Total No. of Questions : 3+3] **[Total No. of Printed Pages : 3**

[3656]-101

First Year B. Pharm. Examination - 2009

PHARMACEUTICS - I

(June 2008 Pattern)

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

Instructions :

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

(2) Neat diagrams must be drawn wherever necessary.

SECTION – I

Q.1) Attempt **any one** : **[10]**

(a) What are Clinical Trials ? Describe various Phases of Clinical Trials.

(b) Discuss role of Packaging in Pharmaceutical Products. Write a note on materials used for packaging of Tablets.

Q.2) Attempt **any five** : **[15]**

(a) Enlist Physico-chemical Properties of Drugs studied in preformulation.

(b) Define 'Drug' and 'New Drug' as per D and C Act, 1940.

(c) Explain Principle of Ayurvedic System of Medicine.

(d) Classify and define Liquid Dosage Forms.

(e) Define and distinguish Sustained and Targeted Delivery.

(f) Describe Antioxidants used in Formulation.

(g) Mention diagnostic applications of Radiopharmaceuticals.

Q.3) Write short notes : **(Any Three)** **[15]**

(a) Steps in Development of New Drugs

(b) Development of Pharmacy Profession in India

(c) Containers and Closures

(d) Bioavailability and Bioequivalence

(e) Quality Assurance

SECTION – II

Q.1) Solve **any one** : [**10]**

(a) What are Solutions ? Describe different methods used to enhance solubility of Drug.

(b) Explain unit operations and different equipments in detail involved in manufacturing of Monophasic Liquid Dosage Form.

Q.2) Solve **any five** : **[15]**

(a) What do you mean by Viscosity ? Discuss various units in which viscosity is measured.

(b) Write a note on Propeller Mixer.

(c) Write a note on Theory of Filtration with due consideration to Darcy's Law.

(d) Explain different methods which are generally used for the Movements of Sieves.

(e) Define the term Elutriation. How dose presence of moisture interfere with the process of Size Reduction.

(f) Write a note with example on Dry Syrups.

(g) Explain in detail different methods used for Granulation of Effervescent Granules.

Q.3) Solve **any three** : **[15]**

(a) What are various physical properties which affect perfect mixing of powders. Write a note on Ribbon Blender.

(b) Write notes :

(i) Membrane Filter

(ii) Filter Candle

(c) Describe with example different processes of Size Reduction.

(d) Describe in brief various methods of Size Separation.

(e) What are different patterns of movements in Ball Mill ? Write formula to calculate critical speed in Ball Mill.

Total No. of Questions : 6] **[Total No. of Printed Pages : 2**

[3656]-102

First Year B. Pharm. Examination - 2009

MODERN DISPENSING PRACTICES

(June 2008 Pattern)

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

SECTION – I

Q.1) Define Prescription. Describe various parts of Prescription. **[10]**

OR

Q.1) Explain Flocculated and Deflocculated Suspensions. Give an account on additives used in Suspensions. **[10]**

Q.2) Answer in short : **(Any Five)** **[15]**

(a) Explain in brief steps in Compounding of Medication.

(b) Differentiate between Elixirs and Syrups.

(c) Write labelling conditions for ENT Preparations.

(d) How will you prevent cracking of Emulsions ?

(e) Discuss formulation of Linctuses.

(f) Write Young's and Drilling's Formula for Dose Calculation.

(g) If 400ml of 40% V/V Benzalkonium Chloride Concentrated Solution is diluted to 1,000ml, what will be the percentage strength of resulted solution ?

Q.3) Write short notes : **(Any Three)** **[15]**

(a) Emulsifying Agents

(b) Patient Counselling

(c) Pharmacy as a Career

(d) Mouth Washes and Gargles

(e) Topical Emulsions

SECTION – II

Q.4) What do you mean by Novel Drug Delivery System ? Write patient counselling for controlled release tablets and metered dose inhaler. [**10]**

OR

Q.4) Discuss in detail various Drug-Food Interactions with examples of drugs to be taken on Full Stomach and Empty Stomach. **[10]**

Q.5) Answer in short : **(Any Five)** **[15]**

(a) Write Polymorphism of Cocoa Butter.

(b) Differentiate between Cream and Ointment.

(c) Write reasons to formulate Granules as a Dosage Form.

(d) Write with example Physico-chemical Incompatibilities due to change in pH of Formulation.

(e) Enlist various types of Ligatures and Sutures.

(f) Give Normal Blood Glucose Levels and write precautions to be taken by Diabetic Patient.

(g) Write legal requirements for Sale of Schedule X Drugs.

Q.6) Write short notes : **(Any Three)** **[15]**

(a) Rational Drug Use

(b) Role of Pharmacist in Hypertension

(c) Difference between Pills and Tablet Triturates

(d) Compounding of Glycerogelatin Suppositories

(e) Patient Counselling for Storage and Use of Eye Drops

Total No. of Questions : 6] **[Total No. of Printed Pages : 2**

[3656]-103

First Year B. Pharm. Examination - 2009

PHARMACEUTICAL INORGANIC CHEMISTRY

(June 2008 Pattern)

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

Instructions :

(1) All questions are compulsory.

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

(3) Black figures to the right indicate full marks.

SECTION – I

Q.1) Enlist various sources of Impurities. Discuss Manufacturing Hazards in details. **[10]**

OR

Q.1) Write in detail Limit Test of Arsenic with its modifications. **[10]**

Q.2) Attempt **any five** of the following : **[15]**

(a) What are Buffers ? Write about Buffer Capacity.

(b) Write in detail Sterile Water for Injection IP.

(c) Discuss properties, uses of Oxygen.

(d) Write specifications of Nessler's Cylinder as per Pharmacopoeia.

(e) What are Hard and Softs Acids and Bases ?

(f) What are Antioxidants ? Give criteria for selection of Antioxidants. Write properties and uses of any one Antioxidants.

(g) Discuss Half Life of Radiopharmaceuticals.

Q.3) Write short notes : **(Any Three)** **[15]**

(a) G. M. Counter

(b) Limit Test of Iron IP

(c) Water as Universal Solvent

(d) Suspending Agent

(e) Phosphorus - 32

SECTION – II

Q.4) What are Major Intra and Extra Cellular Electrolytes ? Discuss in detail role of Physiological Buffers to maintain Acid Base Balance. [**10]**

OR

Q.4) What are Protectives ? Explain with example protectives used for Intestinal Inflammation. **[10]**

Q.5) Attempt **any five** of the following : **[15]**

(a) Give Physiological Role of Copper.

(b) Discuss Sodium Thiosulphate as Antidote.

(c) Write about Dentifrices.

(d) Write properties, uses and assay of Ammonium Chloride IP.

(e) Why combinations of antacids are preferred ? Discuss different combinations of antacid preparations.

(f) Give role of Selenium Sulfide.

(g) Write in detail about Acidifying Agent.

Q.6) Write short notes : **(Any Three)** **[15]**

(a) Properties, Uses and Assay of Sodium Fluoride

(b) Saline Cathartics

(c) Expectorant and Emetics

(d) Magnesium Containing Antacid

(e) Official Preparations of Iron

Total No. of Questions : 8] **[Total No. of Printed Pages : 4**

[3656]-104

First Year B. Pharm. Examination - 2009

PHARMACEUTICAL ORGANIC CHEMISTRY

(June 2008 Pattern)

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

Instructions :

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

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

(3) Black figures to the right indicate full marks.

SECTION – I

Q.1) Explain types of Reagents and their Mechanism. Give detailed account of Collision and Transition State Theory. **[10]**

Q.2) (A) Give any three methods of preparation and three reactions of the following : **[10]**

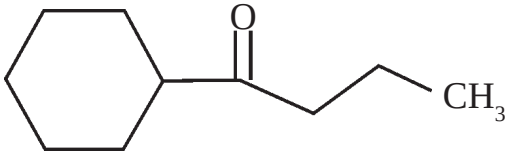
(a) Alkyl Halide

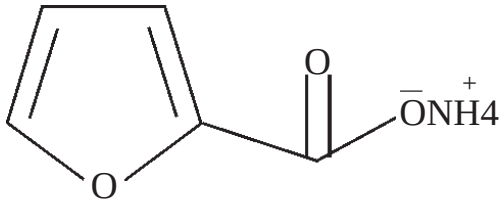
(b) Epoxide

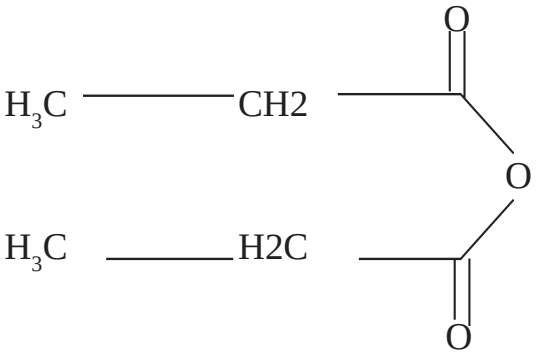
(B) Distinguish between Sigma and Pi Bonds. **[05]**

Q.3) Answer **any five** : **[15]**

(a) Write IUPAC Nomenclature of the following :

(i) 

(ii) 

(iii) 

(b) Why -chloro acetic acid is stronger than acetic acid.

(c) Write structural formula of the following :

(i) 4 cyano benzene sulphonic acid

(ii) Methyl Butenoate

(iii) 2(2 methyl cyclobutyl) 2 butynnitrile

(d) Give any three reactions of alcohol.

(e) Explain Steric Effect with example.

(f) Explain Friedal Craft Alkylation and Acylation of Benzene.

(g) Define Hybridization. Explain types of Hybridizations.

Q.4) Short notes : **(Any Three)** **[15]**

(a) Tautomerism

(b) Free Radical

(c) SNi Mechanism

(d) Markovnikoffs and Anti-markovniffs Rule

(e) Nitration of Benzene

SECTION – II

Q.5) Define Elimination Reaction. Differentiate E1 and E2 Elimination and explain Orientation of Elimination. [**10]**

Q.6) (A) Give any three reactions of Phenol, Ester and Amide. **[07]**

(B) How will you convert phenol into phenyl acetate, nisole, 2, 4, 6-Tribromophenol ? **[03]**

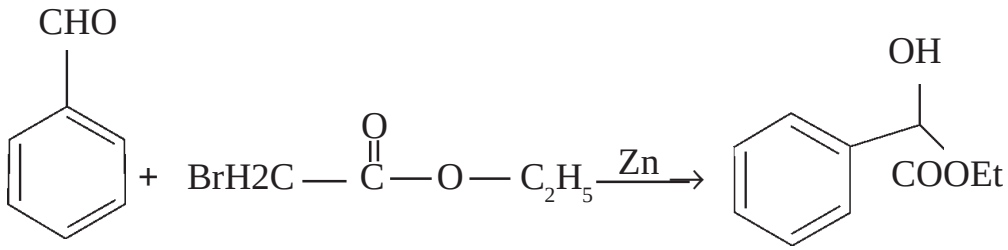
(C) Explain : Elimination versus Substitution. **[05]**

Q.7) Answer **any five** : **[15]**

(a) Explain Ozonolysis Reaction with Mechanism to C-C Multiple Bond.

(b) Give reaction of CH_3CHO with sodiumbisulphite, hydride ion and water.

(c) Identify the following reaction and explain with mechanism :

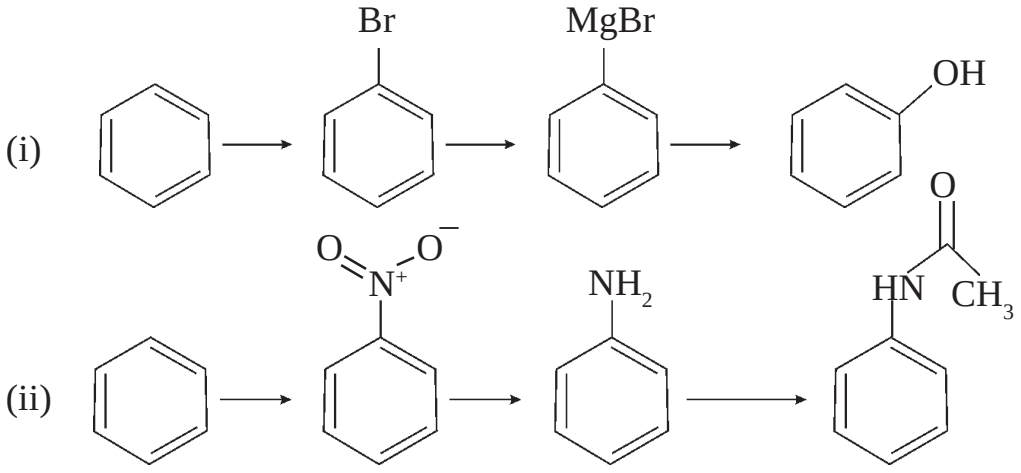


(d) What happens when benzene sulphonyl chloride reacts with alcohol, ammonia and 1^o amine.

(e) Give any three methods of preparation of Alcohol.

(f) Give any three methods of preparation of Primary Amines.

(g) Which reagent should be used to carry out the following reactions :



Q.8) Write short notes : **(Any Three)** **[15]**

(a) Claisen Ester Synthesis

(b) Hydroxylation Reaction

(c) Grignard Reaction of Aldehyde and Ketone

(d) Sigma and Pi Bond

(e) Geometrical Isomerism

Total No. of Questions : 6] **[Total No. of Printed Pages : 3**

[3656]-105

First Year B. Pharm. Examination - 2009

HUMAN ANATOMY AND PHYSIOLOGY

(June 2008 Pattern)

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

Instructions :

(1) All questions are compulsory.

(2) All questions carry equal marks.

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

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Write in detail Physiology of Respiration and Transport of O_2 and CO_2. **[10]**

OR

Q.1) Enlist Clotting Factors. Explain in detail Blood Clotting Mechanism. **[10]**

Q.2) Solve **any three** : **[15]**

(a) Draw a neat labelled diagram of Cell and explain Transport Mechanisms across Plasma Membrane.

(b) Classify WBCs and explain structure and function of each type.

(c) Define Blood Pressure and explain factors affecting Blood Pressure.

(d) Explain Cardiac Cycle.

(e) Explain structure and function of Lymph Node.

Q.3) Write short notes : **(Any Five)** **[15]**

(a) Blood Groups

(b) Platelet Plug Formation

(c) Lymph

(d) Nervous Tissue

(e) Diagram of Interior of Heart

(f) Role of Enzymes in Digestion

(g) Conduction System of Heart

SECTION – II

Q.4) Draw a neat labelled diagram of internal structure of Heart and explain Physiology of Urine Formation. [**10]**

OR

Q.4) Explain in detail various phases of Menstrual Cycle. **[10]**

Q.5) Solve **any three** : **[15]**

(a) Draw a neat labelled diagram of Spinal Cord and explain Reflex Arc.

(b) Explain internal structure of Eye Ball.

(c) Discuss Physiology of Muscle Contraction.

(d) Explain in detail structure and functions of Skin.

(e) Distinguish between Sympathetic and Parasympathetic Nervous System.

Q.6) Write short notes : **(Any Five)** **[15]**

(a) Renin Angiotensin Aldosterone System

(b) Medulla Oblongata

(c) Sperm

(d) Diagram of internal structure of Eye Ball

(e) Functions of Skin

(f) Give location, hormones secreted by and functions of Pituitary Gland, Thyroid Gland and Adrenal Gland.

(g) Nephron

Total No. of Questions : 6] **[Total No. of Printed Pages : 2**

[3656]-106

First Year B. Pharm. Examination - 2009

PHARMACEUTICAL ENGINEERING

(June 2008 Pattern)

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

Instructions :

(1) All questions are compulsory.

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Explain Crystallization by Adiabatic Evaporation, also the factors responsible for caking of Crystals. **[10]**

OR

Q.1) Give classification of Boilers. Explain any one type of Boiler with Accessories and Mountings. **[10]**

Q.2) Answer the following : **(Any Five)** **[15]**

(a) Explain Double Pass Heat Exchanger.

(b) Explain Diffusion Theory of Crystal Growth.

(c) Draw a neat labelled diagram of Short Tube Evaporator.

(d) Give Heat and Material Balance for Single Effect Evaporator.

(e) Explain Pan Evaporator.

(f) Draw a neat labelled diagram of Simple Refrigeration System.

(g) Write applications of Air Conditioning in Pharmaceutical Industry.

Q.3) Write short notes : **(Any Three)** **[15]**

(a) Thermostatic Steam Trap

(b) Mier's Supersaturation Theory

(c) Swenson-Walker Crystallizer

(d) Central Air Conditioning

(e) Horizontal Evaporator

SECTION – II

Q.4) Explain principle of Fractionation. How Plate Efficiency is calculated ? [**10]**

OR

Q.4) What is Corrosion ? Explain different types of Corrosions and Methods of Combating Corrosion. **[10]**

Q.5) Answer the following : **(Any Five)** **[15]**

(a) Give classification of Dryers.

(b) Enlist steps carried during Lyophilization Process.

(c) Write principle of Inclined Manometer.

(d) What do you mean by Molecular Diffusion.

(e) Enlist different factors affecting Drying of Solids.

(f) Write significance of Reynolds Number.

(g) Draw a neat labelled diagram of Rotocel Extractor.

Q.6) Write short notes : **(Any Three)** **[15]**

(a) Poiseulli's Approach of Fluid Flow

(b) Construction and Working of Spray Dryer

(c) Liquid-liquid Extraction

(d) Variable Area Flow Meters

(e) Fluidized Bed Dryer

Total No. of Questions : 3+3] **[Total No. of Printed Pages : 3**

[3656]-107

First Year B. Pharm. Examination - 2009

COMPUTER APPLICATIONS AND BIO-STATISTICS

(June 2008 Pattern)

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

Instructions :

(1) Answer all questions from each section.

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Answer the following : **(Any One)** **[10]**

(a) Draw and explain block diagram of a Computer.

(b) Explain various functions used in MS-Excel with example.

Q.2) Answer the following : **(Any Five)** **[15]**

(a) What are the applications of O.S. ?

(b) What is Software ? Give different types of Softwares.

(c) What is the difference between Compiler and Interpreter.

(d) Explain functioning of Dot Matrix Printer.

(e) What are the features of MS-Power Point ?

(f) Explain difference between RAM and ROM.

(g) Write different types of Secondary Memories.

Q.3) Answer the following : **(Any Three)** **[15]**

(a) Write a short note on CD-ROM.

(b) Write a short note on MS-OUTLOOK.

(c) Write a short note on GUI in Windows.

(d) Write a short note on Mouse.

(e) Convert following binary no. to its decimal equivalent :

$$(111101)_2 = \left(\frac{?}{}\right)_{10}$$

SECTION – II

Q.1) Attempt **any one** : **[10]**

(a) Find mean for Normal Distribution.

(b) In an anti-malarial campaign in a certain area, Quinine was administered to 812 persons out of a total population of 3,248. The number of fever cases is shown below :

Treatment	Fever	No Fever	Total
Quinine	20	792	812
No Quinine	220	2,216	2,436
Total	240	3,008	3,248

Discuss usefulness of Quinine in checking malaria.

Q.2) Attempt **any five** : **[15]**

(a) Define control limits for $\bar{x}$-chart when standards are not given.

(b) Define test statistics for ^{2} independence tests.

(c) Describe properties of Frequency Distribution.

(d) Define Probability Distribution.

(e) Explain classification of Data.

(f) Find mean of the distribution in which values of x are 1, 2...n.

(g) Find coefficient of variation if mean is 186 and variance is 9.

Q.3) Attempt **any three** : **[15]**

(a) Write down test, if two population means are equal.

(b) Write short note on Latin Square Design.

(c) Write note on Exponential Curve.

(d) Write note on control chart for Number of Defectives.

(e) Compute mean for Poisson Distribution.

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-11

First Year B. Pharm. Examination - 2009

PHARMACEUTICS - I

(Including Community Pharmacy)

(2004 Course)

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

Instructions :

*(1) Question Nos. **1** and **5** are compulsory. Out of the remaining attempt **2** questions from Section I and **2** questions from Section II.*

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

(3) Neat diagrams must be drawn whenever necessary.

(4) Black figures to the right indicate full marks.

SECTION - I

Q.1) Define Biopharmaceutics and Bioavailability. Explain factors affecting Drug Absorption. **[10]**

Q.2) (A) What are Filter Aids ? Explain them. **[05]**

(B) Explain Mechanism of Liquid Mixing. Highlight different types of impellers used for Liquid Mixing with their use. **[05]**

(C) Discuss Solvents used in Oral Solution. **[05]**

Q.3) (A) What is Syrup ? Discuss preparation of USP and IP Syrups and their Quality Control Tests. Write a note on Paddle Mixer. **[07]**

(B) Explain Physiological Considerations for Oral and Topical Routes of Administration. **[08]**

Q.4) Write short notes : **(Any Three)** **[15]**

(a) Filter Aids

(b) Elixier

(c) Concept of New Drug Delivery System

(d) Sigma Blender

SECTION - II

Q.5) Explain importance of Particle Size in Pharmacy. Write in detail about Coulter Counter. **[10]**

Q.6) What is Size Reduction ? Why is it necessary ? Enlist different mills used in Size Reduction. Explain in detail Hammer Mill. **[15]**

Q.7) (A) Discuss Ayurvedic System of Medicine. **[06]**

(B) Explain mechanism of Solid-solid Mixing. Add a note on Planetary Mixer. **[09]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Sedimentation Method for Determining Particle Size

(b) V-cone Blender

(c) Pouch Filling Machine

(d) Oral Rehydration Salts

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-12

First Year B. Pharm. Examination - 2009

DISPENSING OF MEDICATION AND HOSPITAL PHARMACY

(2004 Course)

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

Instruction : *Q. 1 and Q. 5 are compulsory and from the remaining, attempt any two questions from each section.*

SECTION - I

Q.1) (A) Write importance of Refill Instructions and Endorsement of Prescriptions. **[05]**

(B) Write with example Physical Incompatibilities. **[05]**

Q.2) (A) Differentiate between Divided Powders and Bulk Powders. Give containers and packing of Powders. **[07]**

(B) Explain Percolation Process for extraction of Crude Drugs. **[08]**

Q.3) (A) How many grams of cream base should be mixed with 10 gm of 4% w/w and 25 gm of 8% w/w cream of a drug to make 5% w/w cream. **[04]**

(B) Define Syrup I.P. and Syrup U.S.P. Write methods of preparation of Syrups. **[05]**

(C) Discuss tests for identification of types of Emulsions. **[06]**

Q.4) Write short notes : **(Any Three)** **[15]**

(a) Ligatures and Sutures

(b) Suppository Bases

(c) Patient Counselling for Oral Tablets

(d) Decoctions

SECTION - II

Q.5) Classify Hospitals. Give its functions and organisation. **[10]**

Q.6) (A) Discuss composition and working of Pharmacy and Therapeutic Committee. **[08]**

(B) Discuss role of Pharmacist in Rational Drug Therapy and Adverse Drug Reactions. **[07]**

Q.7) (A) Describe Hospital Formulary and discuss its role in Hospitals. **[08]**

(B) Explain organisation, location and working of Central Sterile Supply Department. **[07]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Cytotoxic Chemotherapy

(b) Operation Theatre Maintenance

(c) Distribution of Controlled Drugs

(d) Patient Medication Record

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-13

First Year B. Pharm. Examination - 2009

PHARMACEUTICAL CHEMISTRY - I

(Inorganic)

(2004 Course)

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

Instructions :

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

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

(3) Figures to the right indicate full marks.

SECTION - I

Q.1) (A) What are Radio-opaque Contrast Medias ? Discuss properties and uses of **any one** agent. **[04]**

(B) Write in brief the contents of Monograph. **[06]**

Q.2) (A) Give principle involved in limit test for Iron as per I.P. **[05]**

(B) Discuss in detail methods used to remove hardness of water. **[05]**

(C) Give classification of antidotes on the basis of their mechanism of action with examples. Explain mechanism of action of sodium nitrite and sodium thiosulphate intravenous infusion in cyanide poisoning. **[05]**

Q.3) (A) Write in detail raw materials as source of impurity. **[05]**

(B) Write a note on Anticaries Agents. **[05]**

(C) Describe Sodium Chloride Preparations used in Electrolyte Replacement Therapy. **[05]**

Q.4) Write short notes : **(Any Three)** **[15]**

(a) Geiger - Muller Counters

(b) Limit Test for Arsenic

(c) Role of Sodium, Potassium and Calcium Ions in Body

(d) Calcium Compounds as Dentifrices

SECTION - II

Q.5) (A) What are Antacids ? Enlist various Antacids. Write properties and assay principle and procedure of Sodium Bicarbonate. **[06]**

(B) Describe in detail Pharmaceutical Buffers. **[04]**

Q.6) (A) Give role of Iron, Copper and Iodine in Body. **[10]**

(B) Describe Bismuth Compounds as Gastrointestinal Protectives and Adsorbents. **[05]**

Q.7) (A) What are Topical Agents ? Classify them with examples. **[05]**

(B) What are Expectorants and Emetics ? Give their mechanism of Action. **[05]**

(C) Give properties and storage conditions of Oxygen, Carbon Dioxide and Nitrous Oxide. **[05]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Inorganic Antimicrobial Agents

(b) Antioxidants

(c) Saline Cathartics

(d) Assay of Hydrogen Peroxide and Boric Acid

Total No. of Questions : 8] **[Total No. of Printed Pages : 3**

[3656]-14

First Year B. Pharm. Examination - 2009

PHARMACEUTICAL CHEMISTRY - II

(Organic)

(2004 Course)

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

Instructions :

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

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

(3) Black figures to the right indicate full marks.

SECTION - I

Q.1) (A) Define **any four** of the following : **[04]**

(a) Tautomerism

(b) Carbene

(c) Enantiomerism

(d) Resonance

(e) Electrophile

(B) Give IUPAC Nomenclature of **any four** of the following : **[04]**

(a) $C_6H_5 - SO_3H$

(b) $CH_3 - CH_2 - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_2 - OH$

(c) $CH_3 - \underset{\displaystyle CH_3}{\underset{|}{N}} - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_2 - CH_3$

(d) $C_6H_5\ CH_2\ CHO$

(e) $CH_3CH_2 - OCH_2CH_3$

(C) What do you mean by Structural Isomerism ? **[02]**

Q.2) Give reasons : **(Any Four)** **[15]**

(a) N, N, Dimethyl Aniline is a stronger base than Aniline.

(b) P-nitrophenol is a stronger acid than Phenol.

(c) Electron donating groups are O, P directors in electrophilic aromatic substitution.

(d) Trifluoroacetic Acid is a stronger acid than Trichloroacetic Acid.

(e) Meso compounds do not show optical activity.

(f) Cis and trans isomers differ in their melting and boiling points.

Q.3) (A) Explain SN_1 reaction. **[05]**

(B) Explain SN_2 reaction. **[05]**

(C) Explain Friedal Craft Acylation **[05]**

Q.4) Write short notes : **(Any Three)** **[15]**

(a) Geometrical Isomerism

(b) SN_i Reaction

(c) Reaction Intermediates

(d) Transition State Theory

SECTION – II

Q.5) What are Elimination Reactions ? Explain mechanism of E_1 and E_2 reactions and factors affecting elimination reactions. **[10]**

Q.6) (A) Explain addition reactions of Halogens and Halogen Acid to Olefins. **[08]**

(B) Explain addition reactions to Aldehydes. **[07]**

Q.7) (A) Explain methods of Separation of Amines Mixture. **[05]**

(B) Explain reactions of Carboxylic Acids. **[05]**

(C) Explain reactions of Amines. **[05]**

Q.8) Write short notes : **(Any Five)** **[15]**

(a) Hydrogenation of Olefins

(b) Knoevengel Condensation

(c) Elcb Reaction

(d) Saytzeff's Rule

(e) Basicity of Amines

(f) Aldol Condensation

Total No. of Questions : 6] **[Total No. of Printed Pages : 3**

[3656]-15

First Year B. Pharm. Examination - 2009

ANATOMY, PHYSIOLOGY AND HEALTH EDUCATION

(2004 Course)

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

Instructions :

(1) Figures to the right indicates full marks.

(2) Draw neat labelled diagram wherever necessary.

SECTION - I

Q.1) Define Tissue. Enlist different types of Tissues. Explain in detail Epithelial Tissue and Connective Tissue. **[10]**

OR

Q.1) Describe Location and Gross Anatomy of Lungs. Explain exchange of gases at alveolar and cellular level. **[10]**

Q.2) Solve **any five** : **[15]**

(a) Describe Mechanism of Blood Clotting.

(b) Draw a neat labelled diagram of Internal Structure of Heart.

(c) How baroreceptors play an important role in the control of blood pressure ?

(d) Describe composition and function of Lymph.

(e) Define the terms :

(i) Acute Bronchitis

(ii) Chronic Bronchitis

(iii) Asthma

(f) Describe structure and functions of Principal Salivary Glands.

(g) Enlist functions of Liver.

Q.3) Write short notes : **(Any Three)** **[15]**

(a) Conducting System of Heart with Cardiac Cycle

(b) Gastric Juice and its Functions

(c) Lymph Node

(d) Pancreas - Structure and Function

(e) ABO System of Blood Group

SECTION – II

Q.4) Draw neat labelled diagram of Female Reproductive Organ in the Pelvis. Explain Menstrual Cycle with hormonal changes. **[10]**

OR

Q.4) Draw neat labelled diagram of L. S. of Kidney. Explain function of Kidney in detail. **[10]**

Q.5) Solve **any five** : **[15]**

(a) Explain Positive and Negative Feedback Mechanism of Blood Hormone Level with example.

(b) Enlist and define any three STD.

(c) Draw well labelled diagram of Skin.

(d) Enlist Twelve Cranial Nerves.

(e) Describe Process of Neurotransmission in short.

(f) Explain Physiology of Hearing.

(g) Enlist and define disorders of Pancreatic Islets.

Q.6) Write short notes : **(Any Three)** **[15]**

(a) Cerebrum

(b) Skin and Thermoregulation

(c) Hormones of Pituitary Gland and its Functions

(d) Spinal Cord

(e) Physiology of Sight

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-16

First Year B. Pharm. Examination - 2009

PHARMACOGNOSY - I

(2004 Course)

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

Instructions :

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

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

(3) Neat diagram must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION - I

Q.1) (A) What is Periderm ? Give various types of Cork Cells. **[02]**

(B) Explain characteristics of shapes in barks with suitable examples. **[04]**

(C) What are Vascular Bundles ? Give different types for Vascular Bundles with neat labelled diagram. **[04]**

Q.2) (A) Give Origin, Future Scope and History of Pharmacognosy. **[07]**

(B) What are Organized and Unorganized Drugs ? Explain in detail various systems of classification of crude drugs with examples. **[08]**

Q.3) (A) Write in detail various Ayurvedic Formulations with Method of Preparation. **[07]**

(B) What are Traditional Systems of Medicines ? **[08]**

Q.4) (A) Give causes of variation in the quality of Crude Drugs. **[07]**

(B) Give various methods of Cultivation ? Explain factors affecting Cultivation. **[08]**

SECTION – II

Q.5) (A) Comment on Ash Value. **[02]**

(B) Give substituents and adulterants for Starch. **[04]**

(C) Give biological source C.C. and uses for :

(a) Isapgol

(b) Pectin **[04]**

Q.6) (A) What is Drug Evaluation ? Classify Drug Evaluation. Give details of Biological Evaluation. **[07]**

(B) What are Carbohydrates ? Explain their Chemistry and classify them. **[08]**

Q.7) (A) Give detail account of Natural Sweetness. Explain Drugs containing Natural Sweetness. **[07]**

(B) Give method of preparation and characterization of starches from different sources. **[08]**

Q.8) (A) Give detail procedure for determination of various leaf constants with suitable examples and figures. **[07]**

(B) Write short notes : **[08]**

(a) Karl Fischer Method

(b) Ihulin

Total No. of Questions : 8] **[Total No. of Printed Pages : 3**

[3656]-17

First Year B. Pharm. Examination - 2009

COMPUTER APPLICATIONS AND BIO-STATISTICS

(Including Calculus)

(2004 Course)

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

Instructions :

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

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

(3) Neat diagram must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION - I

Q.1) (A) Write a note on Stratified Random Sampling. **[03]**

(B) Find Mean and Mode for the data given below : **[04]**

38, 40, 36, 40, 40, 38, 42, 44, 40, 42

(C) Draw frequency curve for the following data :

C.I.	0–5	5–10	10–15	15–20	20–25	25–30	30–35
Freq.	5	12	25	48	32	6	1

[05]

Q.2) (A) Write note on Poisson Distribution. **[04]**

(B) Two lines of regression are :

$x - 4y = 5$ and

$x - 16y = -64$

Find means of x and y and also r. **[05]**

(C) Two ladies were asked to rank 7 different types of lipsticks. The ranks given by them are as follows : **[05]**

Lipsticks	A	B	C	D	E	F	G
Neelu	2	1	4	3	5	7	6
Neena	1	3	2	4	5	6	7

Calculate Spearman's Rank Correlation Coefficient.

Q.3) (A) Evaluate : $\lim_{x \to 2} \frac{x^3 - 3x^2 + 4}{x^4 - 4x^3 + 8x^2 - 16x + 16}$ **[04]**

(B) Distinguish between Chance Causes and Assignable Causes. **[05]**

(C) Find Mean and Standard Deviation of the following data : **[05]**

No. of Articles (x)	18	19	20	21	22	23	24	25	26	27
No. of Workers (f)	3	7	11	14	18	17	13	8	5	4

Q.4) (A) State merits and demerits of Mode. **[04]**

(B) Describe test procedure for testing single population mean if sample size is small. **[05]**

(C) There are 4 letters and 4 addressed envelops. The letters are put into envelops at ramdom. Find probability that all the letters are despatched in the right envelopes. **[05]**

SECTION – II

Q.5) (A) Explain block diagram of Digital Computer in detail. **[05]**

(B) Differentiate between Primary and Secondary Memory. **[03]**

(C) Write short note on Computer Software. **[04]**

Q.6) (A) Explain Mouse as an Input Device. **[05]**

(B) Explain any five features of Word Processing Software. **[05]**

(C) Differentiate between Dot-matrix and Inkjet Printers. **[04]**

Q.7) (A) Enlist various components of the Windows O.S. Explain in brief. **[05]**

(B) What are Functions ? Explain any two functions used in Excel. **[05]**

(C) Explain the following terms : **[04]**

(a) Desktop

(b) Taskbar

(c) Clipboard

(d) Menu

Q.8) (A) Write short notes : [**10]**

(a) MICR

(b) CD-ROM

(B) What is the purpose of Windows Explorer. Explain in brief. **[04]**

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-201

Second Year B. Pharm. Examination - 2009

PHARMACEUTICS - II

(Physical Pharmacy)

(2004 Course)

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

Instructions :

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

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION - I

Q.1) Discuss Phase Rule and Phase Equilibria. Explain phase diagram for a two component system. **[10]**

Q.2) (A) Explain why efficiency of a heat engine can never be 100 percent. **[08]**

(B) Explain concept of distribution phenomenon along with its application in Pharmacy. **[07]**

Q.3) Discuss solubility of solids in liquids and factors affecting it. **[15]**

Q.4) Write short notes : **(Any Three)** **[15]**

(a) Conductometric Titrations

(b) Arrhenius Theory of Electrolytes

(c) Depression of Freezing Point

(d) Free Energy and its Applications

SECTION – II

Q.5) What are the methods for determining Particle Size Distribution ? **[10]**

Q.6) What are the methods of Preparation and Purification of various types of Colloids ? **[15]**

Q.7) (A) Enlist various methods used to determine Surface and Interfacial Tension. Explain Du Nouy Ring Method. **[10]**

(B) Explain methods to determine order of a Reaction. **[05]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Cup and Bob Viscometer

(b) Stabilization of Lyophobic Colloidal Systems

(c) Bragg's Equation and X-ray Diffraction Studies

(d) Applications of Rheology in Pharmacy

Total No. of Questions : 8] **[Total No. of Printed Pages : 3**

[3656]-202

Second Year B. Pharm. Examination - 2009

PHARMACEUTICAL MICROBIOLOGY

(June 2008 Pattern)

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

Instructions :

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

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Answer the following : **(Any Five)** **[10]**

(a) Why is Gram Stain one of the most important and widely used stains in Bacteriology ?

(b) What is the function of oil when used with Oil-immersion Objective ?

(c) How will you isolate Bioactive Actinomycetes from Natural Sources ?

(d) Why combined preservatives are used in many pharmaceutical formulations ?

(e) How do Viruses differ from other Micro-organisms ?

(f) Explain 'Koch Postulates'.

Q.2) (A) Describe main characteristics on the basis of which bacteria are differentiated and identified. **[08]**

(B) Explain in detail Lytic Cycle of Bacteriophage. **[07]**

Q.3) (A) Describe structure of Bacterial Flagella and Spore and give its significance. **[08]**

(B) Explain in detail factors affecting Microbial Spoilage of Pharmaceutical Products. **[07]**

Q.4) Write notes : **(Any Three)** [**15]**

(a) Phase Contrast Microscopy

(b) Rickettsia

(c) Dermatophytes

(d) Treponema

SECTION – II

Q.5) Answer the following : **(Any Five)** **[10]**

(a) Write two examples each of :

(i) Killed Bacterial Vaccine

(ii) Killed Viral Vaccine

(b) How will you detect presence of *E.Coli* in Pharmaceuticals.

(c) Write advantages and disadvantages of Microbial Assay.

(d) Differentiate between Type II and Type III Hypersensitivity.

(e) What are Allergenic Extracts ? Explain.

(f) Define :

(i) Immunology

(ii) Antigen

Q.6) (A) Explain in detail different types of Immunoglobulins. **[08]**

(B) Define 'Disinfection'. Explain in detail Phenol Coefficient Test. **[07]**

Q.7) (A) Write methods of preparation of the following : **[08]**

(a) Tetanus Toxoid

(b) BCG Vaccine

(B) Classify different methods of Sterilization. Explain in detail Dry Heat Sterilization. **[07]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Microbial Assay of Streptomycin

(b) Laminar Air Flow

(c) Determinants of Virulence

(d) Microbial Limit Test

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-203

Second Year B. Pharm. Examination - 2009

PHARMACEUTICAL ENGINEERING

(2004 Course)

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

Instructions :

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

*(2) Answer in all **3** questions from section I and **3** questions from section II.*

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

(4) Neat diagrams must be drawn wherever necessary.

(5) Black figures to the right indicate full marks.

SECTION – I

Q.1) Define Evaporation. Discuss factors affecting Evaporation. Discuss in detail Horizontal Tube Evaporator. **[10]**

Q.2) (A) Explain Circulating Magma Crystallizer. **[08]**

(B) Define various types of Fires and Fire Extinguishers. **[07]**

Q.3) (A) Discuss various mechanisms of Heat Transfer. **[08]**

(B) Explain Fourier's Law of Heat Transfer. **[07]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Shell and Tube Heat Exchanger

(b) Reverse Osmosis as Water Purification Process

(c) Crystal Forms and Habit

(d) Air Handling and Conditioning in Pharma Industry

SECTION – II

Q.5) Derive Bernoulli's Equation and give its applications. **[10]**

Q.6) (A) Give classification of Materials of Construction and explain Non-metals in detail. **[08]**

(B) Explain various factors affecting Rate of Corrosion and various ways to prevent corrosion. **[07]**

Q.7) (A) Define Drying. How drying differs from Evaporation. Give working and construction of Tray Dryer ? **[08]**

(B) Define Extraction. Give classification of Extractors and describe Rotocel Extractor. **[07]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Bubble Cap Column

(b) Orifice Meter

(c) Drum Dryer

(d) Azeotropic Distillation

Total No. of Questions : 8] **[Total No. of Printed Pages : 5**

[3656]-204

Second Year B. Pharm. Examination - 2009

PHARMACEUTICAL CHEMISTRY - III

(Organic)

(2004 Course)

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

Instructions :

*(1) Question Nos. **1** and **5** are compulsory, solve **any two** out of remaining **three** from each section.*

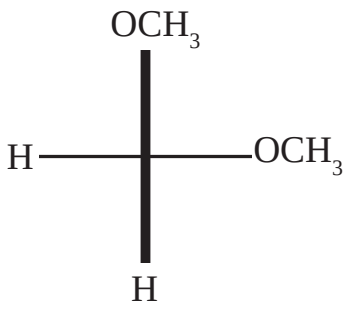
*(2) Answer to the **two** sections should be written in separate answer books.*

(3) Figures to the right indicate full marks.

SECTION – I

Q.1) (A) Assign Configurations for the following : **[06]**

(i)



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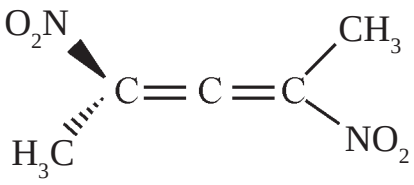

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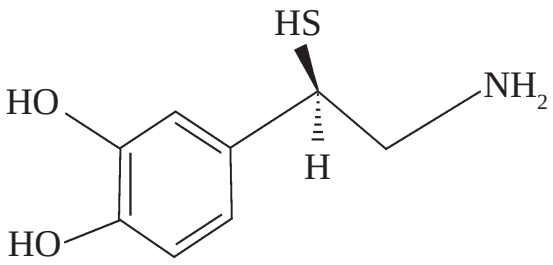

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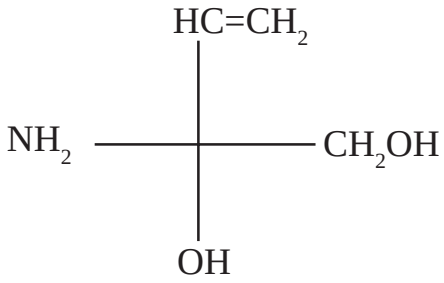

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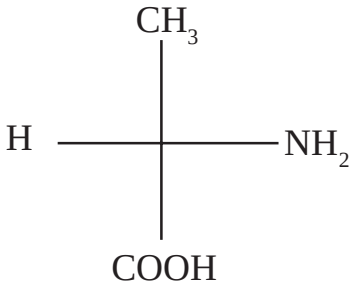

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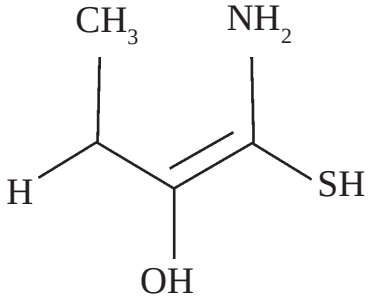


(B) What is Dihedral Angle in Stereoisomer ? **[02]**

(C) What is Isoelectric Point ? **[02]**

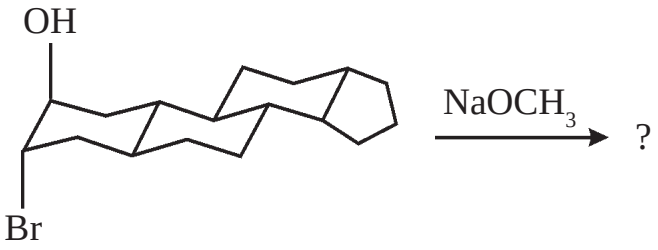
Q.2) (A) What are Stereoisomers ? Write in brief Conformational Isomerism in Cyclohexane. **[05]**

(B) Write a note on Mutarotation. **[05]**

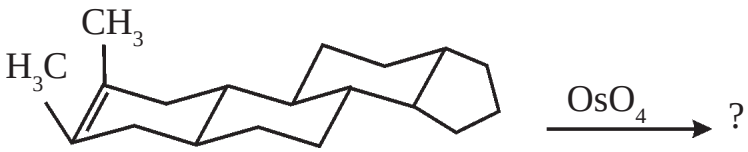
(C) What are Amino Acids ? Discuss Koop, Strecker and Gabriel of Synthesis of Amino Acids. **[05]**

Q.3) (A) What are Stereoselective and Stereospecific Reactions ? Predict the products of following reactions : **[06]**

(i)



(ii)



(B) Discuss in brief about Stereoisomerism in Biphenyls. **[04]**

(C) Write in brief about Killani-Fischer Synthesis and Ruff Degradation. **[05]**

Q.4) (A) What are Polysacchrides ? Discuss in brief about Starch and Cellulose ? **[05]**

(B) What are Proteins ? Discuss in brief about Structure of Protein. **[05]**

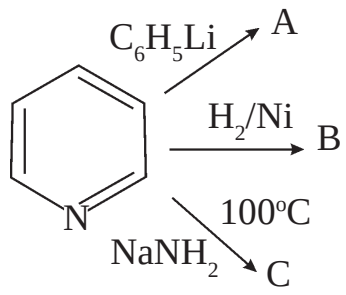
(C) What is Racemic Modification ? Enlist different methods for resolution of Racemic Mixture. Discuss Biochemical Method of Resolution in brief. **[05]**

SECTION – II

Q.5) (A) (a) Explain why Pyrrole is a weak base ? **[01]**

(b) Why Furan, Pyrrole, Thiophene are more reactive towards electrophiles than benzene derivatives like phenol and aniline ? **[01]**

(B) Predict the product of following reactions : **[02]**



(C) Draw structure of the following with appropriate numbering : **(Any Two)** **[02]**

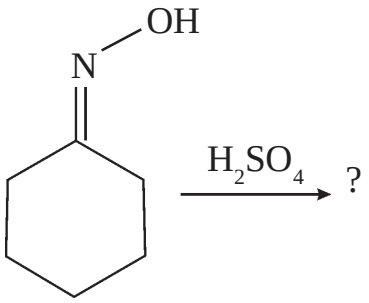
(a) Xanthine

(b) Pteridine

(c) 2-Benzyl Thiazole

(D) Predict the products : **[04]**

(i)



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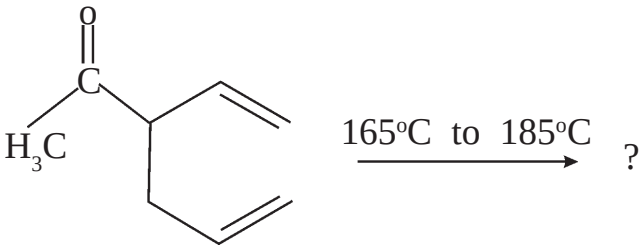

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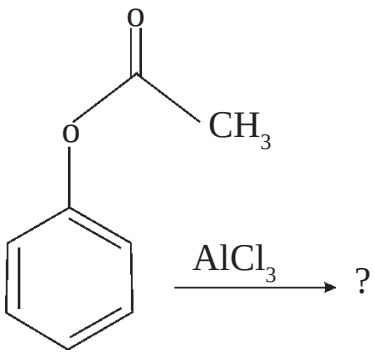
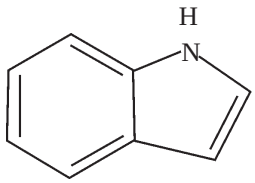


(iv) 

$\xrightarrow[KOH]{CHCl_3}$?

Q.6) (A) Discuss Bischler Indole and Hantzsch Pyridine Syntheses Method. **[06]**

(B) Write in brief about Electrophilic Substitution Reactions of Five Membered Benzene Fused Heterocyclic Ring Systems. **[04]**

(C) Write note on Combinatorial Chemistry. **[05]**

Q.7) (A) What are Molecular Rearrangement ? Discuss the following Rearrangements with Mechanism : **(Any Three)** **[09]**

(a) Hoffmann

(b) Orton

(c) Wittig

(d) Bayer Villiger

(B) What are Pericyclic Reactions ? Write in brief about Cycloaddition Reaction. **[03]**

(C) Discuss in brief about Electrocyclic Reactions. **[03]**

Q.8) (A) Write short notes : **(Any Three)** **[09]**

(a) Lossen Rearrangement

(b) Fischer Indole Synthesis

(c) Skraup

(d) Wolff Rearrangement

(B) Discuss in short about : **[06]**

(a) Solid Supported Synthesis

(b) Thiazole Synthesis

Total No. of Questions : 8] **[Total No. of Printed Pages : 3**

[3656]-205

Second Year B. Pharm. Examination - 2009

PHARMACEUTICAL ANALYSIS - I

(2004 Course)

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

Instructions :

*(1) Questions nos. **1** and **5** are compulsory. Out of the remaining attempt **two** questions from section I and **two** questions from section II.*

*(2) Answer **three** questions from section I and **three** questions from section II.*

*(3) Attempt not more than six questions of which at least **three** questions must be from each section.*

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

(5) Black figures to the right indicate full marks.

SECTION – I

Q.1) (A) Define Primary Standard. Give examples of Primary Standards used in Acid base Titrations. **[03]**

(B) Explain the term Buffer Index. **[04]**

(C) What are Amphiprotic Solvents. **[03]**

Q.2) (A) State and explain different types of Neutralization Indicators. **[08]**

(B) How does pyridine, a weak base, behave as a strong base in acetous Perchloric Acid. **[04]**

(C) How 0.1 N Perchloric Acid is prepared ? Explain with the help of precautions involved. **[03]**

Q.3) (A) Explain Redox Titration Curve of Ferrous Sulfate with Ceric Sulfate in Acidic Media. **[06]**

(B) What are the advantages of Ceric Ammonium Sulfate over $KMnO_4$? **[04]**

(C) Discuss Ion Electron Method for calculation of Equivalent Weight. **[05]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Sodium Nitrite Titrations

(b) Assay of Aspirin I.P.

(c) Discrete Sampling

(d) Theory of Neutralization Indicators

SECTION – II

Q.5) (A) Explain Volhards Method for detection of endpoint in Precipitation Titrations. **[06]**

(B) State pH Conditions for Mohr's Method and Volhard's Method. **[02]**

(C) Explain : **[02]**

(a) Systematic Error

(b) Random Error

Q.6) (A) Classify Ligands giving suitable examples. **[06]**

(B) Discuss effect of the following on the stability of Complexes : **[05]**

(a) pH

(b) Ligand

(C) Explain the term Masking. How will you carry out determination of a mixture of Zn, Cu and Mg ? **[04]**

Q.7) (A) What is Co-precipitation ? Explain in short different types of Co-precipitations. **[08]**

(B) What is Peptisation ? How is it avoided ? **[04]**

(C) When a sample of impure potassium chloride (0.4500g) was dissolved in water and treated with an excess of silver nitrate, 0.8402g of silver chloride was precipitated. Calculate percentage of KCl.

Ag – 107.83, Cl – 35.5, K – 39.0 **[03]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Oxygen Flask Combustion Technique

(b) Digestion of Precipitates

(c) Systematic Errors

(d) K Fajan's Method

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-206

Second Year B. Pharm. Examination - 2009

PHARMACEUTICAL BIOCHEMISTRY

(Including Clinical Biochemistry)

(2004 Course)

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

Instructions :

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

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Describe Mechanism of Action and Classification of Enzymes. **[10]**

Q.2) (A) Describe different functions of Protein and differentiate between Fibrous and Globular Proteins. **[08]**

(B) Describe methods of determination of Primary Structure of Protein. **[07]**

Q.3) (A) Describe structures and functions of different Cell Organelles of Eukaryotic Cell. **[10]**

(B) Describe Lipoproteins and Phospholipids. **[05]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Facilitated Diffusion

(b) Competitive Inhibition

(c) Structure of Starch

(d) Fatty Acids

SECTION – II

Q.5) Describe Hexose Monophosphate Shunt and add a note on its significance. **[10]**

Q.6) (A) Describe structure of RNA and different types of RNA. **[10]**

(B) What are Ketone Bodies ? Write their significance. **[05]**

Q.7) (A) Describe Oxidation of Fatty Acids. **[10]**

(B) What is Urea Clearance Test ? **[05]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Vitamin D

(b) Albinism and Pheng\Ketonuria

(c) GTT

(d) ELISA

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-207

Second Year B. Pharm. Examination - 2009

PHARMACOLOGY - I

(Including Pathophysiology)

(2004 Course)

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

Instructions :

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

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Discuss Drug Treatment during Pregnancy. **[10]**

Q.2) (A) Explain Excretion of Drug. **[08]**

(B) Explain various sources and active ingredients of Drugs. **[07]**

Q.3) (A) Explain Pharmacodynamic Drug Interactions. **[08]**

(B) Describe Pharmacology of Haemopoietics. **[07]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Autocoids

(b) Molecular Mechanism of Drug Action

(c) Drug Treatment in Menstruation

(d) Drug Distribution

SECTION – II

Q.5) Discuss Pathophysiology of Inflammation. **[10]**

Q.6) (A) Describe causes and clinical manifestations of Asthma. **[08]**

(B) Explain Pathophysiology of Depression. **[07]**

Q.7) (A) Enlist various Sexually Transmitted Diseases. Add a brief note on HIV. **[08]**

(B) Discuss types, neurochemical basis and clinical features of Epilepsy. **[07]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Chronic-renal Failure

(b) Types of Hepatitis

(c) Malaria

(d) Pathophysiology of Pain

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-301

Third Year B. Pharm. Examination - 2009

PHARMACEUTICS - III

(2004 Course)

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

Instructions :

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

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Discuss in detail the manufacturing problems in tabletting and the remedies adopted. **[10]**

Q.2) (A) Explain manufacturing and in-process Quality Control Test of Soft Gelatin Capsules. **[08]**

(B) What are Superdisintegrants ? Explain their applicability in Oral Dosage Forms. **[07]**

Q.3) (A) Explain different types of Bulk Characterization Studies performed during Preformulation. **[09]**

(B) Discuss interaction of containers and closures Compatibility Testing. **[06]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Evaluation of Coated Tablets

(b) Spheronization Techniques

(c) CGMP Guidelines for Accelerated Stability Testing

(d) Effervescent Tablets

SECTION – II

Q.5) Explain concept of White Suppositories and Heat Treatment of Pessaries. Write about formulation of Suppositories containing Glycero-gelatin Base. **[10]**

Q.6) (A) What are Instabilities in Emulsions ? Explain with a suitable example the phenomenon of phase inversion used to stabilise an emulsion. **[08]**

(B) Write about various approaches adopted to stabilise suspensions. Add a small note on Ostwald's Ripening. **[07]**

Q.7) (A) Discuss in detail the methods used to manufacture Ointments. **[09]**

(B) Prepare a note on ideal properties and formulation of Lipsticks. **[06]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Vitro Techniques to Evaluate Skin Moisturisation Efficiency

(b) Sun Protection Factor

(c) Antiperspirant Cosmetics

(d) Evaluation of Nail Lacquers

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-302

Third B. Pharm. Examination - 2009

PHARMACEUTICAL BIOTECHNOLOGY

(2004 Course)

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

Instructions :

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

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) What are Expression Vectors ? What is their function in r-DNA Technology ? Give details of construction of a Vector. Give details of PBR 322. **[10]**

Q.2) What are different types of media used for Animal Tissue Culture ? What are Primary and Secondary Cell Lines ? What are their advantages, disadvantages and applications ? **[15]**

Q.3) What are the applications of Plant Tissue Culture ? Give details of Secondary Metabolite Production by Plant Tissue Culture. **[15]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Site Directed Mutagenesis

(b) Alkaline Phosphatases

(c) Transgenic Animals

(d) Haploid Culture

SECTION – II

Q.5) What are the various steps involved in Fermentation ? Give details of Fermentation and Down Stream Processing of Cyanocobalamine. **[10]**

Q.6) What are the various methods of Enzyme Immobilization ? Give their advantages and disadvantages. **[15]**

Q.7) Give details of Preparation of Insulin by r-DNA Technology. What are first and second generation recombinant Insulins ? **[15]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Hybridoma Technology

(b) Effluent Treatment

(c) Invitro Fertilization

(d) RIA

Total No. of Questions : 8] **[Total No. of Printed Pages : 3**

[3656]-303

Third Year B. Pharm. Examination - 2009

PHARMACEUTICAL CHEMISTRY - IV

(Medicinal)

(2004 Course)

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

Instructions :

*(1) Question Nos. **1** and **5** are compulsory. Out of the remaining attempt **any two** questions each from section **one** and section **two**.*

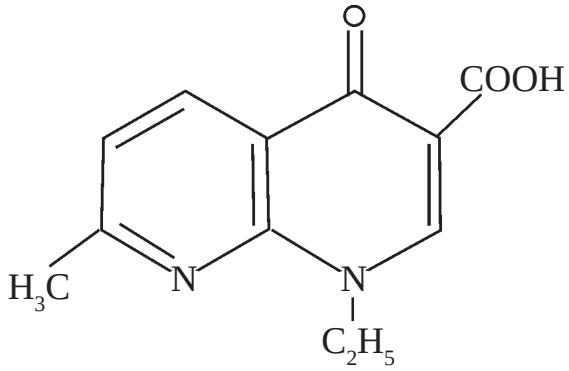
*(2) Answers to the **two** sections should be written in **separate answer books**.*

(3) Figures to the right indicate full marks.

SECTION – I

Q.1) (A) What are Antiviral Agents ? Give chemical classification of Antiviral Agents with example. Discuss in brief about Purine Nucleotides and Nucleosides. **[08]**

(B) How will you Synthesize the following Drug Molecule ? **[02]**



Q.2) (A) What are Antimycobacterial Agents ? Discuss chemistry of First Line Antitubercular Agents. **[07]**

(B) Write in brief about Anthelmentics. **[05]**

(C) Draw scheme of Synthesis of Metronidazole. **[03]**

Q.3) (A) Give chemical classification of Antifungal Drugs with example. Discuss chemistry of Imodazole Antifungals. **[07]**

(B) Write a short note on Antiameobic Drugs. **[05]**

(C) Outline scheme of Synthesis of Clotrimazole. **[03]**

Q.4) (A) Discuss SAR, Mode of action of Sulphonamides. [**07]**

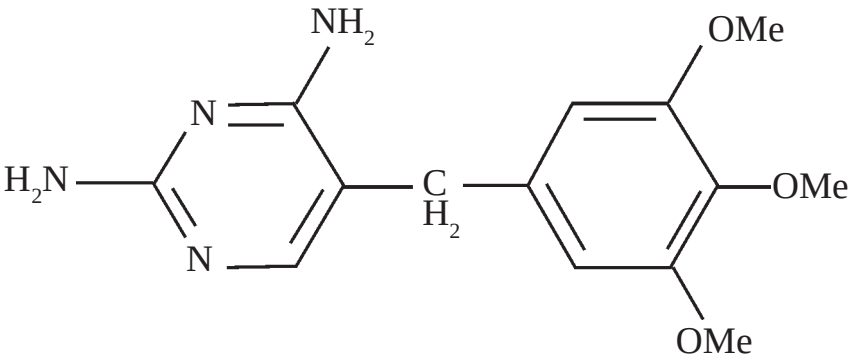
(B) What is Ferguson's Principle ? Explain with suitable example. **[05]**

(C) Write Synthesis of Ciprofloxacin. **[03]**

SECTION – II

Q.5) (A) What are Antibiotics ? Give chemical classification of Antibiotics. Discuss in brief about Macrolide Antibiotics. **[08]**

(B) How can you do synthesis of the following drug : **[02]**



Q.6) (A) What are Harmones ? Discuss chemistry of Thyroid Antithyroid Agents. **[07]**

(B) Write a note on Oral Hypoglycemic Drugs. **[05]**

(C) Outline Scheme of Synthesis of Chloromphenicol **OR** Ticlopidine. **[03]**

Q.7) (A) What are Diagnostic Agents ? Write in short about Radio Opaque Agents. **[07]**

(B) Write a short note on Polypeptide Antibiotics. **[05]**

(C) Draw Scheme of Synthesis of Dipyridamole. **[03]**

Q.8) (A) Discuss chemistry of Cephalosporins and Oxopenams. **[07]**

(B) What are Pro Drugs, Soft Drugs, Hard Drugs ? Why is it needed to design Pro Drugs ? **[05]**

(C) Give Scheme of Synthesis of Isoniazide. **[03]**

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-304

Third Year B. Pharm. Examination - 2009

PHARMACEUTICAL ANALYSIS - II

(2004 Course)

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

Instructions :

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

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

(3) Black figures to the right indicate full marks.

SECTION – I

Q.1) (A) Describe Electromagnetic Spectrum and classify different analytical methods based on interaction of Electromagnetic Radiations with the material to be analyzed. **[07]**

(B) Explain the terms Chromophore and Auxochrome. **[03]**

Q.2) (A) State Beer-Lamberts Law and derive an equation for it. **[08]**

(B) Explain principle of Abbe's Refractometer. **[07]**

Q.3) (A) What is Radioimmunoassay ? Give principle, advantages and explain ELISA and its applications. **[08]**

(B) Explain Conductometric Titrations with its types and curves in detail. **[07]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Half Wave Potential

(b) Glass Electrode and its Applications

(c) Differential Scanning Calorimetry

(d) Principles and Techniques of Napheloturbidimetry

SECTION – II

Q.5) (A) Explain principle of Potentiometric Titrations and Equivalence Point Determination in the same. **[07]**

(B) Explain principle of Amperiometric Titrations. **[03]**

Q.6) (A) What are different Chromatographic Techniques ? Classify them based on Nature of Stationary Phase. **[08]**

(B) Explain Column Efficiency in Column Chromatography and factors affecting it. **[07]**

Q.7) (A) Enlist different methods of Thermal Analysis and elaborate principle and instrumentation of differential Thermal Analysis. **[08]**

(B) Draw a neat labelled diagram of Double Beam Spectrophotometer. **[07]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Optical Rotatory Dispersion and Circular Dichroism

(b) Development Techniques in Paper Chromatography

(c) Van Deemter Equation

(d) Derivative Spectroscopy

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-305

Third Year B. Pharm. Examination - 2009

PHARMACOLOGY - II

(2004 Course)

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

Instructions :

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

*(2) Answers to the **two** sections should be written in **separate book**.*

(3) Black figures to the right indicate full marks.

SECTION – I

Q.1) Define Bronchial Asthma. Discuss treatment for Acute and Chronic Asthma. **[10]**

Q.2) Describe biosynthesis, storage, release and mode of action of Insulin. Add a note on Insulin Preparations. **[15]**

Q.3) Classify Cholinomimetic Agents with examples. Explain treatment of Organophosphorus Poisoning. **[15]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Muscarinic Receptors

(b) Glaucoma

(c) Antifertility Drugs

(d) Corticosteroid Antagonist

SECTION – II

Q.5) Classify Narcotic Analgesics with examples. Give Pharmacology of Morphine. **[10]**

Q.6) Classify Antipsychotic Agents. Give Pharmacology of Chlorpromazine. **[15]**

Q.7) (A) Give Pharmacotherapy of Rheumatoid Arthritis. **[08]**

(B) Write Pharmacological Account on Antianxiety Agents. **[07]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) GABA Receptors

(b) Pharmacology of Diethyl Ether

(c) Pharmacotherapy of Alcoholism

(d) Tricyclic Antidepressants

Total No. of Questions : 8] **[Total No. of Printed Pages : 3**

[3656]-306

Third Year B. Pharm. Examination - 2009

PHARMACOGNOSY - II

(2004 Course)

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

Instructions :

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

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Answer the following : **[10]**

(a) Give two chemical tests to differentiate four varieties of Aloe.

(b) What is Enfluerage Method ? State its significance.

(c) Enlist various Adulterants of Digitalis and explain how they can be detected ?

(d) Give medicinal importance of Ginseng.

(e) Describe Hydrolysis Pattern of Lanatoside ‘C’.

Q.2) (A) Define Glycosides. Describe their physical and chemical properties. Outline general method of extraction of Glycosides with justification of each step. **[06]**

(B) What are Cardiac Glycosides ? Describe in detail chemistry of Cardiac Glycosides. **[06]**

(C) What are Cyanogenetic Glycosides ? Give a chemical test to detect them. **[03]**

Q.3) (A) Describe occurrence and chemistry of Volatile Oils. What is their commercial importance ? **[05]**

(B) Describe method of preparation and therapeutic significance of 'Cod Liver Oil'. **[05]**

(C) What are Triterpenoidal Saponins ? Describe chemistry and uses of One Drug containing Triterpenoidal Saponins. **[05]**

Q.4) Write notes on **any three** of the following : [**15]**

(a) Umbelliferous Fruits

(b) Mevalonic Acid Pathway

(c) Analytical Parameters for Lipids

(d) Bitter Glycosides

SECTION – II

Q.5) (A) Draw a well labelled diagram of T.S. of Clove. Enlist Microscopical Diagnostic Features. **[05]**

(B) Differentiate between **any two** of the following : **[05]**

(a) Indian Senna and Alexandrian Senna

(b) Dill and Coriander

(c) Hydrolysable Tannins and Condensed Tannins

Q.6) (A) Write general method of classification and physicochemical characters of Pharmaceutical Resins. **[05]**

(B) Describe chemistry and pharmacological significance of Indian Podophyllum. **[05]**

(C) What are the requirements of an ideal pesticide ? Write an elaborate note on 'Neem' as a natural pesticide. **[05]**

Q.7) (A) Give B.S., chemical constituents and uses of the following : **[09]**

(a) Capsicum

(b) Myrobalon

(c) Eucalyptus Oil

(B) Describe method of preparation and chemical tests for Black Catecha. **[06]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Natural Fibres

(b) Bees Wax

(c) Nutraceuticals

(d) Kaolin and Bentonite

Total No. of Questions : 8] **[Total No. of Printed Pages : 3**

[3656]-307

Third B. Pharm. Examination - 2009

PHARMACEUTICAL MANAGEMENT AND MARKETING

(2004 Course)

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

Instructions :

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

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) (A) Name of the product is – Cap.Zole **[06]**

Selling Cost : Rs. 2.50

Variable Cost : Rs. 1.50

Fixed Cost : Rs. 1,50,000 / year

Calculate :

(a) P/V Ratio

(b) BES

(c) BES, if existing sales price is reduced by 21%.

(d) Sales to earn a reasonable after profit of Rs. 82,000 assuming 32.5% as the rate of taxation.

(e) Profit at the sales Rs. 5,00,000

(f) MOS

(B) Give detail account on Collective Bargaining. **[04]**

Q.2) (A) Give historical perspective of Pharmaceutical Industry in India. Focus on its current status and growth scenario. **[08]**

(B) What are different principles of Organisation ? Highlight on Decentralisation. **[07]**

Q.3) What are different steps involved in Planning Process ? Focus on methods of Sales Forecasting. **[15]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Calibration

(b) Inventory Control

(c) Drug Discovery Process

(d) Factories Act, 1948

SECTION – II

Q.5) (A) From the following prepare Balance Sheet of Belladonna Traders : **[05]**

Particulars	**Amount (Rs.)**	**Particulars**	**Amount (Rs.)**
Plant and Machinery	5,00,000	Closing Stock	55,000
Cash in Hand	1,00,000	Sundry Creditors	1,00,000
Bills Receivable	1,25,000	Bank Overdraft	2,00,000
Debtors	2,50,000	Capital	8,10,000
Investments	70,000	Drawings	10,000

(B) Calculate selling price of a bottle of Menthol, if total cost is Rs. 7,000, total bottle produced 120, expected wastage 20% and cost of each bottle is Rs. 60. **[05]**

Q.6) (A) If annual consumption of a tonic bottle 200ml of 2,500 units, cost of each bottle Rs. 50, ordering cost is Rs. 36 and carrying cost is 10%. Calculate EOQ. **[04]**

(B) What are different types of Prices ? How will you determine it ? **[04]**

(C) Give detail account on Thoughts of Management. **[07]**

Q.7) (A) Give detail account on Styles of Leadership. **[05]**

(B) What are different channels of Distribution ? **[05]**

(C) Highlight on - WTO **[05]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Methods of Purchasing

(b) Mastering of Group Discussion

(c) Market Research

(d) Advertising

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-404

Fourth Year B. Pharm. Examination - 2009

PHARMACEUTICS - V

(BIOPHARMACEUTICS AND PHARMACOKINETICS)

(2004 Course)

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

Instructions :

*(1) Question Nos. **1** and **5** are compulsory. Out of remaining attempt **two** questions from each section.*

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) (A) Explain Physiological Barriers for Distribution of Drugs. **[05]**

(B) Discuss significance of Protein and / or Tissue Binding of Drugs. **[05]**

Q.2) (A) Explain Theories of Dissolution. **[10]**

(B) What is Enterohepatic Cycling ? **[05]**

Q.3) (A) Explain Biopharmaceutical Classification System with suitable examples. What is its regulatory significance ? **[08]**

(B) What are mechanisms of Drug Absorption ? **[07]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) pH Partition Hypothesis

(b) Zero Order Dissolution Model

(c) Apparent Volume of Distribution

(d) In-vivo-in-vitro correlation

SECTION – II

Q.5) Drug is administered by intravenous route as a bolus dose. If it follows one compartment open model, assess various Pharmacokinetic Parameters for the same. **[10]**

Q.6) (A) Give methods of determination of V_{max} and K_m. **[10]**

(B) Calculate AUC (0-) from the following data : (Given ke = 0.99 hr^{-1}) **[05]**

Time in hrs.	0.5	1	1.5	2	2.5	3
Drug Conc. in Plasma(mg/ml)	122	74	45	28	17	10

Q.7) Explain C_{max}, T_{max}, and AUC as measures of bioavailability from plasma conc. of drug data. **[15]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Inclusion Criteria for Bioavailability Studies

(b) Therapeutic Drug Monitoring of Theophyllin

(c) Crossover Designs

(d) Individualisation

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-405

Fourth Year B. Pharm. Examination - 2009

PHARMACEUTICAL JURISPRUDENCE AND REGULATORY AFFAIRS

(2004 Course)

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

Instructions :

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

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

(3) Figures to the right indicate full marks.

SECTION – I

Q.1) Discuss general conditions for grant or renewal of a licence for manufacture of drugs for sale or distribution. **[10]**

Q.2) (A) Discuss modes of manufacture of Medicinal and Toilet Preparation containing Alcohol. **[09]**

(B) Discuss administrative bodies under Prevention of Food Adulteration Act, 1954. **[06]**

Q.3) (A) Give constitution and functions of Pharmacy Council of India. **[10]**

(B) Give salient features of Industrial Development and Regulation Act, 1951. **[05]**

Q.4) Write short notes : **(Any Three)** [**15]**

(a) Calculation of Retail Price of Formulation

(b) Schedule Y

(c) Exempted Advertisement

(d) The Consumer Protection Act

SECTION – II

Q.5) Discuss in brief about : **[10]**

(a) Copyrights

(b) Trademarks

Q.6) (A) Write in detail about IND and NDA. **[07]**

(B) Discuss in brief about Europe-European Agency for evaluation of Medicinal Products. **[08]**

Q.7) (A) Explain in short about ICH Guidelines. **[05]**

(B) Discuss in brief about Japan Ministry of Heath and Welfare. **[05]**

(C) Define Patent. Discuss general procedure for obtaining Patents. **[05]**

Q.8) Write short notes : **(Any Three)** **[15]**

(a) Product and Process Patent

(b) WHO Guidelines

(c) Patent Certification

(d) Design

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-406

Fourth Year B. Pharm. Examination - 2009

PHARMACEUTICAL CHEMISTRY - V
(Medicinal)

(2004 Course)

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

Instructions :

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

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

(3) Black figures to the right indicate full marks.

(4) Neat diagrams must be drawn wherever necessary.

SECTION – I

Q.1) Classify Barbiturates. Explain SAR of Barbiturates along with Synthesis of Thiopental Sodium. **[12]**

Q.2) (A) Classify Hypnotics along with liberal use of examples. **[07]**

(B) Explain SAR of Phenothiazine derivatives as CNS Depressants. **[07]**

Q.3) (A) What are General Anaesthetics ? Add a note on inhalation Anaesthetics. **[07]**

(B) Describe in detail Tricyclic Antidepressants. **[07]**

Q.4) (A) Write short notes : **(Any Two)** [**08]**

(a) β-blockers

(b) QSAR

(c) Types of Receptors

(B) Give an account of Benzodiazepine as Sedative and Hypnotics. **[06]**

SECTION – II

Q.5) Describe modifications initiated by Eislab and Schaumann in the morphine structure. Give Synthesis of Pethidine. **[12]**

Q.6) (A) Classify Cardiovascular Agents. Give an account of Cardiac Glycoside and Nitrovasodialtors. **[09]**

(B) Describe SAR of aniline and p-aminophenol derivatives as non-narcotic analgesic. **[05]**

Q.7) (A) Classify first generation H_1 antagonists alongwith liberal use of examples. **[07]**

(B) Give an account of Anabolic Steroids. **[07]**

Q.8) (A) Classify local anaesthetics alongwith suitable example and describe MOA of these agents. **[08]**

(B) Outline Synthesis of : **[06]**

(a) 17, -estradiol

(b) Nifedipine

(c) Diazepam

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-41

Fourth Year B. Pharm. Examination - 2009

PHARMACEUTICS - III

(Old) (2001-02 Course)

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

Instructions :

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

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

(3) Neat diagrams must be drawn whenever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Discuss in detail Quality Control Methods of Sterile Small Volume Parenterals. **[11]**

Q.2) (A) Explain Method of Preparation of Sterile Water for Injection. **[06]**

(B) How will you evaluate Sterile WFI ? **[06]**

Q.3) What is Sterilization ? Explain in detail Moist Heat Sterilization. **[12]**

Q.4) Write short notes : **(Any Three)** **[12]**

(a) HEPA Filters

(b) Form Fill and Seal Technology

(c) Ocuserts

(d) Evaluation of Containers

SECTION – II

Q.5) What are Polymers ? Explain their significance in Pharmacy. **[11]**

Q.6) Explain in detail Mechanisms of Drug Instability due to Hydrolysis, Oxidation and Polymerization. **[12]**

Q.7) What are Medicated Aerosols ? Explain their components and evaluation methods. **[12]**

Q.8) Write short notes : **(Any Three)** [**12]**

(a) Osmotic Pumps

(b) Iontophoresis

(c) Schedule M

(d) Total Quality Management

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-42

Final Year B. Pharm. Examination - 2009

PHARMACEUTICS ANALYSIS - III

(Old) (2001-02 Course)

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

Instructions :

*(1) Question Nos. **1** and **5** are compulsory.*

*(2) Attempt **any two** questions each from Section I and II.*

*(3) Use **separate answer sheets** for each **section**.*

(4) Figures to the right indicate full marks.

SECTION – I

Q.1) (A) Define the following terms : **[03]**

Reproducibility, Carbon Load, Selectivity, Range

(B) Write principle of Ion Exchange Chromatography. **[05]**

(C) Write a note on Horizontal Development Process. **[03]**

Q.2) (A) Give principle of Sandwitch ELISA. **[04]**

(B) Give role of t-test, F-test, q-test in Pharmaceutical Analysis. **[04]**

(C) Discuss different method validation parameters. **[04]**

Q.3) (A) Give principle of Photo Ionisation Detector. **[04]**

(B) Write in detail about HPTLC Applications. **[04]**

(C) How will you analyse various Pharmaceuticals by GC Analysis ? **[04]**

Q.4) Write short notes : **(Any Three)** **[12]**

(a) HPLC UV and PDA Detector

(b) Derivatisation in HPTLC

(c) Activity of Adsorbent

(d) Regression Analysis

SECTION – II

Q.5) (A) Explain how Mass Spectrometry is useful in Analysis ? **[05]**

(B) Write a note on Quadrature Detection. **[06]**

Q.6) (A) What is Spin-spin Splitting ? Explain Double Resonance. **[06]**

(B) Write a note on Radioisotopes. **[06]**

Q.7) (A) Explain working of Coulter Counter. **[06]**

(B) Write a note on Powder Sampling Techniques. **[06]**

Q.8) Write short notes : **(Any Three)** [**12]**

(a) Secondary Packaging Materials

(b) Column Phases in GC

(c) Sedimentation Method in Size Analysis

(d) NMR Applications

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-44

Final Year B. Pharm. Examination - 2009

PHARMACOLOGY AND BIOASSAY

(Old) (2001-02 Course)

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

Instructions :

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

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

SECTION – I

Q.1) Define and classify sedative Hypnotics and explain Pharmacological Actions, Mechanism of Action and Adverse Effects of Diazepam. **[11]**

Q.2) Classify Oral Hypoglycemic Agents and explain Mechanism of Action, Adverse Effects, Drug Interactions and Therapeutic uses of Sulphonyl Ureas. **[12]**

Q.3) Define Analgesics. Classify Non-narcotic Analgesics. Describe Mechanism of Action, Pharmacological Actions and Therapeutic uses of Aspirin. **[12]**

Q.4) Write short notes : **(Any Three)** **[12]**

(a) Pre-anaesthetic Medication

(b) Disulfiram

(c) Pharmaco-kinetic Drug Interactions affecting Excretion of Drug

(d) Drug Therapy in Pregnancy

SECTION – II

Q.5) Define Antibiotics. Describe Mechanism of Action, Antibacterial Spectrum, Adverse Effects and Therapeutic uses of Penicillin-G. **[11]**

Q.6) Define Bioassay. Explain Methods of Bioassay of Digitalis in detail. **[12]**

Q.7) Explain Life Cycle of Malaria Parasite. Describe Mechanism of Action, Adverse Effects and Therapeutic uses of Chloroquine. **[12]**

Q.8) Write short notes : **(Any Three)** [**12]**

(a) Pharmacotherapy of Gout

(b) Types of Bioassay

(c) Phases of Clinical Trials

(d) Tetracyclines

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-45

Fourth Year B. Pharm. Examination - 2009

PHARMACOGNOSY - II

(Pharmacognosy and Phytochemistry - III)

(Old) (2001-02 Course)

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

Instructions :

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

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

(3) Neat diagrams must be drawn wherever necessary.

(4) Black figures to the right indicate full marks.

SECTION – I

Q.1) Define and classify Alkaloids. Give one example of each along with their source and structure. **[11]**

Q.2) (A) Draw a neat labelled diagram of T. S. of Datura Leaf. State significance of its histological study in evaluation of Crude Drug. **[06]**

(B) Give applications of HPTLC in evaluation of Herbal Drugs. **[06]**

Q.3) (A) Write a note on Phytochemical Screening. **[06]**

(B) Explain how you will detect adulteration in Rauwolfia Root by its histological characters. **[06]**

Q.4) Explain advantages and application of Plant Tissue Culture. Describe in detail the Methodology of Protoplast Culture. **[12]**

SECTION – II

Q.5) Explain in detail various methods of Extraction of Volatile Oil from Crude Drugs. How will you extract Clove Oil from Clove Flower Buds ? **[11]**

Q.6) (A) Explain in detail Pharmacognosy of Castor Oil. **[06]**

(B) Classify Plant Allergen. Explain plant causing Hay Fever. **[06]**

Q.7) (A) Define and classify Tannins. Give two examples of Tannin Containing Drugs along with their source, structure and uses. **[06]**

(B) Describe Pyrethrum in detail. **[06]**

Q.8) Write short notes : **(Any Three)** [**12]**

(a) Anti-microbial Agents from Marine Source

(b) Gingko Biloba

(c) Nutmeg

(d) Bees Wax

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-46

Fourth Year B. Pharm. Examination - 2009

PHARMACEUTICAL MARKETING AND JURISPRUDENCE / PRACTICE OF PHARMACY

(Old) (2001-02 Old Course)

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

Instructions :

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

*(2) Answers to the **two** sections should be written in **separate answer sheets**.*

SECTION – I

Q.1) What is M.B.O. ? Explain process of M.B.O. **[11]**

Q.2) (A) Define Industrial Relations. Explain different ways of settling the Industrial Disputes. **[06]**

(B) Give methods, merits and demerits of Sales Forecasting. **[06]**

Q.3) (A) What is Advertising ? Elaborate on different advertising media in brief. **[06]**

(B) Describe Communication Process. Focus on importance and functions of Communication. **[06]**

Q.4) Write short notes : **(Any Three)** **[12]**

(a) CPM and PERT

(b) Break-even Analysis

(c) Theories of Motivation

(d) Performance Appraisal

SECTION – II

Q.5) What is a Patent ? Explain salient features of Indian Patents Act, 1970. Add a note on Importance of Patents. **[11]**

Q.6) Classify Medicinal and Toiletory Preparations containing alcohol. Discuss licensing procedure required for their manufacture. **[12]**

Q.7) (A) What are the objectives of Narcotic Drugs and Psychotropic Substances Act. **[06]**

(B) Describe Duties of Drug Inspector w.r.t. Drugs and Consmetics Act, 1940. **[06]**

Q.8) Write short notes : **(Any Three)** [**12]**

(a) Schedule M

(b) Labelling Requirements for Schedule H Drugs

(c) MCA

(d) US-FDA

Total No. of Questions : 8] **[Total No. of Printed Pages : 2**

[3656]-47

Fourth Year B. Pharm. Examination - 2009

PHARMACEUTICS - IV

(Biopharmaceutics and Pharmacokinetics)

(Old) (2001-02 Course)

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

Instructions :

*Q. **1** and Q. **5** are compulsory. Out of the remaining attempt **any two** questions from each section.*

SECTION – I

Q.1) (A) Explain the terms : **[09]**

(a) Enterohepatic Cycling

(b) Xenobiotics

(c) Perfusion Rate

(B) Differentiate between Passive and Facilitated Diffusion. **[02]**

Q.2) What is Protein Binding ? Discuss in detail factors affecting Protein Binding of Drug. **[12]**

Q.3) Enumerate Phase - I Reactions involved in Drug Detoxification. Discuss Hydrolytic Reactions in detail. **[12]**

Q.4) Write short notes : **[12]**

(a) pH-partition Hypothesis

(b) Theories of Drug Dissolution

(c) Clearance

SECTION – II

Q.5) What is Pharmacokinetic Modeling ? Explain one compartmental open model after i.v. bolus injection. **[11]**

Q.6) (A) Explain in short First Pass Effect. **[05]**

(B) Discuss various factors affecting Drug Excretion. **[07]**

Q.7) Explain in detail various factors affecting Drug Absorption and Bioavailability. **[12]**

Q.8) Write short notes : **(Any Two)** [**12]**

(a) Multicompartmental Model

(b) Individualization

(c) In-vitro-in-vivo Correlation
