain different forms of IPR. [10]

- 5.** Attempt any *five* (3 marks each) : [15]

- (a) Explain latest amendments in Patent Act 1970.
- (b) What is term of patent ?
- (c) What are documents required for patent filling ?
- (d) What is exclusive marketing right ?
- (e) Write provisions of compulsory license.
- (f) Enlist criteria for opposition to grant of patent.
- (g) What are generic drugs ?

6. Attempt any *three* (5 mark seach) :

[15]

- (a) Explain patent grant procedure in India.
- (b) Explain drug master file.
- (c) Write a short note on patent certifications.
- (d) Write difference between NDA and ANDA.
- (e) Write brief account of ICH.

Total No. of Questions—6]

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[5145]-1001

F.Y. B. Pharmacy (First Semester) EXAMINATION, 2017

111 : PHARMACEUTICS-I

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

N.B. :— (i) Answers to the *two* sections should be written in separate books.

(ii) Neat diagram must be drawn wherever necessary

(ii) Figures to the right indicate full marks.

SECTION-I

Q.1 Attempt any one

10

Define drug; what are the different sources of drug? Write the rationale for development of dosage form .

OR

Write the history of pharmacy profession in India; also write a note on Pharmacy code of ethics.

Q.2 Attempt any Four

12

- What is Pharmacopoeia? Add a note on Indian Pharmacopoeia.
- Give the classification of dosage forms.
- Write in brief about Ayurvedic Pharmacopoeia.
- Describe Unani and Siddha as an alternate system of medicine.
- Write the scope of formulation development.
- Write the scope of physical pharmacy.
- Describe Homoeopathy as an alternate system of medicine.

P.T.O.

Q3 Write short notes (any two)

08

- a) Principle of Ayurveda.
- b) Career opportunities after pharmacy graduation.
- c) Scope of pharmaceutical engineering.
- d) Routes of drug administration.

SECTION-II

Q.4 Attempt any one

10

Explain the concept of excipients, define and classify excipients with examples.

OR

Explain water as universal solvent in Pharmaceutical solutions and discuss various methods to improve the aqueous solubility of drug

Q.5 Attempt any Four

12

- a) What are syrups? Write in brief about artificial syrups.
- b) Write formulation ingredients, procedure and direction of simple Linctus IP.
- c) What is polymorphism? Give its significance in dosage form.
- d) Discuss specific gravity measurement for solutions.
- e) Write the composition of any one elixir preparation.
- f) Enlist the different methods used for bulk drug characterization.
- g) Write in brief about stability study aspect in formulation development.

Q.6 Write short notes (any two)

08

- a) Quality Control and Quality Assurance.
- b) Enema.
- c) ENT preparations.
- d) Methods of aromatic water preparation.

Total No. of Questions—6]

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[5145]-1003

FIRST YEAR B.PHARMACY (First Semester) EXAMINATION, 2017

PHARMACEUTICAL INORGANIC CHEMISTRY

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

- N.B. :—**
- (i) *All* questions are compulsory.
 - (ii) Answers to the two Sections should be written in separate answer-books.
 - (iii) Figures to the right indicate full marks.

SECTION I

1. Attempt any *one* from the following : [10]
 - (a) What is Hardness of water ? Explain in detail methods to remove temporary and permanent hardness of water.
 - (b) Explain in detail Absorption, distribution and Physiological role of Iron and Iodine. Write preparation, properties and uses of Ferrous Sulphate and Potassium Iodide.

2. Solve any *four* from the following : [12]
 - (a) Write a short note on Pectin.
 - (b) Define Limit test. Write principle and reaction involved in limit test of sulphate.

P.T.O.

- (c) Draw a well labeled diagram of Gutzeit Apparatus used for limit test of Arsenic.
- (d) What is Achlorhydria ? Write a note on Acidifying agents.
- (e) Define Monograph. Explain Solubility term in monograph.
- (f) Discuss raw material as source of impurity.
- (g) Write functions of Bicarbonate and Phosphate as anion.
- 3.** Write short notes on any *two* from the following : [08]
- (a) Saline Cathartics
- (b) Limit test of Iron
- (c) Electrolytes used in Acid base combination therapy.
- (d) Combination of Antacids.

SECTION II

- 4.** Attempt any *one* from the following : [10]
- (a) What is physiological acid base balance ? Describe the electrolytes used in diseases related to physiological acid balance.
- (b) What are topical agents ? Classify them with example. Explain Topical protectives along with preparation, properties, uses of zinc oxide and calamine.
- 5.** Solve any *four* from the following : [12]
- (a) Explain ORS.

- (b) Define along with examples :
- (1) Radio opaque contrast medias
 - (2) Astringents
 - (3) Antidotes
- (c) Describe propertise and uses of Oxygen and Nitrogen gas.
- (d) What are expectorants ? Discuss mechanism of action Expectorants. Write example of it.
- (e) Write physiological role of copper in body.
- (f) Give the principle and reaction involved in limit test for chloride along with the general procedure.
- (g) Write in brief history of Indian Pharmacopoeia.

6. Solve any *two* from the following : [08]

- (a) Write a note on Dental Products.
- (b) Give the principle involoved in limit test for lead I.P.
- (c) Define the term mEq/l. Calculate mEq/l of Na and Cl ions in :
 - (i) Normal saline solution
 - (ii) Sodium chloride hypertonic injection (1.6% w/v solution of sodium chloride)
- (d) Explain in detail about antidotes.

Total No. of Questions—6]

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[5145]-1004

F.Y. B.Pharm. (I Sem.) EXAMINATION, 2017
PHARMACEUTICAL ORGANIC CHEMISTRY—I
(2015 PATTERN)

Time : Three Hours

Maximum Marks : 80

- N.B. :-** (i) All questions are compulsory.
(ii) Figures to the right indicate full marks.
(iii) Neat diagrams must be drawn wherever necessary.

Section I

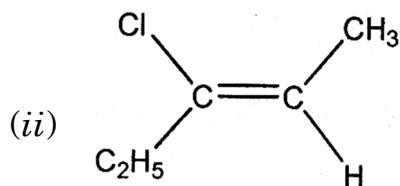
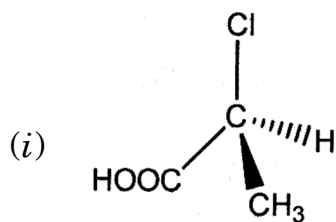
1. What are elimination reactions ? Explain mechanism, stereochemistry of E_1 and E_2 reactions. Compare E_1 and E_2 mechanism. [10]

Or

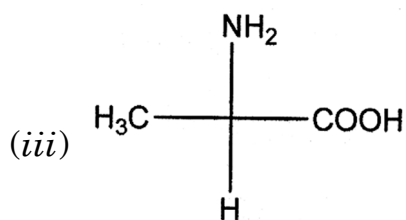
Explain any *five* factors affecting electron availability ?

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

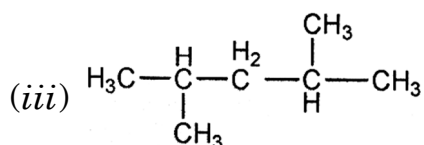
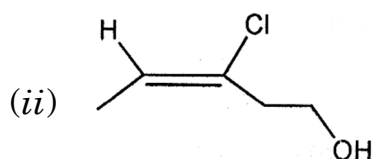
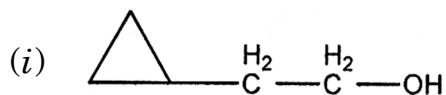
(a) Assign R/S or E/Z configuration to the following :



P.T.O.



(b) Write IUPAC names for the following structures :



(c) Write any *three* reactions of alkanes.

(d) Define the following terms with suitable examples :

(i) Carbocation

(ii) Carbanion

(iii) Electrophile.

(e) Identify class of isomerism in the following :

(i) 1-bromopropane and 2-propane.

(ii) n-butane and iso-butane

(iii) Ethanol and dimethyl ether.

(f) Explain tautomerism with example.

(g) Draw resonating structures of any *two* from the following :

(i) Aniline

(ii) Nitrobenzene

(iii) Benzoic acid.

3. Answer the following (any *two*) : [8]
- (a) Classify organic compounds on the basis of elemental composition (at least *five* classes with suitable examples).
 - (b) Define hybridization. Explain sp^2 hybridization with an example.
 - (c) Explain the addition-elimination mechanisms of nucleophilic aromatic substitution.
 - (d) Explain inductive effect, mesomeric effect with examples.

Section II

4. (a) Define isomerism. Explain any *four* types of isomerism with examples. [10]
- (b) Classify various types of chemical reactions with suitable examples. [10]

Or

- (a) Explain the directing effects of the following functional groups towards electrophilic substitutions on benzene : [10]
- (i) —OH
 - (ii) —CH₃.
- (b) Halogens being electron withdrawing are ortho para directors. Explain. [10]

5. Answer the following (any four) : [12]

(a) Arrange the following in order of increasing acidity with explanation :

(i) Acetic acid

(ii) Trichloroacetic acid

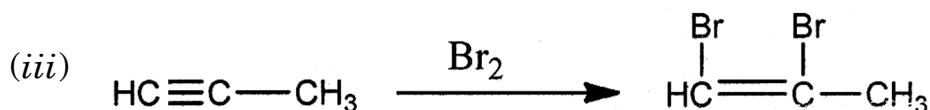
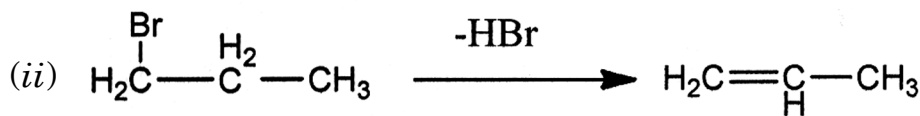
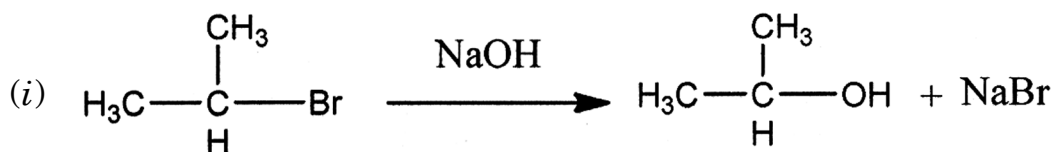
(iii) Chloroacetic acid.

(b) Explain Saytzeff rule for 1, 2 elimination reaction ?

(c) Write a note on ozonolysis.

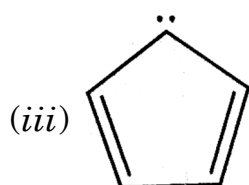
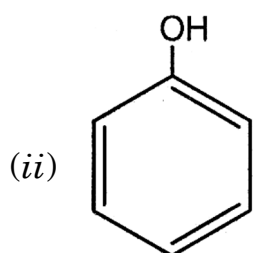
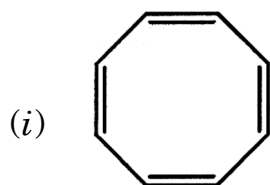
(d) Tertiary carbocations are more stable than secondary carbocations. Explain.

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



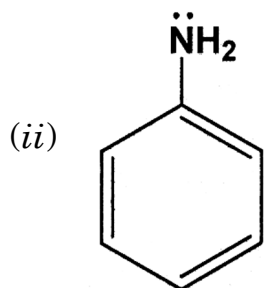
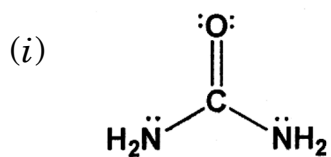
(f) Explain hyperconjugation with example.

- (g) Apply Huckel's rule of aromaticity and differentiate the following compounds into aromatic and non-aromatic or anti-aromatic compounds :

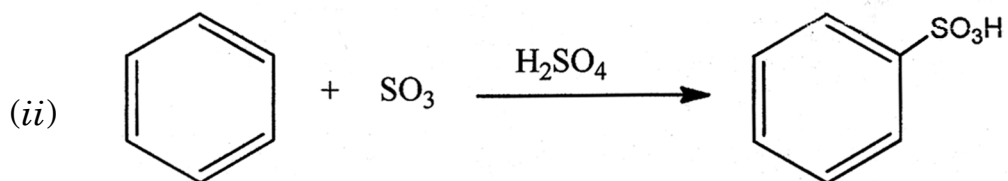
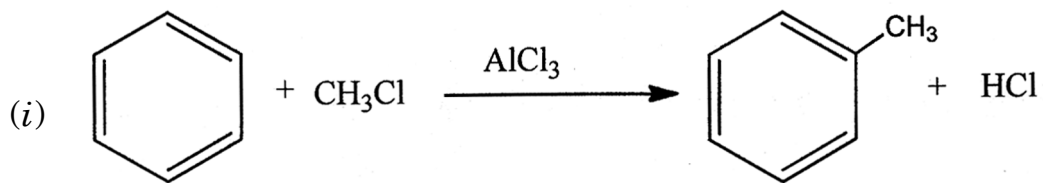


6. Answer the following (any two) : [8]

- (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 the following :



(d) Write down the stepwise mechanism for the following reactions :



Total No. of Questions—6]

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[5145]-1005

First Year B.Pharmacy (First Semester) EXAMINATION, 2017

HUMAN ANATOMY AND PHYSIOLOGY—I

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

- N.B. :—**
- (i) *All questions are compulsory.*
 - (ii) *Answers to the two sections should be written in separate answer-books.*
 - (iii) *Neat labelled diagrams must be drawn wherever necessary.*
 - (iv) *Figures to the right indicate full marks.*

SECTION-I

1. Classify basic types of tissues with their characteristics. Explain connective tissues in detail. [10]

Or

Enlist various clotting factors. Describe in detail the blood coagulation.

2. Answer the following (any 4) : [12]
- (a) Explain different types of WBCs with their characteristics and functions.
 - (b) Discuss the composition and functions of blood.
 - (c) Explain the structure and functions of spleen.

P.T.O.

- (d) Explain Active Transport across plasma membrane with an example.
- (e) Define the terms : Polycythemia, Allergy and Inflammation.
- (f) Describe the mechanism involved in platelet plug formation.
- (g) Enlist and explain the components of feedback system.

3. Write short note on (any 2) : [8]

- (a) Plasma membrane : Structure and Functions.
- (b) Muscle tissue.
- (c) ABO and Rh blood groups.
- (d) Physiology of muscle contraction.

SECTION-II

4. Draw neat labelled diagram of interior of heart. Explain the structure of heart. Add a note on blood flow during pulmonary circulation. [10]

Or

Discuss in detail location, anatomy, histology and functions of stomach.

5. Answer the following (any 4) : [12]

- (a) Enlist and explain the elements of conduction system of heart.
- (b) Explain the anatomy and functions of Liver.
- (c) Add a note on contraceptive devices for male and female.
- (d) Define the terms : Cardiac output, Stroke volume and Heart Rate.

- (e) Explain the histology and functions of salivary glands.
- (f) Discuss the sources, deficiency disorders daily requirement of vitamin B₁₂.
- (g) Draw neat labelled diagram of digestive system.

6. Write short notes on (any 2) :

- (a) Hormonal regulation of Blood Pressure
- (b) Health promotion
- (c) Small intestine
- (d) Electrocardiogram (ECG).

Total No. of Questions—6]

[Total No. of Printed Pages—2

Seat No.	
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[5145]-1006

**F.Y. B. Pharmacy (First Semester) EXAMINATION, 2017
COMMUNICATION AND SOFT SKILL DEVELOPMENT
(2015 PATTERN)**

Time : Three Hours

Maximum Marks : 60

- N.B. :—** (i) *All* questions are compulsory.
(ii) Answers to the *two* sections should be written in separate answer-books.
(iii) Neat labeled diagrams must be drawn wherever necessary.
(iv) Figures to the right indicate full marks.

SECTION-I

1. Write meaning and importance of communication. Explain objectives of Communication. Describe the different modes of overcoming barriers of communication. [10]

Or

Describe the Expository style of writing and states its structure.

2. Answer the following (any *four*) : [12]
- (a) State various purposes of writing.
 - (b) Why is oral communication essential ?
 - (c) State the principles of paragraph writing.
 - (d) Language as a tool of communication.
 - (e) Explain about abstract.
 - (f) Write about semantics of connectives.
 - (g) Explain scope and significance of technical communication.

P.T.O.

3. Write short notes on (any *two*) : [8]
- (a) Objective style Vs. Literary Composition.
 - (b) Developing effective messages
 - (c) Differentiate between technical communication and general writing.
 - (d) Reference material.

SECTION-II

4. Define business communication. Write principles and essentials of good correspondence. Explain different types of commercial correspondence. [10]

Or

Describe the applications of modern technology in communication.

5. Answer the following (any *four*) [12]
- (a) Write an application for the post of production officer in pharmaceutical industry.
 - (b) Enlist and explain the components of Resume.
 - (c) Classify reports. Write the parts of reports.
 - (d) Write an account on interpersonal skills.
 - (e) What is empathy ? Discuss its types.
 - (f) Explain vowels and consonants in phonetics.
 - (g) Define notice. Explain its contents.
6. Write short notes on (any *two*) : [8]
- (a) Globalization of business
 - (b) Enquiry letters
 - (c) Email
 - (d) Problem solving.

Total No. of Questions—6]

[Total No. of Printed Pages—3

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[5145]-2001

B.Pharmacy (First Year) (Second Semester)

EXAMINATION, 2017

PHARMACEUTICS—II

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

N.B. :— (i) *All* questions are compulsory.

(ii) Answers to the two sections should be written in separate answer books.

(iii) Neat labelled diagrams must be drawn wherever necessary.

(iv) Figures to the right indicate full marks.

SECTION-I

1. Enumerate and describe the methods of measurement of particle size. Add a note on pharmaceutical significance of size separation.

[10]

Or

Write on various types of packaging material for pharmaceutical dosage forms and explain any *one* in detail.

2. Answer the following (any *four*) :

[12]

(a) Describe in brief Kick's law, Rittinger's law, Bond's law in size reduction.

P.T.O.

- (b) Describe blister packing as unit dose packing material.
- (c) Write the factors affecting rate of filtration.
- (d) What is filter aid and what are its ideal characteristics ?
- (e) Draw neat and well labelled diagram of Hammer mill.
- (f) What are various mechanisms of size reduction ?
- (g) Give powder gradation as per Indian Pharmacopoeia.

3. Write short notes on (any *two*) : [8]

- (a) Stake's law.
- (b) Colloidal mill.
- (c) Evaluation of glass as packaging material.
- (d) Filterleaf.

SECTION-II

4. Define the terms bioavailability (BA) and bioequivalence (BE). What is the significance of BA/BE studies ? Add a note on *in vivo* fate (ADME) of a drug. [10]

Or

Discuss general requirements for pharmaceutical manufacturing plant as per schedule M.

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

- (a) Explain the significance of rate and extent of absorption in drug therapy.
- (b) Importance of Good Manufacturing Practices (GMP).

- (c) Describe and differentiate between active and passive absorption.
- (d) Write a note on Triple roller mill.
- (e) Explain in brief sigma blender.
- (f) Explain the terms t_{\max} , C_{\max} and AUC.
- (g) Discuss in brief Impellers and Propellers.

6. Write short notes on (any *two*) : [8]

- (a) Deaeration during liquid mixing.
- (b) Departments in pharmaceutical manufacturing unit.
- (c) Mixing of powders.
- (d) Non-renal routes of excretion.

Total No. of Questions—6]

[Total No. of Printed Pages—3

Seat No.	
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[5145]-2002

F.Y. B.Pharmacy (Second Semester) EXAMINATION, 2017

DOSAGE FORM DESIGN

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

- N.B. :—**
- (i) Answers to the two sections should be written in separate books.
 - (ii) Neat diagrams must be drawn wherever necessary.
 - (iii) Figures to the right indicate full marks.
 - (iv) *All* questions are compulsory.

SECTION-I

1. What are the factors affecting stability of suspension. Add a note on suspending agent. [10]

Or

Define and classify powder. Write about evaluation of powders.

2. Answer the following (any *four*) : [12]
- (a) Write identification tests for emulsion.
 - (b) Comment on surface tension theory of emulsification.

P.T.O.

- (c) Write a note on suspension containing poorly wettable solids.
- (d) Define dosage forms. Mention their advantages.
- (e) Comment on transdermal drug delivery system.
- (f) Explain Stokes' law.
- (g) Define microemulsion and self-emulsifying drug delivery system.

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

- (a) Define granulation and discuss methods for granulation.
- (b) Write a note on conventional dosage form with examples.
- (c) Discuss stability of emulsions.
- (d) Define suspension and classify. Write about dry suspensions for reconstitution.

SECTION-II

4. Discuss various methods for enhancement of solubility of drug. [10]

Or

Define ointment. Write in detail about ointment bases used and evaluation of semisolid dosage forms.

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

- (a) Write ideal properties of suppository base.

- (b) Define fundamental unit of radioactivity.
- (c) Write briefly about solubilization.
- (d) Write a note on creams.
- (e) Write importance of solubility in development of dosage forms.
- (f) Define displacement value of suppository.
- (g) Write a note on Carbon-11 radiopharmaceutical.

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

- (a) Discuss factors affecting solubility and dissolution.
- (b) Write about bases for suppositories.
- (c) Write a note on Positron emission tomography.
- (d) Define and classify jellies. Write a note on gelling agent.

Total No. of Questions—6]

[Total No. of Printed Pages—3

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[5145]-2003

F.Y. B.Pharmacy (Second Semester) EXAMINATION, 2017

PHARMACEUTICAL ANALYSIS—I

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

- N.B. :—**
- (i) Answers to the two sections should be written in separate answer-books.
 - (ii) Neat diagrams must be drawn wherever necessary.
 - (iii) Figures to the right indicate full marks.
 - (iv) *All* questions are compulsory.

SECTION-I

1. What is differentiating solvent ? Discuss solvents used in non-aqueous titration. Explain preparation and standardization of 0.1 M Perchloric acid solution. [10]

Or

Explain in detail neutralization curves (with examples) of

- (a) Strong acid and Strong base titration.
 - (b) Strong base and weak acid titration.
2. Answer the following (any *four*) : [12]
- (a) Define Primary standard. Enlist requirements of primary standards.

P.T.O.

- (b) Write about Accuracy and Precision.
- (c) Calculate equivalent weight of Sodium oxalate, Potassium permanganate and Aluminium hydroxide.
- (d) What do you mean by Protogenic and Protophilic solvent ? Explain with examples.
- (e) Explain T-test in brief.
- (f) Discuss in brief Ostwald's theory.
- (g) Explain the terms Buffer, Buffer index, Buffer capacity.
- 3.** Write short notes on (any *two*) : [8]
- (a) Primary and secondary standards.
- (b) Pharmaceutical Applications of Non-aqueous titrations.
- (c) Errors in analysis.
- (d) Theories of acid-base indicators.

SECTION-II

- 4.** Explain electron balance method. Add a note on end point detection in redox titration. [10]

Or

Explain principle of Volhard's method and elaborate its application in determination of chloride. Give its advantages over Mohr's method.

- 5.** Answer the following (any *four*) : [12]
- (a) How will you prepare and standardize 0.1 N AgNO₃ solution?

- (b) How solubility product and common ion effect affects precipitation ?
- (c) Discuss advantages and limitations of Mohr's method.
- (d) Differentiate between iodimetric and Iodometric titration.
- (e) Starch solution is added near the end point in assay of iodine, Explain.
- (f) How will you prepare and standardize 0.05 M disodium EDTA solution ?
- (g) Comment on organic precipitants.

6. Write short notes on (any *two*) : [8]

- (a) Sodium Nitrite Titration
- (b) Masking and Demasking agents
- (c) Pharmaceutical Applications of Gravimetry
- (d) Titanious chloride titration.

Total No. of Questions—6]

[Total No. of Printed Pages—3

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[5145]-2004

F.Y. B. Pharm. (Second Semester) EXAMINATION, 2017

PHARMACEUTICAL ORGANIC CHEMISTRY-II

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

N.B. :— (i) Answers to the two sections should be written in separate books.

(ii) Figures to the right indicate full marks.

(iii) *All* questions are compulsory.

SECTION-I

1. What are amines ? Explain separation methods of amines. Explain reactions of nitrous acid on 1^o, 2^o and 3^o amines. [10]

Or

Give reaction, mechanism and applications of Perkin reaction and Mannich reaction.

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

(a) Which one of the following is more basic, give reasons—Aniline and Methyl amine.

(b) Draw resonating structures of phenol and para-nitro phenol.

(c) What are semicarbazones ? How are they prepared ?

P.T.O.

- (d) Explain preparation and uses of diazonium salts.
- (e) Draw structures for the following IUPAC names :
4-methylpentanol, 2-methoxypentane and 2-pentanol.
- (f) Explain Kolbe-Schmidt reaction of phenols.
- (g) Explain the distinguishing test of primary, secondary and tertiary alcohols.
- 3.** Write short notes on (any *two*) : [8]
- (a) Sulphonic acid acidity and preparation methods
- (b) Knoevenagel reaction
- (c) Preparation method of ethers
- (d) Reformatsky reaction.

SECTION-II

- 4.** Define and classify functional derivatives of carboxylic acids with any *two* structures from each class. Give any *two* methods of preparation and reactions of anhydrides. [10]

Or

Discuss aliphatic and aromatic carboxylic acids with any *two* structures from each class. Give any *two* methods of preparation and reactions of carboxylic acids.

- 5.** Answer the following (any *four*) : [12]
- (a) Discuss any *two* reactions of ester.
- (b) Give any *two* methods of synthesis of amide with suitable examples.

- (c) Dehydrohalogenation.
- (d) Define monobasic and dibasic carboxylic acids with suitable examples.
- (e) Define and classify alkyl halides with examples. Give method of preparation of alkyl halides.
- (f) What are acid chlorides ? How will you prepare Benzoyl chloride from Benzoic acid.
- (g) Give any *two* reactions of cyanide.

6. Write short notes on (any *two*) : [8]

- (a) Gabriel Pthalimide Synthesis
- (b) Diekmann reaction
- (c) Compare S_N1 and S_N2
- (d) Preparation and reactions of isocyanide.

Total No. of Questions—6]

[Total No. of Printed Pages—3

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[5145]-2005

F.Y. B.Pharmacy (Semester II) EXAMINATION, 2017

HUMAN ANATOMY AND PHYSIOLOGY-II

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

N.B. :— (i) *All* questions are compulsory.

(ii) Answer to the *two* sections should be written in separate answer books.

(iii) Neat labeled diagrams must be drawn wherever necessary.

(iv) Figures to the right indicate full marks.

SECTION-I

1. Explain the anatomy of spinal cord. Write in detail about reflex arc. [10]

Or

Draw a neat labeled diagram of respiratory system. Explain in detail physiology of respiration.

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

(a) Draw neat labeled diagram of interior of eyeball.

(b) Explain the anatomy of internal ear.

P.T.O.

- (c) Define the terms : Asthma, Emphysema and bronchitis.
 - (d) Describe the structure and functions of Trachea.
 - (e) Describe the contribution of skin in thermoregulation.
 - (f) Explain the structure of taste buds.
 - (g) Discuss the composition and functions of CSF.
- 3.** Write short notes on (any *two*) : [8]
- (a) Cerebrum : Functional Areas.
 - (b) Sympathetic and Parasympathetic Nervous system.
 - (c) Epidermis of Skin.
 - (d) Neuron.

SECTIONS-II

- 4.** Describe the location, histology, hormones, and functions of the adrenal glands. [10]

Or

Draw a neat labeled diagram of internal structure of kidney and explain physiology of urine formation.

- 5.** Answer the following (any *four*) : [12]
- (a) Enlist name and function of Types of Anterior Pituitary Cells.
 - (b) Describe the hormones of neurohypophysis.

- (c) Explain the regulation of insulin and glucagon secretion.
- (d) With a neat labeled diagram explain the structure of nephron.
- (e) Write a note on lactation physiology.
- (f) Discuss the histology of ovaries.
- (g) Explain oogenesis.

6. Write short notes on (any *two*) : [8]

- (a) Spermatogenesis
- (b) Female reproductive cycle
- (c) Thyroid gland
- (d) Physiology of micturition.

Total No. of Questions—6]

[Total No. of Printed Pages—3

Seat No.	
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[5145]-2006

F.Y. B.Pharmacy (Second Semester) EXAMINATION, 2017

PHARMACOGNOSY

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

- N.B. :—**
- (i) Answers to the two sections should be written in separate books.
 - (ii) Neat diagrams must be drawn wherever necessary.
 - (iii) Figures to the right indicate full marks.
 - (iv) *All* questions are compulsory.

SECTION-I

1. Elaborate in detail general morphology and microscopy of bark. [10]

Or

Explain in detail structure and replication of DNA, also give detail information on molecular basis of hereditary.

2. Answer any *four* : [12]

- (a) Explain in brief excretory products of plants.
- (b) Explain in brief relevance of biology to pharmaceutical sciences.

P.T.O.

- (c) Explain primary and secondary growth of plant tissue.
- (d) What are unorganized drugs ?
- (e) Explain the structure and function of epidermal tissue.
- (f) Explain RNA translation.
- (g) Describe structure and function of xylem.

3. Write short notes on any *two* : [8]

- (a) Structure and function of protein
- (b) Mitosis
- (c) Ergastric contents of the plant cell and their pharmacognostic significance
- (d) Morphology and microscopy of wood.

SECTION-II

4. Attempt any *one* : [10]

- (a) Explain the current status and significance of Pharmacognosy along with the contribution of the various scientists in development of Pharmacognosy.

Or

- (b) Explain in detail about the phytohormones in plants.

5. Answer any *four* of the following : [12]

- (a) Explain the role of saprophytic mode of nutrition.
- (b) Explain in brief division of plant kingdoms.

- (c) Explain in brief biodiversity.
- (d) Explain the binomial nomenclature.
- (e) Define and give modes of speciation.
- (f) Explain artificial method of classification of plants.
- (g) Differentiate between autotrophic and heterotrophic mode of nutrition.

6. Write short notes on any *two* of the following : [8]

- (a) Hybridization
- (b) Chemosynthesis
- (c) Conservation strategies of biodiversity
- (d) Phytoremediation.

Total No. of Questions—6]

[Total No. of Printed Pages—3

Seat No.	
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[5145]-3002

S.Y. B. Pharm. (Third Semester) EXAMINATION, 2017

PHARMACEUTICAL MICROBIOLOGY

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

- N.B. :—**
- (i) Answers to the two sections should be written in separate answer books.
 - (ii) Neat diagrams must be drawn wherever necessary.
 - (iii) Figures to the right indicate full marks.
 - (iv) Assume suitable data, if necessary.
 - (v) *All* questions are compulsory.

SECTION I

- 1. Attempt any one :** [10]
- (a) Write in detail the scope and application of microbiology to pharmaceuticals. Write a note on “Whittaker’s Five Kingdom Concept”.
- Or*
- (b) Define culture media. Explain various types of media and draw growth curve of bacteria.
- 2. Attempt any four :** [12]
- (a) Define :
- (i) Prebiotics
 - (ii) Probiotics
 - (iii) Synbiotics.

P.T.O.

- (b) Write the classification of bacteria, depending on arrangement of flagella.
- (c) Write the contribution of Robert Koch.
- (d) Explain reproduction by binary fission.
- (e) Write morphological characteristic and importance of *candida albicans*.
- (f) How will you detect presence of *E.coli* in non-sterile pharmaceutical preparations ?
- (g) Write general properties of viruses.

3. Write short notes on any *two* : [8]

- (a) Preservation of microbial culture
- (b) Multiplication of human viruses
- (c) Structure of Bacterial cell
- (d) Microbial Limit Test.

SECTION II

4. Attempt any *one* : [10]

- (a) Define immunity. Explain different types of immunity with suitable example. Write in brief mechanism of Humoral mediated and Cell mediated immunity.

Or

- (b) What are vaccine and Sera ? Write in detail classification and general production of vaccine.

5. Attempt any *four* : [12]

- (a) Differentiate between Live (attenuated) and Killed vaccine.
- (b) Write a principle and characteristics of antigen-antibody reactions.

- (c) Write a note on “Cold Sterilization”.
- (d) Define :
 - (i) Virulence
 - (ii) Haptens
 - (iii) Antigen.
- (e) Enlist different factors affecting microbial virulence.
- (f) Draw sterilization cycle of autoclave.
- (g) Differentiate between endotoxin and exotoxin.

6. Write short notes on any *two* :

[8]

- (a) ELISA Test
- (b) Chemical Classification of Disinfectant
- (c) Immunoglobulin
- (d) Moist Heat Sterilization.

Total No. of Questions—3+3]

[Total No. of Printed Pages—5

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[5145]-3004

S.Y. B. Pharmacy (III Sem.) EXAMINATION, 2017

PHARMACEUTICAL ORGANIC CHEMISTRY—III

(Theory)

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

N.B. :— (i) All questions are compulsory.

(ii) Answers to the two sections should be written in separate answer-books.

(iii) Figures to the right indicate full marks.

Section I

1. Attempt any *one* of the following : [10]

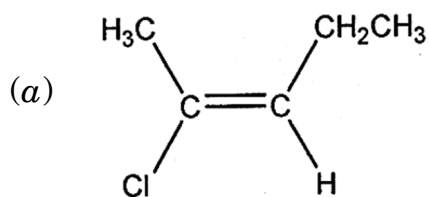
Explain in detail the conformational isomerism in cyclohexane.

Or

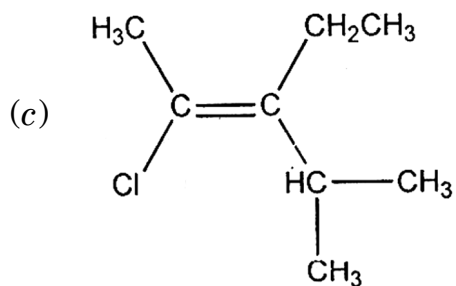
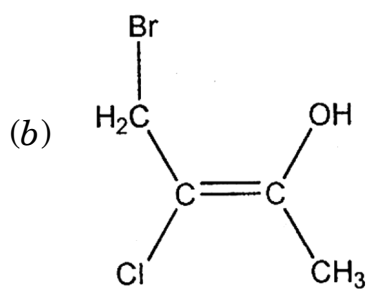
Define racemic modification. Enlist different methods used for resolution of a racemic mixture and explain each method.

2. Attempt any *four* out of the following : [12]

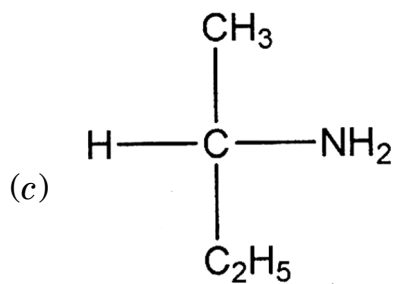
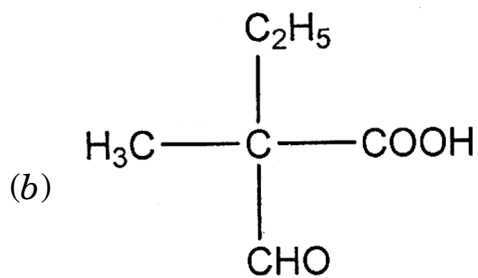
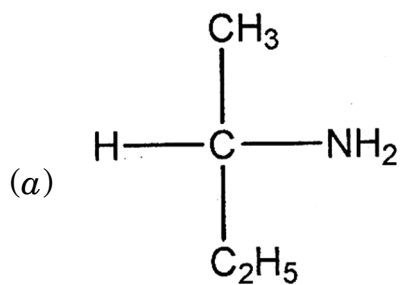
(1) Assign E/Z configurations to the following :



P.T.O.



(2) Assign R and S configurations to the following :



- (3) Give medicinal importance of carbohydrates.
- (4) Write the conformations of decalin.
- (5) How will you distinguish between reducing and non-reducing sugars ?
- (6) Explain epimerization in glucose.
- (7) Draw structures of the following :
 - (a) D-(+)-glyceraldehyde
 - (b) L-(+)-tartaric acid
 - (c) *meso*-tartaric acid.

3. Attempt any *two* out of the following : [8]

- (1) Explain mutarotation.
- (2) Explain osazone formation giving suitable examples.
- (3) Explain the action of Fehling's solution, bromine water, nitric acid and periodic acid on glucose.
- (4) Explain optical isomerism with examples.

Section II

1. Attempt any *one* of the following : [10]

- (1) Explain the rearrangement reactions which go through isocyanate as an intermediate and give their side products.

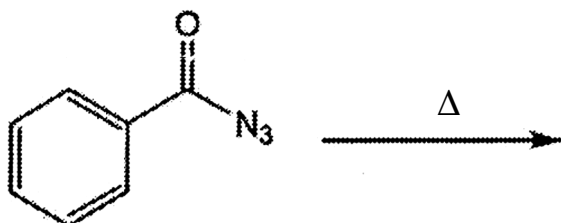
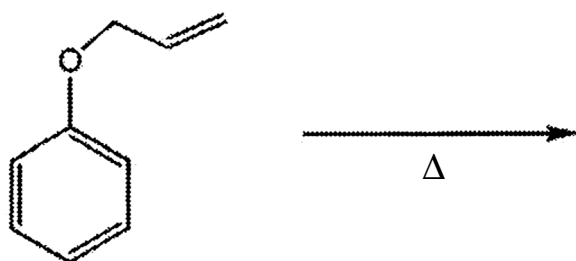
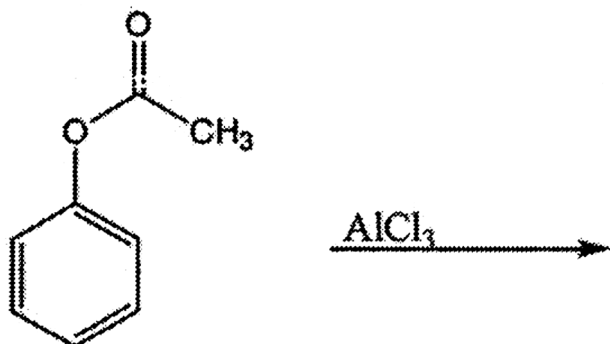
Or

- (2) Explain in detail molecular rearrangements of electron deficient carbon.

2. Attempt any *four* out of the following :

[12]

(1) Predict the product for the following reactions :



- (2) Write a note on protein structure.
- (3) Strecker and Gabriel phthalimide synthesis of amino acids.
- (4) Discuss the rearrangement with mechanism of Favorski rearrangement.
- (5) Discuss the rearrangement with mechanism of Benzilic acid rearrangement.
- (6) Explain Sommelet rearrangement.
- (7) Explain Neber rearrangement.

3. Attempt any *two* out of the following : [8]

- (1) Explain Pinacol-Pinacolone rearrangement.
- (2) Explain Hofmann rearrangement.
- (3) Write the reactions involving carboxy terminus of amino acids.
- (4) Explain various methods for preparation of amino acids.

Total No. of Questions—6]

[Total No. of Printed Pages—3]

Seat No.	
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[5145]-3005

**SECOND YEAR B. PHARM.
(Third Semester) EXAMINATION, 2017
PHARMACOLOGY-I
(2015 PATTERN)**

Time : Three Hours

Maximum Marks : 60

N.B. :— (i) *All* questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) Write answers for section I and section II in separate answer-sheets.

Section-I

1. Enlist various routes of drug administration. Write advantages and disadvantages of parenteral route of drug administration. [10]

Or

Enlist and explain factors affecting drug absorption and bioavailability. [10]

2. Solve any *four* : [12]

(a) Define pharmacology, pharmacokinetics and pharmacodynamics. [3]

(b) What is volume of distribution ? Give its importance. [3]

(c) What are essential medicines ? [3]

(d) What is first pass metabolism of drug ? [3]

(e) Enlist new approaches in new drug discovery process. [3]

(f) Write factors affecting drug distribution. [3]

(g) Explain drug nomenclature with examples. [3]

P.T.O.

3. Solve any *two* : [8]
- (a) Discuss transport of drugs across plasma membrane. [4]
 - (b) Explain various phases of drug metabolism. [4]
 - (c) Write site of administration, examples of dosage form, advantages and disadvantages of sublingual route of drug administration. [4]
 - (d) Write a short note on clinical trials. [4]

Section-II

4. What do you mean by dose response curve ? What are the different types of dose response curve ? Explain their limitations and importance. [10]

Or

Classify histamine antagonists with examples and explain their pharmacological actions and therapeutic uses. [10]

5. Solve any *four* : [12]
- (a) Classify drug receptors. [3]
 - (b) Explain drug receptor interactions ? [3]
 - (c) Enlist physiological changes in geriatric patients. [3]
 - (d) What do you mean by drug synergism and antagonism ? [3]
 - (e) Discuss pharmacological actions and therapeutic uses of prostaglandins. [3]
 - (f) Define drug interactions. What are the types of drug interactions ? Give examples. [3]
 - (g) Define Mutagenicity, Carcinogenicity and Teratogenicity. [3]

- 6.** Solve any *two* : [8]
- (a) Write a brief note on drug therapy in pediatric patients. [4]
 - (b) Explain pharmacological actions and uses of serotonin [4]
 - (c) Discuss transduction mechanism of kinase linked receptors. [4]
 - (d) Discuss biological and psychological factors affecting drug action. [4]

Total No. of Questions—6]

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[5145]-3006

S.Y. B. Pharm. (Third Semester) EXAMINATION, 2017

PHARMACOGNOSY AND PHYTOCHEMISTRY—I

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

- N.B. :—**
- (i) Answers to the two Sections should be written in separate answer-books.
 - (ii) All questions are compulsory.
 - (iii) Figures to the right indicate full marks.
 - (iv) Neat diagrams must be drawn wherever necessary.

SECTION I

1. (a) Explain scheme for pharmacognostic account of crude drugs. Give significance of each parameter. [10]

Or

- (b) What are lipids ? Give in detail occurrence, classification, properties of lipids along with suitable example.
2. Answer any *four* questions. [12]
- (a) Which are different plant fibers ? Write note on Jute fiber.
 - (b) What is PUFA ? Write role of PUFA.
 - (c) Explain in detail chemical tests for identification of lipids.

P.T.O.

- (d) Explain biogenesis of lipids.
- (e) Differentiate primary and secondary metabolites with suitable example.
- (f) Write different chemical tests for identification of castor oil.
- (g) Write biological source and uses of pectin and inulin.

3. Write short notes on any *two* : [8]

- (a) Classification of proteins
- (b) Thaumatin
- (c) Classification of carbohydrates
- (d) Rice bran oil

SECTION II

4. (a) Define and classify the glycosides. Explain the chemistry of Cardiac glycosides. [10]

Or

(b) Define and classify Tannins. Explain their methods of extraction.

5. Answer any *four* questions : [12]

- (a) Differentiate between Indian Senna and Alexandrian Senna.
- (b) Give the biological source, chemical constituents of Amla.
- (c) Give the chemical tests for Anthraquinone Glycosides.
- (d) Give the chemical tests for Tragacanth Gum.

- (e) Give the preparation of Bees wax.
- (f) Chemical tests for Tannins.
- (g) Give the biological source, chemical constituents of Liquorice.

6. Write short notes on any *two* : [8]

- (a) Preparation of Black Catechu.
- (b) Preparation of Shark liver oil.
- (c) Add Kalmegh.
- (d) Varieties of Aloe.

Total No. of Questions—6]

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[5145]-4001

S.Y. B.Pharmacy (Fourth Semester) EXAMINATION, 2017

PHYSICAL PHARMACEUTICS-II

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

N.B. :— (i) *All* questions are compulsory.

(ii) Answers to the two sections should be written in separate answer-books.

(iii) Neat diagrams must be drawn wherever necessary.

(iv) Figures to the right indicate full marks.

SECTION I

1. Elaborate the concept of thixotropy and state its application in pharmacy. [10]

Or

Explain in detail surface active agents and add a note on HLB scale.

2. Attempt any *four* of the following : [12]

(a) Describe the method of Falling ball viscometer.

(b) Explain why one point determination is virtually useless in characterizing flow properties of non-Newtonian liquids.

(c) Write a note on adsorption isotherms.

P.T.O.

- (d) Describe the method used for measurement of interfacial tension.
- (e) How is the half-life for first order reactions calculated ?
- (f) Assuming first order reaction justify time required for 99.9% drug decomposition is 3 times the time required for completion of 90% drug decomposition.
- (g) Explain collision theory of chemical reaction.

3. Write notes on any *two* of the following : [8]

- (a) Types of flow
- (b) Micellar solubilization
- (c) Degradation pathways
- (d) Apparent zero order reaction.

SECTION II

4. Enumerate the various derived properties of powder. How can these be determined ? [10]

Or

Define colloids. Write an account of optical, kinetic and electrical properties of colloids.

5. Attempt any *four* of the following : [12]

- (a) What is Nernst and Zeta potential ? Give its importance in the field of pharmacy.
- (b) Explain Andreasen Pipette method to determine particle size.

- (c) Describe factors that can affect flow properties of powders.
- (d) Define and discuss various porosities.
- (e) What is Hofmeister series ? Explain.
- (f) Give pharmaceutical applications of colloids.
- (g) Discuss the role of Donnan-membrane equilibrium with its role in pharmacy.

6. Write notes on any *two* of the following : [8]

- (a) Particle size and size distribution
- (b) Stabilization of colloidal system
- (c) Particle volume measurement
- (d) Protective colloids.

Total No. of Questions—6]

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[5145]-4002

S.Y. B. Pharm. (IV Sem.) EXAMINATION, 2017
PATHOPHYSIOLOGY AND CLINICAL BIOCHEMISTRY
(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

- N.B. :—** (i) All questions are compulsory.
(ii) Answer to the two Sections should be written in separate answer-books.
(iii) Neat labelled diagrams must be drawn wherever necessary.
(iv) Figures to the right indicate full marks.

SECTION I

1. Discuss and classify Cardiac shock. Explain the pathophysiology of Cardiac shock. [10]

Or

Define and classify ulcer. Explain in detail pathophysiology of peptic ulcer.

2. Attempt any *four* of the following : [12]
- (1) Write the etiology of angina pectoris.
 - (2) Define and enlist the types of chronic obstructive pulmonary disease.
 - (3) Define diarrhoea, constipation and pneumonia.

P.T.O.

- (4) Write the complications of hypertension.
 - (5) Define and enlist the types of hepatitis.
 - (6) Write the clinical manifestations of Gall stone.
 - (7) Discuss the pathophysiology of Buerger's disease.
- 3.** Write notes on the following (any *two*) : [8]
- (1) Cardiac arrhythmia
 - (2) Tuberculosis
 - (3) Cell injury
 - (4) Diarrhea.

SECTION II

- 4.** Discuss etiology and pathophysiology of epilepsy in detail. [10]
- Or*
- Discuss in detail pathophysiology of diabetes mellitus.
- 5.** Solve any *four* of the following : [12]
- (a) Explain in brief renal calculi.
 - (b) Write pathophysiology of arthritis.
 - (c) Write clinical manifestations of Parkinson's disease.
 - (d) Explain gout in brief.
 - (e) Define the terms :
 - (i) Nephritis
 - (ii) Leprosy
 - (iii) Depression

- (f) Define and calssify epilepsy.
- (g) Write a note on Myasthenia gravis.

6. Write notes on the following (any *two*) :

[8]

- (a) Malignancy
- (b) Urinary tract infections
- (c) Schizophrenia
- (d) Osteoarthritis.

Total No. of Questions—6]

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[5145]-4003

S.Y. B. Pharm. (IV Sem.) EXAMINATION, 2017
PHARMACEUTICAL ORGANIC CHEMISTRY—IV
(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

- N.B. :—** (i) Answers to the two Sections should be written in separate answer-books.
(ii) Figures to the right indicate full marks.
(iii) *All* questions are compulsory.

SECTION I

1. Give a detailed account of methods of synthesis and reactions of pyrrole. [10]

Or

Give structure, numbering of the following heterocycles with *one* example of drug belonging to each : [10]

- (a) Isoquinoline
 - (b) Benzfuran
 - (c) Benzoxazole
 - (d) Indole
 - (e) Furan.
2. Solve any *four* : [12]
- (a) Why is pyridine more reactive towards nucleophiles than benzene ?

P.T.O.

- (b) Give structure of the following :
- (i) 7-methoxyquinoline
 - (ii) methyl-3-methylthiophene-2-carboxylate
 - (iii) 3-acetoxy-pyridine
- (c) Give resonance structures of furan and one reaction of it.
- (d) Write any *two* methods of synthesis of isoquinoline.
- (e) Explain the acidic and basic character of imidazole .
- (f) Give any *two* reactions of Indole.
- (g) Give Hantzsch synthesis of Pyridine.
- 3.** Write short notes on (any *two*) : [8]
- (a) Methods of preparation and reactions of imidazole
 - (b) Reactions of thiophene
 - (c) Naphthalene
 - (d) Methods of preparation of Furan.

SECTION II

- 4.** Explain rules of disconnection. Explain retrosynthesis of Propranolol. [10]

Or

What is combinatorial synthesis ? Explain various techniques in combinatorial chemistry.

- 5.** Answer the following (any *four*) : [12]
- (a) Explain the objective of retrosynthesis approach.
 - (b) Write any *two* microwave assisted synthetic reactions.
 - (c) Explain the method of preparation of aluminium isopropoxide.

- (d) Explain the reactions and uses of organosilicon compounds.
- (e) Explain deconvolution method in combinatorial chemistry.
- (f) Explain the method of preparation of metal hydrides.
- (g) Explain the reactions and uses of reducing agents.

6. Write short notes on (any *two*) : [8]

- (a) Retrosynthesis of Ciprofloxacin
- (b) Maryfield peptide synthesis
- (c) NBS
- (d) Use of microwave in organic synthesis.

Total No. of Questions—6]

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[5145]-4004

B.Pharmacy (Second Year) (Fourth Semester)

EXAMINATION, 2017

244 : PHARMACEUTICAL ANALYSIS-II

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

N.B. :— (i) *All* questions are compulsory.

(ii) Answers to the *two* sections should be written in separate answer books.

(iii) Figures to the right indicate full marks.

Section-I

1. Explain in detail theory of polarography. Describe apparatus obtaining polarogram. [10]

Or

What is conductometry ? Discuss in detail about different conductometric titrations.

2. Attempt any *four* of the following : [12]

(a) What is half wave potential ?

(b) Explain primary reference electrode with example.

(c) Advantage and disadvantage of glass electrode.

(d) Write about cell constant.

P.T.O.

- (e) Explain typical polarogram
 - (f) Give an account on specific resistance
 - (g) Applications of conductometry
3. Write note on any *two* of the following : [8]
- (a) Differential polarography
 - (b) pH meter
 - (d) Detection of end point by potentiometric titrations
 - (c) Calomel electrode

Section-II

4. Explain in detail theory of optical activity. Describe instrumentation of polarimeter. [10]

Or

Write principle of coulometry. Discuss in detail constant current coulometry.

5. Attempt any *four* of the following : [12]
- (a) What is biamperometric titration ?
 - (b) What is half shade effect ?
 - (c) Define and give formula for specific and molecular refraction.
 - (d) Write applications of polarimetry.
 - (e) Discuss factors affecting refractive index.
 - (f) Write general characteristics of coulometric techniques.
 - (g) Explain in brief image displacement refractometer.

6. Write notes on any *two* of the following : [8]

(a) ORD and CD

(b) Karl Fisher titration

(c) Abbe's refractometer

(d) Advantages and applications of amperometry

Total No. of Questions—6]

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[5145]-4006

Second Year B. Pharmacy (IV Sem.) EXAMINATION, 2017

PHARMACEUTICAL ENGINEERING

(2015 PATTERN)

Time : Three Hours

Maximum Marks : 60

N.B. :— (i) *All* questions are compulsory.

(ii) Answers to the two Sections should be written in separate answer-books.

(iii) Neat labelled diagrams must be drawn wherever necessary.

(iv) Figures to the right indicate full marks.

SECTION-I

1. Define evaporation and classify evaporators. Explain Multiple Effect Evaporator in detail. [10]

Or

Explain theory of drying. Describe principle, construction, working and application of Fluidised Bed Dryer.

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

(a) Describe tubular heat exchangers.

P.T.O.

- (b) Explain boiling inside a vertical tube.
 - (c) Explain working of tray dryer.
 - (d) Explain the concept of steady state heat transfer.
 - (e) Write a note on centrifugal rotary evaporator.
 - (f) Explain Kirchhoff's law of heat transfer.
 - (g) Explain methods for feeding of evaporator.
- 3.** Write short notes on (any *two*) : [8]
- (a) Spray dryer
 - (b) Heat transfer by conduction
 - (c) Falling film evaporator
 - (d) Applications of heat exchangers.

SECTION-II

- 4.** Discuss material and energy balance equation for flow of fluids. Explain Bernaulli's theorem with its applications and limitations. [10]

Or

Explain distillation process with the help of vapour liquid and boiling point diagram. Elaborate distillation of miscible and immiscible systems.

- 5.** Answer the following (any *four*) : [12]
- (a) Illustrate construction and working of vacuum crystallizer.

- (b) Explain differential distillation process.
- (c) Discuss HETP in fractional distillation.
- (d) Describe working of Pitot tube.
- (e) Elaborate working of Oslo crystallizer.
- (f) Explain Reynolds' experiment for type of flow.
- (g) Explain types of corrosion.

6. Write short notes on (any *two*) :

[8]

- (a) Theories of crystal growth
- (b) Fractional distillation
- (c) Mode of heat transfer
- (d) Pressure differential flow-meter.