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

Seat No.	

[5245]-1001

First Year B. Pharmacy (I Sem.) EXAMINATION, 2017

PHARMACEUTICS—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.

SECTION I

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

Define dosage form. Discuss the classification of dosage form and add a note on different routes of drug administration.

OR

Write the history of pharmacy profession in India. Also write a note on the scope of formulation development.

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

(*a*) Write the rationale for development of dosage form.

(*b*) Write the scope of pharmaceutical engineering.

(*c*) What is pharmacopoeia ? Add a note on Indian pharmacopoeia.

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

P.T.O.

(*e*) Write the principles of Ayurveda.

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

(*g*) Write the scope of physical pharmacy and dispensing practices.

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

(*a*) Career opportunities after pharmacy graduation.

(*b*) British Pharmacopoeia.

(*c*) Principles of Homoeopathy.

(*d*) Pharmacy code of ethics.

SECTION II

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

Discuss physicochemical properties to be studied for preformulation of liquid dosage form.

OR

Explain the concept of excipients. Define and classify excipients with examples.

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

(*a*) Write the difference between simple syrup IP and simple syrup USP.

(*b*) Write formulation ingredients, procedure and direction of simple linctus IP.

(*c*) Write difference between quality control and quality assurance.

(*d*) Discuss viscosity measurement for solutions.

(*e*) Explain in brief "ENT preparations".

(*f*) Discuss in brief enema.

(*g*) Explain the mechanism of solubilization of dill oil in concentrated dill water IP.

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

(*a*) Polymorphism

(*b*) Elixirs

(*c*) c-GMP

(*d*) Methods of aromatic water preparation.

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

Seat No.	

[5245]-1002

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

MODERN DISPENSING PRACTICES

(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. Define Prescription. Explain different types of prescription. Add a note on pricing of the prescription. [10]

Or

Explain in detail Purchase and Stock records.

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

(*a*) Enlist different parts of prescription and add a note on inscription.

(*b*) Explain requirement of building with respect to compounding and dispensing.

P.T.O.

(*c*) Elaborate on storage condition for dispensed product.

(*d*) In what proportion may a manufacturing pharmacist mix 20%, 15%, 5% and 3% zinc oxide ointment to produce 10% ointment ?

(*e*) Enlist steps in compounding and add a note on issue of ingredients.

(*f*) What is proof strength of 80% and 45% v/v ethanol ?

(*g*) Explain the content of drug profile in short.

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

(*a*) Write a note on PMR.

(*b*) Explain stability of medicine.

(*c*) How many grams of Sodium chloride should be used in compounding the following prescription :

Pilicarpine nitrate	0.3 gm
Sodium chloride	*q.s.*
Purified water ad	30 ml

Make solution isotonic with eye (*i* factor of piolocarpine nitrate is 1.8 and molecular weight is 271)

(*d*) Write a note on responding to prescription.

SECTION II

4. Define Posology and explain different factors affecting dose. [10]

Or

Explain organization, structure and design of retail drug store and Legal requirements for establishment and maintenance of drug stores.

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

(*a*) Write in short Patient Counselling in Diabetes.

(*b*) Explain role of pharmacist as community healthcare.

(*c*) Elaborate in short role of pharmacist in Vaccination.

(*d*) Write any *three* formula's regarding calculation of dose for infants and childrens.

(*e*) Define chemical incompatibility and enlist its types.

(*f*) Write in short concept of idiosyncratic cases.

(*g*) Write in short methods of reporting ADR.

6. Solve any *two* from the following : [8]

(*a*) Write a note on Errors in writing prescription which results in therapeutic incompatibility.

(*b*) What is physical incompatibility ? Enlist its types and elaborate on any *one* type of physical incompatibility.

(*c*) Write in detail importance and steps in Patient counselling.

(*d*) Elaborate on patient counselling for Prescription and OTC drugs.

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

Seat No.	

[5245]-1003

B.Pharmacy. (First Year) (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*) Classify gastrointestinal agents along with examples of each class. Write in detail about saline catharatics.

2. Solve any *four* from the following : [12]

(*a*) Define Limit Test. Write principle and reaction involved in limit test of sulphate.

P.T.O.

(*b*) Draw well labelled diagram of Gutzeit Apparatus used for limit test of Arsenic.

(*c*) What is Achlorhydria ? Write a note on Acidifying agents.

(*d*) Write functions of Calcium and Phosphate.

(*e*) Define Monograph. Explain solubility term in monograph.

(*f*) Explain history of Indian Pharmacopoeia.

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

(*a*) Electrolytes used in combination therapy.

(*b*) Combination of Antacids.

(*c*) Physiological role of Zinc and Iron.

(*d*) Ash values as test for purity.

SECTION-II

4. Attempt any *one* from the following : [10]

(*a*) Give the composition of intra and extra cellular electrolytes. Discuss role of Sodium and Chloride in body.

(*b*) What are Topical agents ? Discuss Mechanism of action of Antimicrobial agents. Write properties, assay and uses of Potassium Permanganate.

5. Solve any *four* from the following : [12]

(*a*) Explain ORS.

(*b*) Define along with examples :

(1) Anticaries agents,

(2) Astringents

(3) Antidotes

(*c*) Describe raw material as source of impurity.

(*d*) What are expectorants ? Discuss mechanism of action Expectorants. Write example of it.

(*e*) Write physiological role of copper in body.

(*f*) What are Antidepressants ? Explain Lithium carbonate as inorganic Antidepressant.

(*g*) Write principle for limit of Heavy metals.

6. Solve any *two* from the following : [8]

(*a*) Write a note on Dental Products.

(*b*) Explain Helium and Nitrogen as inorganic gases.

(*c*) Write note on Barium Sulphate as radio opaque media.

(*d*) Explain Expectorants along with examples in detail.

Total No. of Questions—**6**] [Total No. of Printed Pages—**5**

Seat No.	

[5245]-1004

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

PHARMACEUTICAL ORGANIC CHEMISTRY–I

(2015 PATTERN)

Time : Three Hours **Maximum Marks : 60**

***NB.* :—** (*i*) *All* questions are compulsory.

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

Section-I

1. Define and classify Hybridization. Explain the formation of Methane on the basis of hybridization. [10]

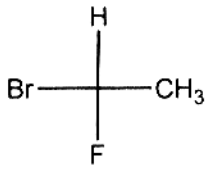
Or

What is aromatic electrophilic substitution reaction ? Write down the mechanism of nitration of benzene. Explain use of H_2SO_4 in nitration.

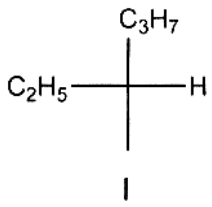
2. Answer the following (any *four*) : [12]

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

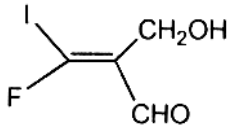
(*i*)



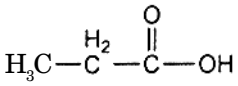
(*ii*)

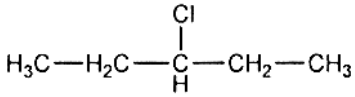


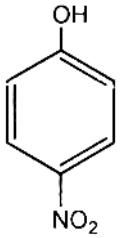
P.T.O.

(*iii*) 

(*b*) Write IUPAC names for the following structures :

(*i*) 

(*ii*) 

(*iii*) 

(*c*) Write any *three* methods of preparation of alkanes.

(*d*) Define the following terms with suitable examples :

(*i*) Free radicals

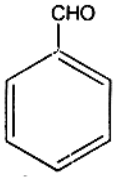
(*ii*) Carbocation

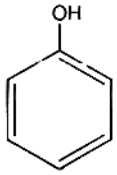
(*iii*) Nucleophile.

(*e*) Discuss Anti–Markovnikoff rule with example.

(*f*) Halogens being electronegative are o,p directors in aromatic electrophilic substitutions, why ?

(*g*) Draw resonating structures of the following :

(*i*) 

(*ii*) 

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

(*a*) Define isomerism. Classify geometrical isomerism with examples.

(*b*) Classify organic compounds on the basis of elemental composition (at least four classes with suitable example).

(*c*) Explain the addition–elimination mechanisms of nucleophilic aromatic substitution.

(*d*) Explain Tautomerism and hyperconjugation with example.

Section-II

4. (*a*) What are alkenes and alkynes ? Explain any *two* addition reactions of alkenes. [10]

Or

(*b*) Classify ortho/para and meta directing groups (monosubstituted benzene) from the following :

(*a*) $-NH_2$

(*b*) $-CH_3$

(*c*) –CHO

(*d*) $-NO_2$

Justify any *one* ortho/para meta directing group with resonance.

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.

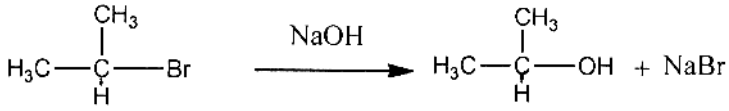
(*d*) Draw structures from IUPAC names of the following :

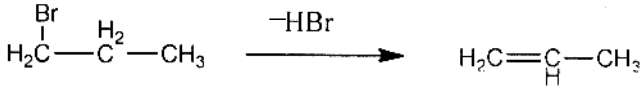
(*i*) Propanamine

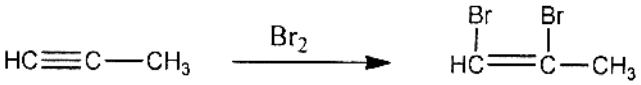
(*ii*) Ethyl butanoate

(*iii*) 3,3 dichloropentane.

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

(*i*) 

(*ii*) 

(*iii*) 

(*f*) Explain mesomeric effect and electromeric effect with example.

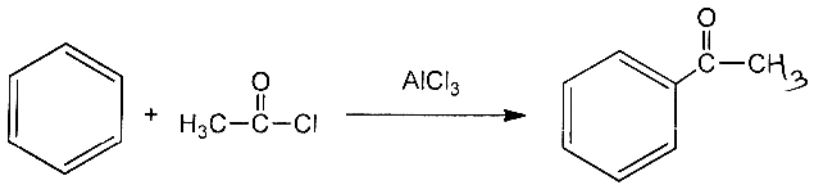
(*g*) Explain the effects of H–bonding on melting point and acidity with suitable examples.

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

(*a*) Explain Inter and Intra molecular forces of attraction.

(*b*) Explain conjugated dienes with example ? Write their any *two* addition reactions.

(*c*) Write down the stepwise mechanism for the following reactions :



(*d*) Explain formation of Ammonia and its geometry on the basis of hybridization.

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

Seat No.	

[5245]-1005

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

HUMAN ANATOMY AND PHYSIOLOGY-I

(2015 PATTERN)

Time : 3 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. Draw neat labelled diagram of cell. Explain in detail transport of substances across plasma membrane. [10]

Or

Define hemostasis. Explain the events in detail that occur during hemostasis.

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

(*a*) Explain the structure and functions of erythrocytes.

(*b*) Write an accounts on Anemia.

(*c*) Classify and explain muscle tissues.

(*d*) Explain Hemolytic Disease of Newborns.

P.T.O.

(*e*) Discuss the general mechanism of muscle contraction.

(*f*) Explain the composition, formation and flow of lymph.

(*g*) Add a note on hemoglobin.

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

(*a*) WBCs

(*b*) Epithelial tissue

(*c*) Anatomy and functions of spleen

(*d*) Tissue and organ transplantation.

SECTION-II

4 Define blood pressure. Discuss the factors affecting blood pressure. Explain in detail hormonal regulation of the blood pressure. [10]

Or

Enlist the organs of digestive system. Describe the location, structure histology and functions of liver.

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

(*a*) Define the terms : Health Promotion, Nutrition& Balanced Diet.

(*b*) Draw neat labelled diagram of interior of heart.

(*c*) Describe the various phases of action potential in cardiac muscles.

(*d*) Discuss histology and functions of small intestine.

(*e*) Explain in detail tunics of GIT.

(*f*) Write a note on heart valves.

(*g*) Discuss the waves of ECG.

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

(*a*) Conduction system of Heart

(*b*) Cardiac cycle

(*c*) Stomach : Anatomy, Histology and Functions

(*d*) Family planning.

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

Seat No.	

[5245]-1006

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

COMMUNICATION AND SOFT SKILL DEVELOPMENT

(2015 PATTERN)

Time : 3 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. Define communication. Enlist the types of Communication. Explain in detail the types of Non-verbal Communication. [10]

Or

Describe the Expository style of writing and state its structure.

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

(*a*) State various purposes of writing.

(*b*) Why is oral communication essential ?

(*c*) Explain importance of Punctuation marks in English language.

(*d*) Language as a tool of communication.

(*e*) Enlist barriers for communication.

(*f*) Write about semantics of connectives.

(*g*) Explain scope and significance of technical communication.

P.T.O.

3. Write short notes on (any *two*) : [08]

(*a*) Objective Style *Vs*. Literary Composition

(*b*) Graphic Language

(*c*) Knowing the audience

(*d*) Reference material .

SECTION-II

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

Or

Define Intrapersonal and Interpersonal skills. Explain various Intrapersonal skill with their importance.

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

(*a*) Write an application for the post of production officer in pharmaceutical industry.

(*b*) Write the importance of group discussion.

(*c*) Classify reports. Write the parts of reports.

(*d*) Format of leave letter.

(*e*) What is empathy ? Discuss its types.

(*f*) Explain Vowels and Consonants in phonetics.

(*g*) Explain steps in problem solving.

6. Write short notes on (any *two*) : [08]

(*a*) Globalization of business

(*b*) Enquiry letters

(*c*) Email

(*d*) Role of information technology in modern era.

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

Seat No.	

[5245]-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. Give advantages, disadvantages, types of glass as pharmaceutical packaging material. Describe evaluation tests for glass. [10]

Or

Describe construction and working of filter press with its neat well labelled diagram. Give industrial application of filter press.

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

(*a*) Discuss the role of packaging in pharmaceutical products.

P.T.O.

(*b*) Write in short on end runner mill.

(*c*) Describe sieving as a method of size separation.

(*d*) What are thermoplastic polymers ?

(*e*) What are filter aids ? Give their ideal properties.

(*f*) Describe colloidal mill.

(*g*) What is elutriation ?

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

(*a*) Factors affecting rate of filtration.

(*b*) Packaging of liquid dosage forms.

(*c*) Fluid energy mill.

(*d*) Size separation based on sedimentation.

SECTION II

4. Describe in detail mechanisms of drug absorption. [10]

Or

Draw and explain general layout of pharmaceutical manufacturing plant for liquids.

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

(*a*) Describe the factors affecting mixing of powders.

(*b*) Write in brief on phase I and phase II metabolism.

(*c*) Explain mechanisms of powder mixing.

(*d*) What are non-renal routes of excretion ?

(*e*) Describe cGMP's related to personnel.

(*f*) What is ion pair transport ?

(*g*) What is first pass effect ?

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

(*a*) Bioavailability.

(*b*) Typical plasma drug concentration *Vs.* Time profile.

(*c*) Good Manufacturing Practices related to equipments.

(*d*) Impellers and propellers.

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

Seat No.	

[5245]-2002

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

DOSAGE FORM DESIGN

(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 theories of emulsions and its formulation aspects. [10]

Or

Give different types of suppositories. Discuss in brief evaluation of suppositories. [10]

2. Solve any *four* form the following : [12]

(A) Explain the formulation of efferevescences granules.

(B) What do you mean by deflocculated and flocculated suspensions ?

(C) Discuss concept and mechanism of dissolution.

P.T.O.

(D) Write a note on microemulsions.

(E) Write a short note on incorporation method.

(F) Give importance and methods of granulation.

(G) Discuss Noyes-Whitney equation.

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

(A) Discuss Evaluation of suspensions.

(B) Composition of Self-emulsifying drug delivery system.

(C) Explain low energy emulsification technique.

(D) Compounding of Suppositories.

SECTION – II

4. What are Radiopharmaceuticals ? Write note on therapeutic applications of Radiopharmaceuticals. [10]

Or

What are suspensions ? Classify them and explain its applications in drug delivery systems. [10]

5. Solve any *four* form the following : [12]

(A) Differentiate between suppository and pessary.

(B) Explain physical stability of suspension.

(C) What is the importance of displacement value ?

(D) Enlist various approaches of solubility enhancement.

(E) Preparation of rediopharmaceuticals.

(F) What is fusion method for preparation of ointments ?

(G) How are pastes evaluated for its quality ?

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

(A) Factors affecting stability of suspension

(B) Suspending agents

(C) Jellies as dosage forms

(D) Suppository bases

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

Seat No.	

[5245]-2003

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

PHARMACEUTICAL ANALYSIS–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 diagrams must be drawn wherever necessary.

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

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 : [10]

(*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 Bufer, Buffer index and buffer capacity.

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

(*a*) Primary and secondary standards.

(*b*) Pharmaceutical applications of non-aqueous titration.

(*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 applications in determination of chloride. Give its advantage over Mohr's method.

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

(*a*) How will you prepare and standardize 0.1 N $AgNO_3$ 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 titrations.

(*e*) Starch solution is added near the end point in assay of iodine. Explain.

(*f*) How will you prepare and standardize 0.5 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—**2**

Seat No.	

[5245]-2004

F.Y. B. Pharmacy (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 answer books.

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

(*iii*) *All* questions are compulsory.

SECTION-I

1. What are sulphonic acids ? Explain any *two* methods of preparation and two reactions of sulphonic acid. Add a note on aromatic sulfonic acid and acidity of sulphonic acid. [10]

Or

Explain why aldehydes are more reactive than ketones for nucleophilic addition reaction and add a note on Cannizzaro reaction.

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

(*a*) Which *one* of the following is more basic, give reasons. Ammonia and Ethyl amine.

(*b*) Explain acidity of phenols.

(*c*) What are acetals ? How are they prepared ?

(*d*) What are enamines ? How are they prepared ?

(*e*) Draw structures for the following IUPAC names : 3-methyl-2-pentanone, 2-aminoethanol and O-toluidine.

(*f*) Give any *three* reactions of amines.

(*g*) Explain Haloform reaction.

P.T.O.

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

(*a*) MPV reduction.

(*b*) Preparation method of amines.

(*c*) Oppenaur oxidation.

(*d*) Reactions and preparation of alcohols.

SECTION-II

4. Define and classify alkyl halides with any *two* structures from each class. Discuss in detail any *three* methods of preparation and reactions of alkyl halides. [10]

Or

Give reaction, mechanism and applications of Claisen reaction and Michael addition.

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

(*a*) Give any *two* methods of synthesis of carboxylic acids.

(*b*) Compare reactivity of functional derivatives of carboxylic acids.

(*c*) Transesterification

(*d*) Define isocyanides. Give any *two* methods of synthesis of isocyanides.

(*e*) Comment on halide exchange.

(*f*) Preparation and use of anhydrides.

(*g*) Give any *two* methods of preparation of cyanides.

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

(*a*) Carboxylic acid derivatives

(*b*) Malonic ester synthesis

(*c*) S_N1 reaction.

(*d*) HVZ reaction.

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

Seat No.	

[5245]-2005

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

1.2.4 : HUMAN ANATOMY AND PHYSIOLOGY—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 labeled diagrams must be drawn wherever necessary.

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

SECTION-I

1. Define respiration. Describe the actions of muscles involved in breathing. Add a note on transport of gases. [10]

Or

Explain the organization of nervous system. Write in detail anatomy and functions of brain stem.

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

(*a*) Draw neat labeled diagram of internal ear.

(*b*) Define and give clinical significance of different respiratory volumes.

(*c*) Explain the structure of olfactory receptors.

(*d*) Describe the structure and functions of Lungs.

(*e*) Explain the structure and types of neuron.

(*f*) Enlist cranial nerves with their type and functions,

(*g*) Define the terms : Asthma, Emphysema and Bronchitis

P.T.O.

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

(*a*) Cerebrum

(*b*) Reflex arc

(*c*) Epidermis of Skin

(*d*) Autonomic Nervous System.

SECTION-II

4. Explain in detail various phases of Menstrual Cycle and hormones involved in it. [10]

Or

Draw a neat labeled diagram of nephron and explain detailed physiology of urine formation.

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

(*a*) Enlist various hormones secreted by anterior pituitary gland with their functions.

(*b*) Define the terms : Cushing's Syndrome, Hypothyroidism and Diabetes Mellitus.

(*c*) Write a note on Parathyroid Hormone.

(*d*) Write a note on Pancreatic Islets.

(*e*) Explain the regulation of insulin and glucagon secretion.

(*f*) Draw a neat labeled diagram of ovary representing various stages of follicles.

(*g*) Describe internal structure of the kidney.

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

(*a*) Spermatogenesis

(*b*) Physiology of Lactation

(*c*) Adrenal Glands

(*d*) Physiology of micturition.

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

Seat No.	

[5245]-2006

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

PHARMACOGNOSY

(2015 PATTERN)

Time : Three Hours **Maximum Marks : 70**

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

(*ii*) Neat labeled diagrams must be drawn wherever necessary.

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

(*iv*) *All* questions are compulsory.

SECTION-I

1. Define Applied biology. Give different branches of biology also give relevance of biology to pharmaceutical sciences. [10]

Or

Elaborate in detailed morphology and microscopy of wood.

2. Answer any *five* : [15]

(*a*) Explain in detailed structure and function of permanent tissue.

(*b*) Explain morphology of fruit.

(*c*) Give information on genetic code.

(*d*) Give secretory product of plant cell.

(*e*) Describe RNA translation.

(*f*) Explain unorganized drugs.

(*g*) Explain Mitosis.

P.T.O.

3. Write short notes on any *two* : [10]

(*a*) Structure, replication and function of RNA

(*b*) Meristematic tissue

(*c*) Mendelian genetics

(*d*) Meiosis.

SECTION II

4. Attempt any *one* : [10]

Describe history, current status, scope and significance of Pharmacognosy.

Or

Explain in detail importance of plant growth regulators.

5. Answer any *five* of the following : [15]

(*a*) Differentiate between artificial and natural methods of classification of crude drugs.

(*b*) Enlist different Ecosystems.

(*c*) Describe ecological succession.

(*d*) Explain in brief impact of pollution and global warming on ecosystem.

(*e*) Explain in brief food chain.

(*f*) Explain in brief hybridization.

(*g*) Explain in brief speciation and extinction.

6. Write short note on any *two* of following : [10]

(*a*) Chemosynthesis

(*b*) Different types of vegetation

(*c*) Divisions of plant kingdoms

(*d*) Polyploidy breeding.

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

Seat No.	

[5245]-3001

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

PHYSICAL PHARMACEUTICS–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.

SECTION I

1. Attempt any *one* question out of two : [10]

(*a*) Write the ideal gas equation. Explain the kinetic molecular theory and van der Waals equation for real gases.

(*b*) Explain the different terms used in the Gibbs phase rule. Explain the phase diagram one-component system.

2. Attempt any *four* : [10]

(*a*) Why elevation in boiling point is a colligative property ?

(*b*) What are solid dispersions ? Give its significance in pharmacy.

(*c*) Write the principle of two-phase system aerosol.

(*d*) Explain the Equivalent Conductance of Strong and Weak Electrolytes.

P.T.O.

(*e*) Explain the Linde's method for liquefaction of gases.

(*f*) A solution containing 6 g of nonelectrolyte solute dissolved in 50 g of water has a boiling point of 102.1 ºC. What is the molecular weight of solute if ebullioscopic constant (Kb) for water is 0.51.

(*g*) Explain the Raoult's law.

3. Write short notes (any *two*) : [10]

(*a*) Osmotic pressure as colligative property.

(*b*) Specific and Equivalent Conductance.

(*c*) Two-component system containing liquids.

(*d*) Colligative properties of electrolytes.

SECTION II

4. Attempt any *one* question out of two : [10]

(*a*) Explain effect of molecular affinity and ionic dissociation on Distribution phenomenon.

(*b*) Discuss Crystal Parameters and methods of Crystal analysis.

5. Attempt any *four* : [10]

(*a*) Discuss limitations of Nernst Distribution law.

(*b*) Define and differentiate between saturation solubility and intrinsic solubility.

(*c*) Explain factors affecting solubility of gases in liquids.

(*d*) Discuss various solute solvent interactions.

(*e*) State the equation for solubility parameter and give its significance.

(*f*) Define and differentiate between Enthalpy and Entropy.

(*g*) Define and differentiate between Polymorphism and Glass transition temperature.

6. Write short notes (any *two*) : [10]

(*a*) Methods of Polymorph Detection

(*b*) BCS classification

(*c*) Activity coefficeint

(*d*) Solubility of Liquids in liquids.

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

Seat No.	

[5245]-3002

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

PHARMACEUTICAL MICROBIOLOGY

(2015 PATTERN)

Time : Three Hours **Maximum Marks : 60**

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

(*ii*) Neat diagram must be drawn wherever necessary.

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

(*iv*) *All* questions are compulsory.

Section-I

1. Attempt any *one* : [10]

Explain in detail structure of HIV, Multiplication of human viruses and Cultivation of viruses.

Or

What are culture media ? Classify the types of culture media with examples and their uses.

2. Attempt any *four* : [12]

(*a*) How do bacteria reproduce ?

(*b*) Explain "Whittaker's five kingdom concept".

(*c*) Write the contribution of Louis Pasteur.

(*d*) List the different techniques used for preservation of bacterial culture.

(*e*) Write morphological characteristics and importance of *Candida albicans*.

P.T.O.

(*f*) How will you detect presence of *Salmonella* in nonsterile pharmaceutical preparations ?

(*g*) Differentiate between Probiotics and Prebiotics.

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

(*a*) Microbial Limit Test

(*b*) Components of bacteria

(*c*) Growth Curve of Bacteria

(*d*) Scope and Application of Microbiology

Section-II

4. Attempt any *one* : [10]

Classify Immunity. Describe in detail non-specific defence mechanism.

Or

Define Disinfectant. Describe different classes, action and uses of disinfectants.

5. Attempt any *four* : [12]

(*a*) Write a principle and characteristics of antigen-antibody reactions.

(*b*) Differentiate between Live (attenuated) and Killed vaccine.

(*c*) What is the basis of humoral/cell-mediated immune response ?

(*d*) Write ideal properties of disinfectants.

(*e*) Comment "Moist heat sterilization is more superior to dry heat sterilization".

(*f*) Define the following terms :

(*i*) Epitopes

(*ii*) Paratopes.

(*g*) What is microbial virulence ?

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

(*a*) General Production of bacterial vaccine

(*b*) Moist Heat sterilization

(*c*) Endotoxin and Exotoxin

(*d*) Classes of Immunoglobin.

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

Seat No.	

[5245]-3003

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

PHARMACEUTICAL BIOCHEMISTRY

(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. Explain effect of substrate concentration on enzyme activity. What is Feedback Inhibition and its biological importance ? [10]

Or

Explain Translation process in Eukaryotic Cell.

2. Write short notes on any *four* of the following : [12]

(*a*) Biological role of Fructose and Starch.

(*b*) Classification of proteins.

(*c*) Biological role of any *three* important amino acids.

P.T.O.

(*d*) Differentiation between Prokaryotic and Eukaryotic cell.

(*e*) End Group analysis.

(*f*) Applications of enzymes with emphasis on marker enzymes.

(*g*) Genetic code of eukaryotic cell.

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

(*a*) Fibrous Proteins/Globular Proteins.

(*b*) Explain in detail any *two* important Biochemical Reactions.

(*c*) Biological role of any *three* important amino acids.

(*d*) Scope of Pharmaceutical Biochemistry in Pharmaceutical Sciences.

SECTION–II

4. Give a detailed account of Glycogen catabolism. How is this process regulated ? [10]

Or

Give a detailed account of Cholesterol biosynthesis. Explain how this process can be inhibited ?

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

(*a*) Urea Cycle.

(*b*) Gluconeogenesis.

(*c*) Degradation of Amino Acids.

(*d*) Synthesis of ATP

(*e*) Metabolism of Ketone bodies

(*f*) Galactose metabolism

(*g*) Vitamin A.

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

(*a*) Beta oxidation of fatty acid with odd no. of carbons.

(*b*) Brief summary of Protein Metabolism.

(*c*) TCA cycle and energetics.

(*d*) Amino Acid synthesis pathways.

Total No. of Questions—**6**] [Total No. of Printed Pages—**5**

Seat No.	

[5245]-3004

B. Pharmacy (Second Year) (Third Semester)

EXAMINATION, 2017

PHARMACEUTICAL ORGANIC CHEMISTRY–III

(2015 PATTERN)

Time : Three Hours **Maximum Marks : 60**

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

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

(*iii*) Digits written at right side indicate full marks of that question.

Section-I

1. Explain the term conformation with reference to conformation of cyclohexane. [10]

Or

Establish open chain structure and ring structure for D–Glucose.

2. Attempt any *four* of the following : [4×3=12]

(*i*) What is meant by Geometrical isomerism ?

(*ii*) Write a note on Mutarotation.

(*iii*) Discuss sawhorse and Newmann's representation of ethane.

(*iv*) Explain Ruff degradation.

P.T.O.

(*v*) Define the following :

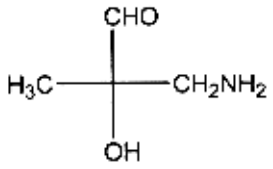
(*a*) Anomers

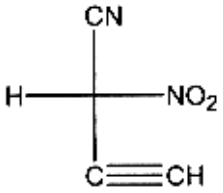
(*b*) Epimers

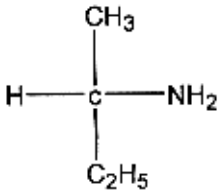
(*c*) Diastereomers

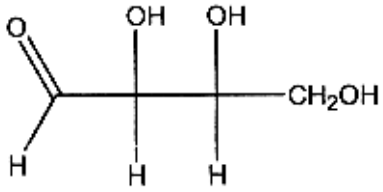
(*vi*) Explain significance and medicinal importance of carbohydrates.

(*vii*) Assign R and S configuration to the following (any *three*) :

(*a*) 

(*b*) 

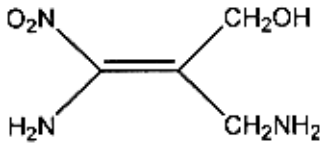
(*c*) 

(*d*) 

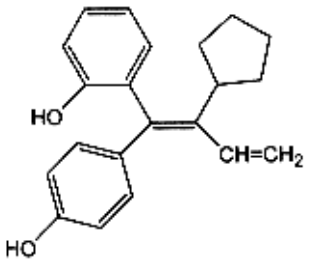
3. Attempt any *two* of the following : [2×4=8]

(*i*) Establish Z and E configuration to the following :

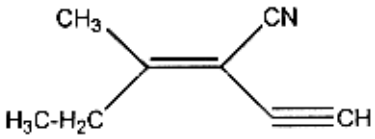
(*a*)



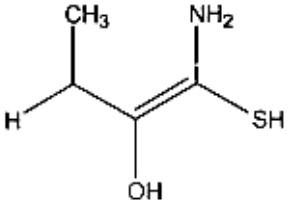
(*b*)



(*c*)



(*d*)



(*ii*) Explain methods of racemic resolution.

(*iii*) Elaborate various reactions of C_5 arabinose.

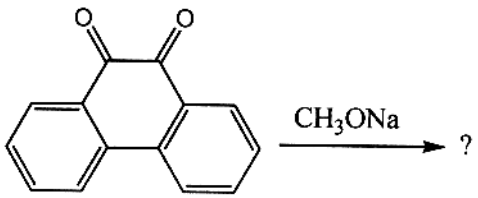
(*iv*) Write any *four* chemical reactions of Fructose.

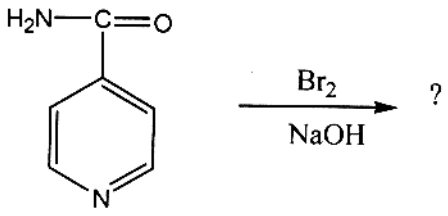
Section-II

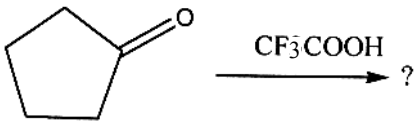
4. Define and classify molecular rearrangements. Explain Pinacol–Pinacolone and Beckmann's rearrangement with mechanism. [10]

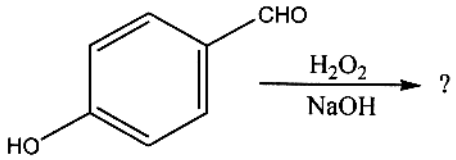
Or

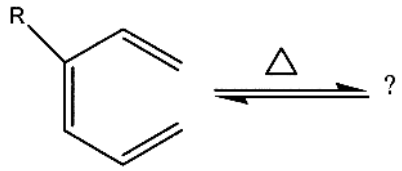
Predict the product :

(*a*) 

(*b*) 

(*c*) 

(*d*) 

(*e*) 

5. Attempt any *four* of the following : [4×3=12]

(*i*) Explain the term Isoelectric point of amino acid.

(*ii*) Give reaction and mechanism of Curtius rearrangement.

(*iii*) Elaborate various methods of peptide synthesis.

(*iv*) Define and classify natural amino acids and give structures of any *two*.

(*v*) Describe reaction and mechanism for Claisen's rearrangement.

(*vi*) Explain sigmatropic reactions.

(*vii*) Explain phthalimido malonic ester synthesis.

6. Attempt any *two* of the following : [2×4=8]

(*i*) Write any *two* methods of synthesis of amino acids

(*ii*) What are pericyclic reaction ? Add a note on Cope rearrangement ?

(*iii*) Give reaction and mechanism of Benzilic acid rearrangement.

(*iv*) Explain any *four* chemical reactions of amino acids.

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

Seat No.	

[5245]-3005

B. Pharma. (Second Year) (Third Semester)

EXAMINATION, 2017

PHARMACOLOGY-I

(2015 PATTERN)

Time : 3 Hours **Maximum Marks : 60**

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

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

(*iii*) Write answers for Sections 1 and 2 in separate answer sheets.

SECTION-1

1. Define bioavailability and explain factors affecting bioavailability of drug. [10]

Or

Discuss structure and functions of plasma membrane. Add a note on transportation of drug across plasma membrane. [10]

2. Solve any *four* : [12]

(*a*) What are different sources of drugs ? [3]

(*b*) Enlist various routes of drug administration. [3]

(*c*) Define drug distribution, metabolism and excretion. [3]

(*d*) What is half-life of drug ? Give its importance. [3]

(*e*) What are the factors affecting drug distribution ? [3]

(*f*) What do you mean by clinical trials ? Enlist phases of clinical trials. [3]

(*g*) What are the organs and enzymes involved in drug metabolism ? [3]

P.T.O.

3. Solve any *two* : [8]

(*a*) Write advantages and disadvantages of oral sublingual route of drug administration. [4]

(*b*) Write a short note on therapeutic drug monitoring. [4]

(*c*) Discuss role of plasma protein binding in drug distribution. [4]

(*d*) Explain new approaches in new drug discovery and development process. [4]

SECTION-2

4. Discuss synthesis, storage, release and pharmacological actions of serotonin. [10]

Or

Discuss changes in physiological factors that influence pharmacokinetics and pharmacodynamics in geriatric patients. [10]

5. Solve any *four* : [12]

(*a*) What do you mean by drug synergism ? What are its types ? [3]

(*b*) What are different sites and mechanisms of drug action ? [3]

(*c*) Define adverse drug reactions. What are types of adverse drug reactions ? [3]

(*d*) Classify drug receptors. [3]

(*e*) Discuss synthesis, storage and release of histamine. [3]

(*f*) Define efficacy, affinity and therapeutic index. [3]

(*g*) What do you mean by log dose response curve ? Give its significance. [3]

6 Solve any *two* : [8]

(*a*) Discuss drug treatment during pregnancy and lactation. [4]

(*b*) Explain pharmacological actions and uses of prostaglandins. [4]

(*c*) Discuss transduction mechanism of G-protein coupled receptors. [4]

(*d*) Write a brief note on Drug antagonism. [4]

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

Seat No.	

[5245]-3006

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

PHARMACOGNOSY AND PHYTOCHEMISTRY-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*) Answers to the two sections should be written in separate answer books.

(*iv*) Draw neat and labelled diagram wherever necessary.

Section–I

1. What are primary and secondary metabolites ? Write sources, extraction, properties and uses of starch and pectin. [10]

Or

Explain the importance of proteins and enzymes in healthcare. Explain the general process of extraction of enzymes. Write a detailed note on Bromelain.

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

(*a*) Give the source and applications of Lecithin.

(*b*) Write a short note on Neem oil.

(*c*) Explain different evaluation parameters for fats and oils.

(*d*) Write a short note on Papain.

P.T.O.

(*e*) Give the significance of Rice Bran oil.

(*f*) Write a note on silk.

(*g*) Write a note on Inulin.

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

(*a*) Pharmacognostic scheme of crude drugs.

(*b*) Starch and pectin.

(*c*) Lipids.

(*d*) Write a short note on Streptokinase.

Section–II

4. Write a detailed note on Anthraquinone glycosides. Explain the Pharmacognosy of Senna. [10]

Or

Explain in detail the importance of cardioactive glycosides. Write a detailed note on Digitalis.

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

(*a*) What is Myrobalan ? Give its pharmaceutical importance.

(*b*) Draw neat labelled diagram of Kalmegh TS.

(*c*) Write general chemical tests for anthraquinone glycosides.

(*d*) Write a note on Wool fat/Bees wax.

(*e*) Give the uses of Artemisia and Visnaga.

(*f*) Explain the general extraction of tennins.

(*g*) Differentiate between C-glycosides and S-glycosides with examples.

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

(*a*) Myrobalan.

(*b*) Classification, occurrence and properties of Tannins.

(*c*) Pale and Black Catechu

(*d*) Squill.

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

Seat No.	

[5245]-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. Explain the difference between surface tension and interfacial tension. Describe the various methods used to measure surface tension and interfacial tension. [10]

Or

Explain the various methods to determine order of reaction.

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

(*a*) What is the principle behind Ostwald viscometer ?

(*b*) What is the difference between plastic and pseudoplastic flow ?

(*c*) What is critical micelle concentration ? State its importance.

(*d*) Explain adsorption isotherm.

(*e*) What is plug flow and how can it be avoided ?

(*f*) Describe mechanism of hydrolysis as degradation pathway with examples.

(*g*) Discuss the effect of temperature on rate of a reaction.

P.T.O.

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

(*a*) Viscoelasticity

(*b*) Bulges and spurs

(*c*) Spreading coefficient

(*d*) Accelerated stability studies.

SECTION-II

4. Define and give importance of Micromeritics in pharmacy. Discuss the effect of the following factors on the flow properties of powders : [10]

(*a*) Particle shape

(*b*) Porosity and density

(*c*) Moisture, and

(*d*) Glidants.

Enlist methods to improve flow properties of powders.

Or

Discuss the salient features of lyophobic and lyophillic colloids. Describe the various factors which influence their stability.

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

(*a*) State and explain Schulze-Hardy rule.

(*b*) What is meant by protective colloid ? Explain the concept with suitable examples.

(*c*) Define Angle of repose, Porosity and Granule density.

(*d*) Describe the process of Micellar solubilization. Give its applications in pharmacy.

(*e*) Draw a neat and labelled diagram of Coulter counter apparatus. In a Coulter counter, electrolyte solution is added in order to measure size distribution. Why ?

(*f*) Explain the concept of Donnan-membrane equilibrium.

(*g*) What do you understand by the following terms :

(*i*) Brownian motion

(*ii*) Gold number.

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

(*a*) Optical properties of colloids

(*b*) Specific surface and its determination

(*c*) Explain :

(*i*) Hofmeister series

(*ii*) Coacervation.

(*d*) Derived properties of powders.

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

Seat No.	

[5245]-4002

S.Y. B. Pharmacy (Fourth Sem.) EXAMINATION, 2017
PATHOPHYSIOLOGY AND CLINICAL BIOCHEMISTRY
(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 and classify hypertension. Explain the pathophysicology of hypertension. [10]

Or

Define and classify hepatitis. Discuss in detail pathophysiology of hepatitis.

2. Attempt any *four* of the following : [12]
(1) Write the etiology of pneumonia.
(2) Define and enlist the types of heart failure.
(3) Define diarrhoea, cirrhosis and constipation.
(4) Write the complications of Gall stone.
(5) Define and enlist the types of angina pectoris.
(6) Discuss Dysentery.
(7) Define and write etiology of inflammation.

P.T.O.

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

(1) Raynauds disease

(2) Jaundice

(3) Peptic ulcer

(4) Pneumonia.

SECTION-II

4. Discuss pathophysiology of urinary calculi in detail. [10]

Or

Discuss etiology and pathophysiology of Acute Renal Failure.

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

(*a*) Write a note on Myasthenia gravis

(*b*) Define and enlist types of depression

(*c*) Explain pathophysiology of leprosy

(*d*) Define the terms :

(*i*) Endometriosis

(*ii*) Gout

(*iii*) Dysmenorrhoea.

(*e*) Explain in brief malignancy

(*f*) Write clinical manifestations of Diabetes mellitus

(*g*) Explain hypothyroidism in brief.

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

(*a*) Epilepsy

(*b*) Rheumatoid arthritis

(*c*) Parkinson's Disease

(*d*) AIDS.

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

Seat No.	

[5245]-4003

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

PHARMACEUTICAL ORGANIC CHEMISTRY–IV

(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. Give a detailed account of methods of synthesis and reactions of Thiophene. [10]

Or

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

(*a*) Cinnoline

(*b*) Benzoxazole

(*c*) Benzimidazole

(*d*) Xanthine

(*e*) Pyrrole.

P.T.O.

2. Solve any *four* : [12]

(*a*) Why pyrrole undergoes electrophilic substitution reactions preferentially at C-2 and C-5 ?

(*b*) Give the structures of the following :

(*i*) 2,4-dimethoxyfuran

(*ii*) ethyl-3-ethylthiophene-2-carboxylate

(*iii*) 5-acetoxy-pyridine.

(*c*) Give resonance structures of furan and its one method of synthesis.

(*d*) Why Pyridine is basic in nature ?

(*e*) Explain acidic and basic character of imidazole.

(*f*) Give any *two* reactions of pyridine.

(*g*) Give any *two* reactions of isoquinoline.

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

(*a*) Furan

(*b*) Imidazole

(*c*) Napthalene

(*d*) Anthracene.

SECTION II

4. Give a detailed account of guidelines of retrosynthesis and disconnection involving C-X and C-C bonds. [10]

Or

What is combinatorial synthesis ? Comment on multiple parallel synthesis in Combinatorial chemistry. Give details of Tea Bag method.

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

(*a*) Explain the basic principle behind Microwave synthesis.

(*b*) Explain iterative deconvolution in combinatorial chemistry.

(*c*) Explain the method of preparation of diazomethane.

(*d*) Explain the reactions and uses of manganese oxide.

(*e*) Compare microwave synthesis and conventional synthesis.

(*f*) Explain the method of preparation of organoboranes.

(*g*) Explain the reactions and uses of sulfonating agents.

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

(*a*) Rules of Disconnection

(*b*) Solid supported synthesis of peptides

(*c*) DDQ

(*d*) Retrosynthesis of Ibuprofen.

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

Seat No.	

[5245]-4004

S.Y. (B. Pharmacy) (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. Write principle of potentiometry. Enlist various reference and indicator electrodes. Discuss in detail about potentiometric titrations. [10]

Or

What is Polarography ? State Ilkovic equation. Discuss in detail about differential paleography.

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

(*a*) Explain factors affecting variables in Ilkovic equation.

(*b*) Write applications of polarography.

(*c*) Discuss about Dropping Mercury Electrode.

(*d*) Explain effect of dilution on conductance.

(*e*) Give an account on quinhydrone electrode.

(*f*) Advantages of potentiometric titrations.

(*g*) Explain molecular and equivalence conductance.

P.T.O.

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

(*a*) Secondary reference electrode

(*b*) Measurement of conductance

(*c*) Half Wave potential

(*d*) High frequency titrations.

SECTION II

4. Explain in detail refraction of light and measurement of Refractive index. Add a note on immersion refractometer. [10]

Or

Discuss types of plane polarized light. Write in detail measurement of polarized light.

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

(*a*) Write applications of coulometry.

(*b*) What is cotton effect ?

(*c*) Define and give formula for specific and molecular rotation.

(*d*) Explain principle of coulometry

(*e*) Discuss factors affecting refractive index

(*f*) Write advantages and disadvantages of amperometry.

(*g*) Write applications of refractometry.

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

(*a*) Rotating platinum electrode

(*b*) Factors affecting angle of rotation

(*c*) Karl Fisher titration

(*d*) Potentiostatic coulometry.

Total No. of Questions—**3**] [Total No. of Printed Pages—**3**

Seat No.	

[5245]-4005

S.Y. B.Pharm. (Fourth Semester) EXAMINATION, 2017
PHARMACOGNOSY AND PHYTOCHEMISTRY : 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. Define Alkaloid. Give detailed account of Biogenesis of isoquinoline alkaloids of opium. [10]

Or

Describe chemical classification of Terpenoids. Explain pharmacognostic account of clove.

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

(*a*) Explain in brief life-cycle of Ergot.

(*b*) Explain in brief Terpeneless volatile oil.

(*c*) Give chemical constituents and uses of Tobacco.

(*d*) Explain microscopy of coriander fruit.

(*e*) Provide adulterants of Nux vomica.

P.T.O.

(*f*) Explain cultivation and collection of sandal wood.

(*g*) Provide chemical constituents and chemical test for identification of Datura.

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

(*a*) Narcotic products from cannabis

(*b*) Meadow saffron seed

(*c*) Glycoalkaloid

(*d*) Jaborandi.

Section-II

4. Explain occurrences and properties of Alkaloids. Provide detail pharmacognostic account of Jesuit's bark. [10]

Or

Define and classify resin with pharmacognostic account of sallaki guggul.

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

(*a*) Explain in brief history and contribution to modern medicine of Rauwolfia.

(*b*) Provide chemical constituents and uses of Belladonna.

(*c*) Provide chemical constituents and chemical test of identification for Artemisia.

(*d*) Provide chemical constituents and uses of Taxus.

(*e*) Differentiate between Panama ipecacuanha and Brazilian ipecacuanha.

(*f*) Give substitutes and Adulterants for Saffron.

(*g*) Provide chemical constituents and chemical test of identification for coca.

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

(*a*) Ginseng

(*b*) Veratrum

(*c*) Catharanthus

(*d*) Cultivation and collection of opium.

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

Seat No.	

[5245]-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. Explain theory of drying. Discuss principle, construction, working and application of spray dryer. [10]

OR

Discuss in detail various modes of heat transfer.

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

(*a*) Discuss factors affecting evaporation.

(*b*) Explain Stefan-Boltzmann law of heat transfer.

(*c*) Elaborate working of plate heat exchanger.

P.T.O.

(*d*) Illustrate construction and working of wipe film evaporator.

(*e*) Describe construction and working of drum dryer.

(*f*) Discuss significance of vapour recompression in evaporation process.

(*g*) Explain methods for removal of foam from evaporator.

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

(*a*) Freeze dryer

(*b*) Efficiency and capacity of multiple effect evaporator

(*c*) Tubular evaporator

(*d*) Molecular diffusion in gases and liquids.

SECTION II

4. Explain different types of corrosion and elaborate methods used to combat corrosion. [10]

Or

Explain Mier's theory of supersaturation with its limitation. Illustrate theories of nucleation and crystal growth.

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

(*a*) Discuss caking of crystals.

(*b*) Explain azeotropic distillation.

(*c*) Describe working of Orifice meter.

(*d*) Discuss limitations of Bernaulli's theorem.

(*e*) Elaborate working of differential manometer.

(*f*) Explain Swenson-Walker Crystalliser.

(*g*) Describe plug meter.

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

(*a*) Variable area flow meter

(*b*) Molecular distillation

(*c*) Types of fractionating columns.

(*d*) Distillation of immiscible systems.

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

Seat No.	

[5245]-5001

T.Y.B.Pharmacy (Fifth Semester) EXAMINATION, 2017
INDUSTRIAL PHARMACY-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*) Figures to the right indicate full marks.

(iv) Neat diagrams must be drawn wherever necessary.

Section-I

1. Solve any *one* question : [10]

(*a*) Give comparative account of direct compression and dry granulation process. Write a note on direct compression vehicles.

(*b*) Discuss various defects that might occur during tablet manufacture, discuss its causes and remedies in detail.

2. Solve any *four* : [12]

(*a*) What are Co-processed excipients? Explain with example.

(*b*) Explain schematic layout of tablet manufacturing plant

(*c*) Explain mechanism of wet granulation.

(*d*) Explain Kawakita equation with its significance.

(*e*) Explain working of Rota granulator.

(*f*) Write a note on disintergrants used in tablets.

(*g*) Describe uniformity of weight test for uncoated tablets as per IP 2010.

P.T.O.

3. Solve any *two* : [8]

(*a*) Explain events involved in the formation of tablet during compaction process.

(*b*) Explain IPQC test for tablets.

(*c*) Discuss scale up in tablet manufacturing.

(*d*) Explain in brief spherical crystallization.

Section-II

4. Answer the following (any *one*) : [10]

(*a*) Explain the need for enteric coating of tablet. Explain the process of enteric coating in detail.

(*b*) Differentiate between hard and soft gelatin capsules. Explain the construction and working of rotary die process. Discuss quality control parameters of soft gelatin capsules as per IP, BP, USP.

5. Solve any *four* : [12]

(*a*) Differentiate between sugar coating and film coating.

(*b*) Explain the disintegration test of enteric coated tablet.

(*c*) What do you mean by 'Bloom's Strength and how is it determined ?

(*d*) Discuss the problems involved in filling hard gelatin capsule.

(*e*) Explain the factors affecting selection of size of capsule.

(*f*) Discuss various film coating material.

(*g*) Discuss in brief steps involved in manufacturing of hard gelatin capsule shell.

6. Solve any *two* : [8]

(*a*) Describe in detail the evaluation of empty hard gelatin capsules as per IP.

(*b*) Write a note on volumetric and dosator principle in capsule filling.

(*c*) Add a note on sugar coating.

(*d*) Discuss various coating defects and remedies used thereof.

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

Seat No.	

[5245]-5002

B.Pharmacy (Third Year) (Fifth Semester)

EXAMINATION, 2017

PHARMACEUTICAL ANALYSIS-III

(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 diagram must be drawn wherever necessary.

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

SECTION-I

1. Explain ideal requirements of the detector. Describe in detail various detectors used in UV-Visible spectrophotometer. [10]

Or

Draw a schematic diagram of double beam UV-Visible spectrophotometer. Discuss radiation sources and monochromators used in UV-Visible spectrophotometer.

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

(*a*) Classify instrumental methods of analysis.

(*b*) Explain Molar absorptivity.

P.T.O.

(*c*) Describe various deviations from Beer's law.

(*d*) Define : (1) Wavelength (2) Frequency (3) Wavenumber.

(*e*) Explain electromagnetic spectrum.

(*f*) Explain Chromophore with examples.

(*g*) Explain reflection and transmission of radiation.

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

(*a*) Optimum conditions for spectrophotometric measurements.

(*b*) Liquid-liquid extraction.

(*c*) Sampling plans

(*d*) Atomic and molecular spectroscopy.

SECTION-II

4. Explain different types of Atomisers used in Atomic absorption spectroscopy. [10]

Or

Describe Excitation and Emission Spectra. Explain factors affecting fluorescence.

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

(*a*) Explain principle of Atomic absorption spectroscopy.

(*b*) Explain advantages and disadvantages of fluorimetric analysis.

(*c*) Describe Doppler effect in Atomic absorption spectroscopy.

(*d*) Describe filters used in Fluorimetric analysis.

(*e*) Explain applications of Flame photometry.

(*f*) Describe Nebulizers used in Atomic emission spectroscopy.

(*g*) Describe principle of Flame photometry.

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

(*a*) Rotating Disc Phosphoroscope

(*b*) Theory and principle of Turbidometer

(*c*) Inductively Coupled Plasma (ICP)

(*d*) Lundergraph burner in Flame photometry

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

Seat No.	

[5245]-5003

T.Y. B. Pharmacy (Fifth Semester) EXAMINATION, 2017

MEDICINAL CHEMISTRY-I

(2015 Pattern)

Time : 3 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. Discuss role of solubility, partition coefficient and hydrogen bonding in drug action citing suitable examples under each parameter.[10]

Or

What do you mean by cholinomimetics ? Discuss in detail the SAR for cholinomimetics. [10]

2. Attempt any *four* questions. Each question carries 3 marks. [12]

(*a*) What is Bioisosterism ? Discuss with some examples.

(*b*) Give the scheme of synthesis for prazosin.

P.T.O.

(*c*) Write structure, IUPAC name and uses of dicylcomine hydrochloride.

(*d*) Give an account of protein binding in drug action.

(*e*) Write a note phosphodiesterase inhibitors.

(*f*) Write the steps involved in synthesis of carbachol.

(*g*) Explain about active transport of drug molecules.

3. Solve any *two* questions. Each question carried 4 marks. [8]

(*a*) Explain various forces involved in drug receptor interaction giving suitable examples.

(*b*) Write a note on cardiac glycosides.

(*c*) Write a note on reserpine.

(*d*) Discuss in detail the reversible inhibitors of acetylcholine esterase enzyme.

SECTION-II

4 List out the clinical uses of adrenergic agonists. Give a detailed SAR for adrenergic agonists with help of suitable examples. Also add a note on any *one* popularly used agent used in the treatment of asthma. [10]

Or

Classify antihypertensive agents. Discuss in detail the class of calcium channel blockers. [10]

5. Attempt any *four* questions. Each question carries 3 marks. [12]

(*a*) Explain the Fergusson principle.

(*b*) Elaborate the various phase-I biotransformation reactions in drug metabolism giving suitable examples.

(*c*) Write the steps involved in synthesis of clofibrate.

(*d*) Write a note on high ceiling diuretics.

(*e*) What are statins ? Discuss any one such drug in detail.

(*f*) Write structure, IUPAC name and mechanism of action of losartan.

(*g*) Discuss the stereochemistry of acetylcholine.

6. Solve any *two* questions. Each question carries 4 marks. [8]

(*a*) Write a note on solanaceous alkaloids and analogues asanticholinergic agents.

(*b*) What are carbonic anhydrase inhibitors ? Explain how they produce diuresis. Write structure and IUPAC name of any one example.

(*c*) Classify adrenergic receptors and comment on their importance.

(*d*) Write a note on papaverine and related compounds as antispasmodic agents.

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

Seat No.	

[5245]-5004

T. Y. B. Pharm. (Fifth Semester) EXAMINATION, 2017

PHARMACOLOGY–II

(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.

Section–I

1. Attempt any *one* : [10]

(*a*) Classify cholinomimetic agents with examples. Discuss the pharmacology of cholinesterase inhibitors.

Or

(*b*) Classify sympatholytics. Write mechanism of action, pharmacological action, adverse effects and uses of propranalol. [10]

2. Attempt any *four* : [12]

(*a*) Classify neuromuscular blockers. Write its therapeutic uses.

(*b*) What are the therapeutic uses of atropine ?

(*c*) Describe the process of biosynthesis of adrenaline.

(*d*) Write the therapeutic uses and adverse drug reactions of β-agonists.

(*e*) Write a note on indirectly acting adrenergic drugs.

(*f*) What are Cholinesterase Reactivators ?

P.T.O.

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

(*a*) Ganglionic stimulants

(*b*) Organo-phosphate poisoning

(*c*) Alpha blockers.

Section–II

4. Attempt any *one* : [10]

(*a*) Classify antitussive agents. Explain the pharmacotherapy of cough.

Or

(*b*) Define cardiac arrhythmia. Discuss mechanism of action, pharmacological actions, therapeutic uses and adverse effects of class IA antiarrhythmic agents.

5. Attempt any *four* : [12]

(*a*) Explain mechanism of action of spironolactone.

(*b*) Write a note on digitalis toxicity.

(*c*) Explain the role of β_2 agonists in the treatment of asthma.

(*d*) Explain the drug treatment for myocardial infarction.

(*e*) Explain role of mast cell stabilizers in asthma.

(*g*) What are osmotic diuretics ? Enlist their therapeutic uses.

6. Solve any *two* : [8]

(*a*) Explain goals of treatment of heart failure.

(*b*) Write pharmacotherapy of Atherosclerosis.

(*c*) Write a detailed note on ACE inhibitors.

Total No. of Questions—**6**] [Total No. of Printed Pages—**4**

Seat No.	

[5245]-5005

T.Y. B. Pharmacy (Fifth Semester) EXAMINATION, 2017

ANALYTICAL PHARMACOGNOSY AND

EXTRACTION TECHNOLOGY

(2015 PATTERN)

Time : 3 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. Attempt any *one* of the following. [10]

(*a*) Explain Principle, working merits, demerits and applications of :

(*i*) Counter Current Extraction

(*ii*) Ultrasound Extraction.

(*b*) Explain principle and applications of TLC in detail. Write advantages and disadvantages of TLC.

P.T.O.

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

(*a*) Explain principle and working of Soxhlet Apparatus.

(*b*) Explain principle of Paper Chromatography with suitable diagram.

(*c*) Emphasize on isolation of Taxol.

(*d*) What is Supercritical fluid extraction ? Explain with reference of isolation of Lycopenes.

(*e*) Draw the structures of the following :

(*i*) Menthol

(*ii*) Eugenol

(*iii*) Citral.

(*f*) Elaborate Percolation

(*g*) Describe isolation of Sennosides.

3. Write notes on any *two :* [08]

(*a*) HPLC

(*b*) Microwave Assisted Extraction of Polyphenols from Green Tea.

(*c*) Non-chromatographic separation techniques.

(*d*) Extraction of Atropine.

SECTION-II

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

(*a*) Describe in detail DNA fingerprinting and biological approach for herbal drug analysis.

(*b*) Explain principle, procedure and significance of the following parameters as per WHO :

(*i*) Different types of ash value

(*ii*) Extractable matter of crude drug.

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

(*a*) Write in detail moisture content determination as per WHO.

(*b*) Add an exhaustive note on sampling.

(*c*) Note down in detail importance and process of proximate chemical analysis.

(*d*) Define bitterness value. Give its significance in herbal drug analysis.

(*e*) Note down what are the complexities occur in natural product analysis.

(*f*) Explain theory and method for volatile matter determination.

(*g*) Give theory, method and significance of toxic metal determination.

6. Attempt any *two :* [8]

(*a*) As per WHO how the Good quality control practices were carry out for Pharmaceutical laboratories.

(*b*) How safety parameters were carried out for radioactive contamination ?

(*c*) Define adulteration. Explain detail direct and indirect adulteration in crude drug.

(*d*) Give principle, procedure and significance of tanning content determination.

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

Seat No.	

[5245]-5007

T.Y. B. Pharma. (Fifth Semester) EXAMINATION, 2017

ACTIVE PHARMACEUTICAL INGREDIENTS TECHNOLOGY

(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 Alkylation ? Describe Alkylating agents in detail with emphasis on mfg. process of hexylresorcionol. [10]

Or

What is Sulphonation ? Describe and enlist Sulphonating agents. Give details of any *one* API manufactured by Sulphonation. [10]

2. Attempt any *four*. [12]

(*a*) Give details of Filters used in API mfg. unit.

(*b*) Give details of Absorption Equipments used in API mfg. Unit.

(*c*) Distinguish between Unit Process and Unit operation.

(*d*) Enlist Reducing agents used in Animation by reduction.

P.T.O.

(*e*) Define API, Bulk Chemical and Fine Chemical with suitable examples.

(*f*) What is Esterification unit process ? Discuss any *one* type in detail.

(*g*) Explain spent acid strength or dehydrating value of sulphuric acid (D.V.S.)

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

(*a*) Unit process of Nitration.

(*b*) Reactors used in API mfg. Process

(*c*) Unit process of Hydrolysis

(*d*) Industrial Manufacturing and flow chart of Amlodipine.

SECTION-II

4. Discuss in detail major steps governing API cGMP. [10]

Or

What is Asymmetric synthesis ? Give various approaches of Asymmetric synthesis. [10]

5. Attempts any *four* : [12]

(*a*) Give Asymmetric Synthesis of (S)—Metoprolol.

(*b*) What is MSDS ? Describe its contents.

(*c*) Draw the flow chart for industrial mfg. process of metformine.

(*d*) Describe types of safety hazards in API mgf. unit.

(*e*) Give details reagent selection in API synthesis.

(*f*) What is IPQC ? Describe in short.

(*g*) Give methods of effluent minimization and control.

6. Attempt any *two* : [8]

(*a*) Give details of "APIs for use in clinical trials" as per Q7 guidelines.

(*b*) Write short note on Green Chemistry approach in API synthesis.

(*c*) Give details of USFDA Guideline on Chirality.

(*d*) Write a note on Polymorphism in API Industry.