[4155] – 106

Seat No.	

First Year B.Pharmacy. Examination, 2012
1.6 : PHARMACEUTICAL ENGINEERING
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *:1)* ***All*** *questions are* ***compulsory****.*
2) Answer to the ***two*** *Sections should be written in* ***separate*** *books.*
3) Neat diagrams must be drawn ***wherever*** *necessary.*
4) Black figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. Discuss crystallization phenomenon with reference to supersaturation nucleation and crystal growth. **10**

   OR

   Define evaporation. Explain Multiple Effect Evaporator (MEE) in detail.

2. Answer the following (**any five**) : **15**
   a) Define humidity, saturated air and percent relative humidity
   b) Plate heat exchanger
   c) Boiling inside a vertical tube
   d) Crystal habits
   e) Centrifugal rotary evaporator
   f) Thermo static steam trap
   g) Oslo crystallizer.

3. Write short notes on (**any three**) : **15**
   a) Fourier's law
   b) Circulating Magma crystallizer
   c) Climbing film evaporator
   d) Measurement of humidity
   e) Kirchoff's law.

P.T.O.

SECTION – II

4. Define fractional distillation (Rectification). Discuss various types of fractionating columns. **10**

OR

Define drying and discuss theory of drying.

5. Answer the following (**any five**) : **15**
   a) Tunnel Dryer
   b) Inclined manometer
   c) Reynold's number
   d) Basket extractor
   e) Disc meter
   f) Vacuum dryer
   g) Use of surface coating in prevention of corrosion.

6. Write short notes on (**any three**) : **15**
   a) Molecular diffusion
   b) Ventury meter
   c) Liquid-liquid extraction
   d) Freeze drying
   e) Distillation of immiscible liquids.

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[4155] – 201

Seat No.	

Second Year B.Pharmacy Examination, 2012
2.1 : PHYSICAL PHARMACY
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

***Instructions** : 1) Answer to the **two** Sections should be written in **separate** books.*
*2) Neat diagrams must be drawn **wherever** necessary.*
*3) Black figures to the **right** indicate **full** marks.*
*4) **All** questions are **compulsory**.*

SECTION – I

1. Attempt **any one** :

Discuss solubility of solids in liquids and factors affecting it. **10**

OR

Discuss phase rule. Explain two component system in detail.

2. Answer **any five** (**3** marks **each**) : **15**

i) Explain gold number along with examples.
ii) Explain Schulz Hardy rule and Hoffemeister series.
iii) Define and differentiate triple point and freezing points of water.
iv) Differentiate between ideal and real solutions.
v) Discuss solute solvent interaction.
vi) Define crystallization and explain factors affecting crystallization.
vii) Explain Linde's method of liquefaction of gases.

3. Write short notes on **any three** (**5** marks **each**) : **15**

i) Methods of Crystal analysis.
ii) Thermodynamic principles in solubilization.
iii) Arrhenius theory of electrolytes.
iv) Partition coefficient.
v) Explain the electrical properties of colloids.

P.T.O.

SECTION – II

4. Attempt **any one** :

Define adsorption isotherm. Draw various types of adsorption isotherm and explain their behavior. **10**

OR

Compare first and second order reactions with respect to the rates and explain the mechanism for their behavior.

5. Answer **any five** (**3** marks **each**) : **15**

i) Write the equation for the spreading coefficient. Suggest two methods to improve the spreading of a medicament.

ii) Define angle of repose. What are its uses in the pharmaceutical field ?

iii) Define thixotropy. Describe the role of thixotropy in formulations.

iv) Differentiate between dissolution and diffusion.

v) What are the applications of Coulter-counter apparatus ?

vi) Draw the flow curve for antithixotropic flow and explain its mechanism.

vii) Write applications of chemical kinetics.

6. Write short notes on **any three** (**5** marks **each**) : **15**

i) Gibbs equation and soluble monolayer

ii) Dissolution test apparatus (USP)

iii) Ficks law of diffusion

iv) Factors affecting flow of powders

v) Du Nouy method for surface tension determination.

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Seat No.	

Second Year B.Pharmacy. Examination, 2012
2.5 : PHARMACEUTICAL ANALYSIS – I
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

***Instructions** : i) **All** questions are **compulsory**.*
*ii) Neat diagram must be drawn **whenever** necessary.*
*iii) Black figures to the **right** indicate **full** marks.*

SECTION – I

Attempt **any one** : **10**

1. Explain theoretical consideration, limitations and solvents in non-aqueous titration.

   OR

   Explain instrumentation, principle and applications of conductometric titration.

2. Attempt **any five** : **(3×5=15)**
   i) What are standard solutions, how they are prepared ?
   ii) Calculate pH of solution containing 50 ml of 0.1 M CH_3COOH and 10 ml of 0.1 M NaOH.
   iii) Explain Redox curve.
   iv) Define Linear polarization, circular polarization and elliptical polarization.
   v) Write a note on circular dichroism.
   vi) Discuss on cerriometric titration.

3. Attempt **any three** : **(5×3=15)**

   Write short note on :
   i) Theories of Acid-Base Indicators
   ii) Buffer solution
   iii) Iodine titration
   iv) Instrumentation and applications of polarimeter.

P.T.O.

SECTION – II

4. Attempt **any one** : **10**

How determination of organically bound iodine and mercury is done ? Give Saccharine BP procedure.

OR

How end point is detected in complexometric titrations ? Explain types of EDTA titrations with examples.

5. Attempt **any five** : **(3×5=15)**

i) How solubility product and common ion effect affect precipitation ?

ii) How will you prepare and standardize 0.1 N $AgNO_3$ solution ?

iii) Differentiate between co-precipitation and post precipitation.

iv) Explain principle and reactions for assay of potassium chloride.

v) Discuss on measurement of potential.

vi) Give pharmaceutical applications of complexometric titration.

6. Attempt **any three** : **(5×3=15)**

Write short note on :

i) Discuss on various types of electrode, explain in detail any one.

ii) Volhard's method

iii) 't' test and F test

iv) Pharmaceutical applications of gravimetric analysis and explain in brief Kjeldah's method.

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[4155] – 301

Seat No.	

Third Year B.Pharmacy Examination, 2012
3.1 : PHARMACEUTICS – II
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

SECTION – I

1. Attempt **any one** : **10**

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

   OR

   What is preformulation ? Describe the solubility studies in preformulation.

2. Attempt **any five** (**3** marks **each**) : **15**
   a) Write a note on evaluation of flow properties of granules.
   b) Give description of uniformity of weight test for tablet IP.
   c) Give composition of film coating formula with examples.
   d) Write a note on fluid bed coater.
   e) Write a note on CF granulator.
   f) What is pKa ? Explain its role in formulation.
   g) Describe principles in hard gelatin capsule filling machines.

3. Attempt **any three** (**5** marks **each**) : **15**
   a) Write a note on Heckel plot and its utility in excipients selection.
   b) Write a note on surfactants used in shampoos.
   c) Give an account of advances in coating pan.
   d) Describe the compression cycle in tablet manufacture.
   e) Evaluation tests for coated tablets.

P.T.O.

SECTION – II

4. Attempt **any one** : **10**

Define and differentiate flocculated and deflocculated suspensions. Give an account of excipients used in suspension formulation.

OR

Give classification of ointment bases. Explain percutaneous absorption and write a note on penetration enhancers.

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

a) Considerations in choice of semisolid base.

b) Give general considerations for designing the manufacturing layout.

c) Explain formulation of cold creams.

d) Give an account of semipermanent hair colours.

e) Give classification of gels.

f) Give formulation of shaving cream.

g) Describe factors affecting permeation of medicament through skin.

6. Attempt **any three** (**5** marks **each**) : **15**

a) Preservation of semisolids

b) Give an account of excipients used in emulsion formulation

c) What are gels ? Give detailed account of gelling agents

d) Give an account of chemical depilatories

e) Describe formulation of eye shadow and eye liner.

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Seat No.	

Third Year B.Pharmacy Examination, 2012
3.6 : PHARMACOGNOSY – II
(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.*

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

4) ***All*** *questions are* ***compulsory****.*

SECTION – I

1. Solve **any one** : **10**

What are essential oil ? Explain the general methods of their isolation. Write the biological source, diagnostic characters, chemical constituents and uses of a flower bud containing volatile oil.

OR

Discuss the concept and application of tracer techniques in investigation of biosynthetic pathways.

2. Solve **any five** : **15**

i) Differentiate between Indian Senna and Alexandrian Senna.

ii) State the methods of extraction of fixed oil.

iii) How will you identify castor oil by chemical test ?

iv) How wool fat is prepared ?

v) Draw a well labeled diagram of T.S. of Cardamom fruit.

vi) Give chemical tests for the identification of aloes.

vii) Give biological source and uses of saponin glycosides.

P.T.O.

3. Write notes on (**any three**) : **15**
   i) Adultrants of caraway
   ii) Biogenesis of isoprenoids
   iii) Carnauba wax
   iv) Bitter glycoside
   v) Isothiocynate glycoside.

SECTION – II

1. Solve **any one** : **10**

   Define tannins. Describe properties, chemistry and general method of extraction of tannins. Give pharmacognostical report of catechu.

   OR

   Discuss in detail pharmacognostically the crude drug – Cannabis.

2. Solve **any five** : **15**
   i) State the chemical constituents of pyrethrum.
   ii) Differentiate between hydrolysable tannins and phlobatannins.
   iii) Draw a well labeled diagram of T.S. of Ginger rhizome.
   iv) Give biological source, chemical constituents and uses of devil's dung.
   v) State the principle of SFE.
   vi) Differentiate between Sumatra benzoin and Siam benzoin.
   vii) Describe micropropagation.

3. Write notes on (**any three**) : **15**
   i) Polyploidy
   ii) Soxhlet extraction
   iii) Shilajit
   iv) Gelatin
   v) Derris root.

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Seat No.	

Final Year B.Pharmacy Examination, 2012
4.1 : PHARMACEUTICS – III
(2008 Pattern)

Duration : 3 Hours Max. Marks : 80

Instructions : *1) Question No.* ***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.*

3) ***Neat*** *diagrams must be drawn* ***wherever*** *necessary.*

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

SECTION – I

1. Give the USP classification of glass. Describe the methods used for testing the alkalinity of parenteral glass. **10**

2. a) What factors should be taken into consideration while selecting a container-close system for an injectable formulation ? **5**

   b) Write a note on ethylene oxide sterilisation. **5**

   c) What are Total Parenteral Nutrition fluids ? **5**

3. a) Describe in brief the various types of contact lenses and lens-care solutions. **5**

   b) Describe the membrane filtration-microscopy method used for sizing and counting of particulate matter in injections. **5**

   c) Describe the Limulus Amebocyte Lysate test. **5**

4. Write notes on : **15**

   a) Buffering agents for injections

   b) HEPA filters

   c) Lyophilised injections.

P.T.O.

SECTION – II

5. Write the pharmaceutical applications of microencapsulation. Describe the air suspension technique of microencapsulation. **10**

6. a) What are the applications and benefits of optimisation in pharmaceutical product development ? **5**

   b) What is externally modulated drug delivery ? Describe the concept of any one type of externally modulated drug delivery system. **5**

   c) Write a note on liposomes and their biomedical applications. **5**

7. a) Describe the various propellants used in aerosols. **5**

   b) Describe the foam-dispensing aerosol systems. **5**

   c) What safety aspects should be considered while developing, manufacturing and using aerosol products ? **5**

8. Write notes on : **15**

   a) Subcutaneous implants

   b) Transdermal patches

   c) Intrauterine devices.

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Seat No.	

Final Year B.Pharmacy Examination, 2012
4.3 : MEDICINAL CHEMISTRY – II
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions : *1) **All** questions are **compulsory**.*
*2) Answers to the two Sections should be written on the **separate** answer books.*
*3) Draw diagram **whenever** necessary.*
*4) Figures to the **right** indicate **full** marks.*

SECTION – I

1. Write structure, chemical name, mode of action and synthesis of **10**

   a) Trimethoprim

   b) Isoniazid

OR

1. Classify antimalarials with suitable example. Write chemistry and SAR of amino quinolines. **10**

2. Solve **any five** : **15**

   1) What is drug metabolism ? Write metabolism of tolbutamide.

   2) Write minimum structural requirements of sulphonamides to show antibacterial activity.

   3) Write route of synthesis of nalidixic acid.

   4) Comment on antifungal antibiotics with benzofurancyclohexene ring system.

   5) Write SAR of emetin.

   6) Write chemistry and mode of action of amantadine.

P.T.O.

3. Solve **any three** : **15**
   1) Discuss chemistry, SAR and mode of action of quinolone antibacterials.
   2) Write about antifolates as therapeutic agents.
   3) Discuss development of antiviral agents.
   4) Write a note on QSAR.

SECTION – II

4. Discuss chemistry and SAR of tetracycline antibiotics. "Sixth hydroxyl group in tertracycline is responsible for its inactivation in acidic and basic conditions". Justify with examples. **10**

OR

4. Highlight structural features of histamine receptors and discuss H_2 receptor blockers with suitable examples. **10**

5. Solve **any five** : **15**
   1) Search route for synthesis of diclofenac.
   2) Write chemistry of antibiotic containing penam ring system.
   3) Write about structural modification required to develop penicillianse resistant penicillin.
   4) Write chemistry of macrolide antibiotics.
   5) Comment on antithyroidal agents.
   6) Highlight synthetic analogues of sex hormones.

6. Solve **any three** : **15**
   1) Write chemistry, SAR and mode of action of aminoglycoside antibiotics.
   2) Write chemical classification of nonsteroidal anti-inflammatory agents with example. Write chemistry and SAR of anti-inflammatory arylalkanoic acids.
   3) Write a note on proton pump inhibitors.
   4) Describe structural features of opioid receptors and write about development of opioid antagonists.

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Seat No.	

Fourth Year B.Pharmacy. Examination, 2012
PHARMACOGNOSY – III (Industrial)
(2004 Pattern)

Time : 3 Hours Max. Marks : 80

***Instructions** : i) Q. No. **1** and **5** are **compulsory**. Attempt **any two** questions from the remaining for Section **I** and Section **II** each.*
*ii) Figures to the **right** indicate **full** marks.*
*iii) Answers for **two** Sections should be written in **two separate** answer sheets.*

SECTION – I

1. Answer the following : **10**
   i) Write Microscopical difference between four varieties of Ephedra.
   ii) Mention the role of sodium hydroxide in extraction of Morphine.
   iii) Describe calcium oxalate crystals of Datura leaves.
   iv) Write pharmacological significance of ergot alkaloids.
   v) Enlist alkaloids present in Ashwagandha.

2. A) Draw a neat labeled diagram of T.S. of Datura leaf. Enlist important substitutes with atleast one microscopical difference for each species. **8**
   B) Describe in details the chemical relationship between Ipecac alkaloids. **7**

3. A) Explain with suitable examples importance of tissue culture techniques in producing quality crop. **8**
   B) Give an elaborate account of Antiinflammatory drugs of marine origin. **7**

4. Write notes on following (**any three**) : **15**
   i) Chemistry of alkaloids
   ii) Biotransformation
   iii) Plant Allergens
   iv) Rasna and Gokhru.

P.T.O.

SECTION – II

5. Enlist various parameters for assessment of herbal drugs as recommended by WHO. Write principle, procedure and significance of the following : **10**
   i) Determination of Bitterness value
   ii) Determination of Tannin Conent.

6. A) Describe in detail method of extraction, isolation, characterization and structural illucidation (Instrumental) of Quinine **or** Atropine. **8**
   B) Write an elaborate account on Supercritical fluid extraction. **7**

7. A) Highlight on contribution of herbal drug industries in Indian Economy with reference to various plant based industries. **8**
   B) Describe various range of herbal cosmetics. How can they be evaluated for their quality and safety ? **7**

8. Write note on the following (**any three**) : **15**
   i) Chemical profile of Cardiac glycosides
   ii) Regulatory requirement of herbal medicine
   iii) Froth floatation technique
   iv) Preliminary phytochemical screening.

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Seat No.	

Fourth Year B.Pharmacy. Examination, 2012
PHARMACEUTICAL CHEMISTRY – V (Medicinal)
(2004 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *:1) Q.* ***1*** *& Q.* ***5*** *are* ***compulsory****. Solve* ***any two*** *from remaining questions from* ***each*** *Section.*

2) Draw correct structures ***wherever*** *necessary.*

3) Figures on ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. Classify barbiturates. Explain their SAR, MOA & uses. Daw synthesis of thiopental sodium. **10**

2. a) Classify anti convulsants. Discuss general structural features of anticonvulsant drugs. Draw synthesis of phenytoin. **8**

   b) Discuss SAR & chemistry of adrenergic drugs. **7**

3. a) Classify antipsychotic agents. Add a note on butyrophenones. **5**

   b) Write a note on reversible cholinesterase inhibitors. **5**

   c) Discuss Phase II reactions with suitable examples. **5**

4. Write notes on (**any three**) : **15**

   a) MAO inhibitors

   b) Drug receptor interactions

   c) β blockers

   d) Dopamine agonists.

P.T.O.

SECTION – II

5. Classify NSAIDs giving structure of one drug from each class. Write a note on aryl propionic acid derivatives. Draw synthesis of Ibuprofen. **10**

6. a) Classify antihistaminic agents. Write SAR of H1 blockers. Draw synthesis of Chlorpheniramine. **8**

   b) What is cardiac arrhythmia ? Classify anti arrhythmic drugs. Add a note on Class I A agents. **7**

7. a) What are narcotic analgesics ? Discuss important structural features of morphine. **5**

   b) Classify local anesthetics and write a note on amide based local anesthetics. **5**

   c) Write a note on nitro vasodilators. **5**

8. Write notes on (**any three**) : **15**

   a) HMG CoA Reductase inhibitors

   b) Non steroidal estrogenic agents

   c) Proton pump inhibitors

   d) Calcium channel blockers.

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Seat No.	

First Year B.Pharmacy Examination, 2012
1.1 : PHARMACEUTICS – I
(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

1. Attempt **any one** : **10**

   Describe the concept of preformulation and formulation.

   OR

   What is unit dose packaging of pharmaceuticals ? Explain the role of packaging in pharmaceutical products.

2. Attempt **any five** : **15**
   a) Explain Ayurveda as a system of medicine.
   b) Describe mechanisms of drug absorption.
   c) Give schematic representation of development of new drug.
   d) What are the phases of Clinical Trials ?
   e) What are targeted drug delivery systems ?
   f) Give the significance of Pharmacopoeias.
   g) What are the various materials used for containers and closures ?

3. Write short notes (**any three**) : **15**
   a) Drug efficiency and dose response concept.
   b) Good manufacturing practices.
   c) Sustained Release Drug Delivery System.
   d) Routes of administration.
   e) Historical background of Pharmacy profession.

P.T.O.

SECTION – II

1. Attempt **any one** : **10**

   What are the factors affecting size reduction ? Explain the principle, construction and working of Fluid Energy Mill.

   OR

   What are the factors affecting rate of solution ? Explain the manufacturing process involved in liquid oral preparations.

2. Attempt **any five** : **15**

   a) Explain the mechanism of powder mixing.

   b) Which are the methods used to improve solubility ?

   c) Explain the manufacturing of efferrescent granules.

   d) What is the significance of impellers ?

   e) Explain various filter media.

   f) What are the techniques for size separation.

   g) Draw a neat and well labelled diagram of Leaf Filter.

3. Write short notes (**any three**) : **15**

   a) Prevention of aereation and foam

   b) Ball mill

   c) Oral Rehydration powder

   d) Pouch filling machine

   e) Planetary mixer.

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Seat No.	

First Year B.Pharmacy Examination, 2012
1.2 : MODERN DISPENSING PRACTICES
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

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

SECTION – I

1. Define prescription. Explain parts of prescription. Describe need and significance of labelling and recording of dispensed medicine with suitable examples. **10**

OR

1. Define compounding and dispensing of medication. Discuss steps involved in compounding. Give auxiliary labelling conditions for liniments and lotions. **10**

2. Explain in brief (solve **any five**) : **15**
   a) Define :
      i) Linctuses ii) Elixers iii) Gargles
   b) Give ideal properties of good suspension.
   c) Explain pharmasist consultation for OTC products.
   d) Give the Dilling's and Young's formula for dose calculation.
   e) Explain in brief Identification tests for emulsions.
   f) Describe Patient Medication record.
   g) Suspending agents in suspensions.

3. Write short notes on (**any three**) : **15**
   a) Pharmacist as a health care provider.
   b) ENT preparations.
   c) Stability of emulsions.
   d) Factors affecting dose.
   e) Prescription filling.

P.T.O.

SECTION – II

4. Describe the various types of incompatibilities. Explain therapeutic incompatibility with drug-drug and drug-food interactions. **10**

OR

4. Explain various types of suppository bases and compounding aspects of it. Add a note on displacement value. **10**

5. Solve **any five** of the following : **15**

   a) Differentiate between creams and ointments.

   b) Write a note on inhalers.

   c) Explain quality control tests for sutures.

   d) Explain labelling requirements of eye drop and instructions for patient use.

   e) Give legal requirements for establishment of drug store.

   f) Explain formulation of dusting powders.

   g) Give advantages and disadvantages of pills.

6. Write a short note on (solve **any three**) : **15**

   A) Role of Pharmacist in tuberculosis

   B) Ointment bases

   C) Sutures and ligatures

   D) Self medication

   E) Compounding and dispensing aspects for injections.

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Seat No.	

First Year B.Pharmacy Examination, 2012
1.3 : PHARMACEUTICAL INORGANIC CHEMISTRY
(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*** *answer books.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. a) Elaborate various test for purities. **5**

   b) Explain the principle involved in the limit test for Lead I.P. **5**

OR

1. What are radiopharmaceuticals ? Give the therapeutic and diagnostic applications of radioisotopes. **10**

2. Attempt **any five** of the following : **15**

   a) Elaborate buffer systems of body.

   b) Describe briefly the contents of monographs.

   c) Describe various concepts of acids and bases.

   d) Give properties, uses and storage conditions of following inorganic gases.
      i) Oxygen ii) Nitrogen iii) Nitrous oxide

   e) Enlist inorganic antioxidants. Describe any one agent in detail.

   f) Elaborate various methods to remove hardness of water.

   g) What are radio-opaque contrast medias ? Describe any one agent in detail.

P.T.O.

3. Write note on **any three** of the following : **15**
   a) Limit test for Iron as per I.P.
   b) Sources of impurity in pharmaceutical substances
   c) Different official waters
   d) Role of buffers in Pharmacy
   e) Limit test for Arsenic

SECTION – II

4. Discuss role of Iron in body. Describe briefly official preparations of Iron. **10**

OR

4. a) What are topical agents ? Enlist topical protectives and adsorbents. **5**

   b) Discuss the mechanism of action of antimicrobial agents and explain the assay of hydrogen peroxide. **5**

5. Attempt **any five** of the following : **15**
   a) Explain physiological acid – base balance.
   b) Give the properties and uses of following compounds :
      i) Mercuric oxide ii) Zinc sulphate iii) Selenium sulfide
   c) Calculate the number of mEq of NaCl in one liter of 0.6% w/v solution.
   d) Elaborate various official preparations of sodium chloride.
   e) What are expectorants ? Explain the assay of ammonium chloride.
   f) Describe any two antacids containing aluminium.
   g) Explain the role of fluorides in tooth decay.

6. Write note on **any three** of the following : **15**
   a) Antidotes
   b) Iodine and its preparations
   c) Dentifrices and desensitizing agents
   d) Electrolytes used in acid – base imbalance
   e) Gastrointestinal protectives and adsorbents.

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Seat No.	

First Year B.Pharmacy Examination, 2012
1.4 : PHARMACEUTICAL ORGANIC CHEMISTRY – I
(2008 Pattern)

Time : 3 Hours Total Marks : 80

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Answer to the ***two*** *Sections should be written in* ***separate*** *books.*
3) Black figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. What are substitution reactions ? Explain the mechanism involved in Friedel Craft acylation and sulphonation of Benzene. **10**

OR

Discuss reaction mechanism of and factors affecting SN^1 & SN^2.

2. Answer the following (**any five**) : **15**

1) Define and illustrate Resonance.

2) Compare the stability of primary, secondary and tertiary carbocations.

3) What is Inductive effect ? And explain it with suitable example.

4) Write in short about tautomerism.

5) Draw as much resonance structure as you can for following :

a) Benzaldehyde

b) Phenol

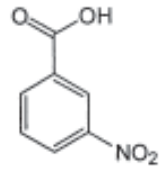
6) Explain Huckels rule for aromaticity with suitable example.

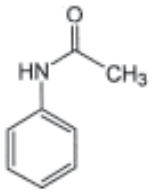
P.T.O.

7) Draw the structure of following compound :
   a) 3-oxobutanoic acid
   b) 4-Chloro-3-Nitropentanitrile
   c) 3-phenyl-2-propeonic acid

3. Answer the following (**any three**) : **15**

1) How will you synthesis following compounds from benzene.

a) 

b) 

2) What is reaction mechanism ? Enlist the types of reaction mechanism and discuss any one in brief.

3) What is Hybridization ? Explain the types with suitable example.

4) Write a note on Structural isomers.

5) What are intermolecular forces ? Discuss any two in detail.

SECTION – II

4. A) What are elimination reactions ? Discuss E_1, E_2 Mechanism. **10**

OR

A) What is nucleophillic addition reaction ? Discuss addition reactions to carbonyl group like hydride, hydrogen cyanide, alcohol addition.

5. Answer the following (**any five**) : **15**

1) Aniline is less basic than methylamine, explain.

2) Explain hydrogenation reaction with C = C bond.

3) How will you prepare ethyl benzoate ?

4) Arrange the following compounds in order of increasing reactivity.

   a) Acetic acid

   b) Acetic anhydride

   c) Acetyl chloride

5) Write any three Methods of preparation of Phenol.

6) Electrophilic substitution reaction of aromatic amines.

7) What is Saytzeff rule ? Explain.

6. Write note on (**any 3**) : **15**

1) Aldol condensation

2) Ozonolysis

3) Michael condensation

4) Cannizaro reaction

5) Preparation of amines.

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Seat No.	

First Year B.Pharmacy Examination, 2012
1.5 : HUMAN ANATOMY AND PHYSIOLOGY
(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

1. Define blood pressure and explain factors affecting B.P and add a note on renin-angiotensin system. **10**

OR

1. Define respiration. Explain in detail mechanism of breathing and exchange of gases during respiration. **10**

2. Solve **any five** : **15**

   1) Discuss hemolytic disease of newborn. **3**

   2) Explain ECG. **3**

   3) Explain internal structure of human cell. **3**

   4) Explain structure and function of lungs. **3**

   5) Explain functions of blood. **3**

   6) Draw a neat labelled diagram of interior of heart. **3**

   7) Write a note on WBCs. **3**

P.T.O.

3. Solve **any three** : **15**
   1) Explain transport of materials across plasma membrane. **5**
   2) Write a note on blood groups. **5**
   3) Explain structure and functions of stomach. **5**
   4) Explain structure and functions of lymph node. **5**
   5) Describe blood clotting mechanism. **5**

SECTION – II

4. Explain in detail female reproductive cycle. **10**

OR

4. Name various cranial nenes. Explain anatomy of spinal cord and comment on reflex arc. **10**

5. Solve **any five** : **15**
   1) Write a note on sperm. **3**
   2) Explain structure and function of cerebrum. **3**
   3) Draw a neat labelled diagram of ovary representing various stages of follicles. **3**
   4) Explain physiological role of FSH and LH. **3**
   5) Draw a neat labelled diagram of cross section of skin. **3**
   6) Explain Oogenesis. **3**
   7) Explain internal structure of kidney. **3**

6. Write short notes on **any three** : **15**
   1) Formation of urine. **5**
   2) Hormones of pituitary gland. **5**
   3) Eye. **5**
   4) Sympathetic and parasympathetic nervous system. **5**
   5) Structure and function of muscle tissue. **5**

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[4155] – 107

Seat No.	

First Year B. Pharmacy Examination, 2012
1.7 : COMPUTER APPLICATIONS AND BIOSTATISTICS
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

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

SECTION – I

1. A) What are the characteristics of measures of central tendency ? **2**

   B) Following are the marks obtained by a batch of 10 students in a certain class test.

   63, 64, 62, 32, 30, 60, 47, 46, 35, 28

   Calculate median marks. **4**

   C) Following data gives number of defectives in a lot . Prepare a discrete frequency table. 3, 2, 1, 0, 1, 1, 2, 0, 1, 4, 5, 3, 2, 1, 0, 1, 3, 4, 1, 5, 4, 3, 1, 0, 0, 0, 1, 2, 3, 1, 2, 4, 5, 0, 1, 0, 1, 0, 2, 4, 3, 5, 0, 1, 3, 2, 1, 0, 2, 2, 3, 0, 1, 3, 4, 0, 1, 3, 2, 5, 0, 1, 2. **4**

OR

1. A) Calculate Spearman's rank correlation between the following marks given by two judges in series of eight one act plays in a drama competition. **5**

Marks by judge	**A**	81	72	60	33	29	11	56	42
Marks by judge	**B**	75	56	42	15	30	20	60	80

   B) For a certain X and Y series which are co-related two lines of regression are $5x-6y+90=0$ and $15x-18y-130=0$. Find which is that of Y on X and which is that of X on Y ? **5**

P.T.O.

2. a) Find coefficient of variation for the following grouped data. **5**

Class limits	0-50	50-100	100-150	150-200	200-250	250-300
Frequency	7	16	23	14	8	2

b) Find mean and mode : **6**

Classes	0-25	25-40	40-55	55-70	70-85	85-100
No. of Students	6	50	44	26	3	1

c) What are the types of variables ? How data is collected in statistics ? **4**

3. a) A bag contains 6 red and 8 black balls. If two balls are drawn at random one by one. Find probability of getting
   i) both the balls of different colours
   ii) both the balls of same colur. **6**

b) Explain experimental designs. **4**

c) Compute correlation coefficient between supply and price of commodity using following data. **5**

Supply	152	158	169	182	160	166	182
Price	198	178	167	152	180	170	162

SECTION – II

4. a) Define a computer. Explain any four features of a computer with examples. **5**

b) Explain any one input device. **2**

c) Explain the following : **(1×3=3)**
   i) Wall paper
   ii) GUI
   iii) Desktop ions. **(5+2+3=10)**

OR

4. a) Explain different types of software. **5**

   b) Explain working of Dot matrix printer. **5**

   (5+5+10)

5. a) Convert the following :
      i) (1111) Binary into decimal
      ii) (86) Decimal to Binary. **(3×2=6)**

   b) Explain multitasking ability of windows. **4**

   c) Write short note on use of computer in pharmaceutical application. **5**

   (6+4+5=15)

6. a) State the steps in excel to copy the contents of one cell to another cell. **5**

   b) Write a note on (**any two**) : **10**
      i) Keyboard
      ii) Hard disk
      iii) Low level language. **(5+10=15)**

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Seat No.	

[4155] – 108

First Year B.Pharmacy Examination, 2012
1.6 : PHARMACOGNOSY – I
(2004 Pattern)

Time : 3 Hours Total Marks : 80

Instructions *:1) Question No.**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 **wherever** necessary.*
*4) Black figures to the **right** indicate **full** marks.*

SECTION – I

1. Comment on following (**any five**) : **10**
   a) Galen and his contribution
   b) Analecta pharmacognostica
   c) Panchakarma therapy
   d) Plant cell wall and its components
   e) Endodermis and cork tissue
   f) Diagnosis according to Siddha system.

2. A) Explain botanical system of classification with a detail account of Benthem and Hooker system of classification. **7**

   B) Describe in detail theory or basic principles of Homoeopathic system of medicine with a detail note on diagnosis, treatment and medicines according to homoeopathy system. **8**

3. A) Define Bhasma. Give general method of preparation of bhasma, characteristics and preservation of bhasma with example. **7**

   B) State importance of drying procedure for crude drug. Explain various methods and factors affecting drying of crude drug with the merits and demerits of each method. **8**

P.T.O.

4. Write a note on (**any three**) : **15**
   a) Vascular tissue system of plant
   b) Churna
   c) Anatomy of Bark
   d) Stomata.

SECTION – II

5. State the significance of following in evaluation of crude drugs. **10**
   a) Ash values
   b) Foreign inorganic matter
   c) Palisade ratio
   d) Karl Fischer method.

6. A) Define adulteration. Explain in detail the various techniques of detection of adulteration and substitution. **7**
   B) Define carbohydrate. Explain in detail the classification and chemistry of carbohydrates. **8**

7. A) Describe in detail biological source, method of preparation and characteristics of wheat starch. **7**
   B) Describe in detail biological source, method of collection and characteristics of Tragacanth. **8**

8. Write a note on (**any three**) : **15**
   a) Sorbitol as a sweetener
   b) Carrageenan
   c) Agar
   d) Mucilage.

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[4155] – 202

Seat No.	

Second Year B.Pharmacy Examination, 2012
2.2 : PHARMACEUTICAL MICROBIOLOGY AND IMMUNOLOGY
(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.*
*3) Black figures to the **right** indicate **full** marks.*
*4) **All** questions are **compulsory**.*

SECTION – I

1. Draw and describe in brief typical structure of bacteria and give the functions of each part. **10**

OR

1. Describe in detail cultivation and multiplication of human viruses. **10**

2. Answer the following (**any five**) : **15**

a) Explain the basis of five Kingdom classification scheme according to Whittaker.

b) Write about disease causing Rickettsia.

c) Explain the principle of phase contrast microscopy.

d) Write the contributions of Louis Pasteur to Microbiology.

e) Explain the importance of Fungi.

f) How will you detect presence of salmonella in pharmaceuticals ?

g) What is Dermatophytes ? Explain.

P.T.O.

3. Write a note on (**any three**) : **15**
   a) Factors affecting microbial spoilage of pharmaceutical products.
   b) Culture media for bacteria
   c) Actinomycetes
   d) Identification of bacteria
   e) Compound microscope.

SECTION – II

4. What are different methods used for evaluation of disinfectants ? Explain 'phenol coefficient test'. **10**

OR

4. Define 'Immunoglobulin'. Describe in detail different types of Immunoglobulins. **10**

5. Answer the following (**any five**) : **15**
   a) Differentiate between Endotoxins and Exotoxins.
   b) Write the applications of monoclonal antibody.
   c) What is allergic extracts ? Explain.
   d) Write in short different biological effects of complement.
   e) How will you perform sterility test of preparation containing antimicrobial agents ?
   f) Comment 'Moist heat sterilization is more superior than dry heat sterilization'.
   g) Write advantages and disadvantages of microbial assays.

6. Write a note on (**any three**) : **15**
   a) MIC
   b) ELISA
   c) DPT
   d) HEPA
   e) Type–III hypersensitivity.

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[4155] – 203

Seat No.	

Second Year B.Pharmacy Examination, 2012
2.3 : PHARMACEUTICAL BIOCHEMISTRY (Including Clinical Biochemistry)
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Note : *1)* ***All*** *questions are* ***compulsory****.*
2) ***Draw*** *well labeled diagram* ***wherever*** *necessary.*
3) Answers to the ***two*** *Sections should be written in* ***separate*** *books.*
4) Figures to ***right*** *indicates* ***full*** *marks.*

SECTION – I

I. a) Write down pathways involved, chemical structures and energetic of glucose metabolism. **10**

OR

a) Explain citric acid cycle in detail. Why it is amphibolic in nature.

II. Solve **any five** from the following : **15**

a) Competitive enzyme inhibition.

b) Functions of lipids.

c) α-Helical structure of protein.

d) Difference in eukaryotic and prokaryotic cells.

e) Isoelectric pH.

f) Define polysaccharide and explain starch.

III. Solve **any three** from the following : **15**

a) Biosynthesis of Cholesterol.

b) Therapeutic uses of enzymes.

c) Write in detail about purine metabolism.

d) Describe cell organelles with their roles.

P.T.O.

SECTION – II

IV. a) Describe process of transcription and translation in detail. **10**

OR

a) Define and classify vitamins. Write in detail about structure, functions and physiological role of vitamin B_1.

V. Solve **any five** from the following : **15**

a) Explain concept of balanced diet.

b) What are Marker enzymes ? Give their applications ?

c) Give applications of ELISA.

d) Functions of glucoronic acid.

e) Genetic code and its characteristics.

f) Active and passive transport.

VI. Solve **any three** from the following : **15**

a) Liver function test.

b) Renal mechanism of acid base balance.

c) Homeostasis of blood.

d) Genetic disorders of carbohydrate metabolism.

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Seat No.	

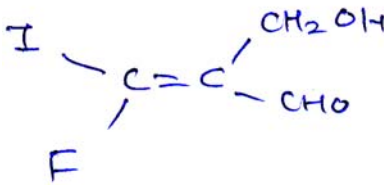
Second Year B.Pharmacy Examination, 2012
2.4 : PHARMACEUTICAL ORGANIC CHEMISTRY – II
(2008 Pattern)

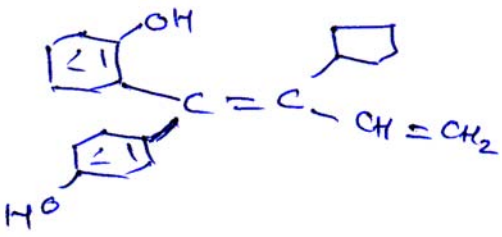
Time : 3 Hours Max. Marks : 80

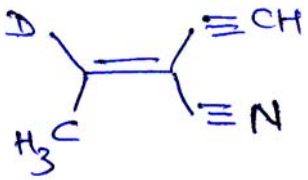
Instructions : *1) Answers to the **two** Sections should be written in **separate** books.*
*2) Black figures to the **right** indicate **full** marks.*
*3) **All** questions are **compulsory**.*

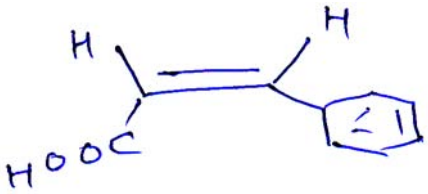
SECTION – I

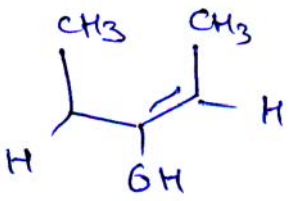
1. a) Assign E and Z configuration to following : **5**

i) 

ii) 

iii) 

iv) 

v) 

b) Write in brief about Killiani - Fischer Synthesis and Ruff Degradation. **5**

OR

1. a) What is racemic modification ? Enlist the different methods of resolution of racemic mixture. Discuss in brief about diastereomer formation method. **5**

   b) Write a short note on deconvolution method in combinatorial chemistry. **5**

2. Answer the following (**any five**) : **15**

   a) Explain mutarotation of glucose.

   b) Explain atropisomerism in ortho substituted biphenyls.

   c) Define enantiomerism. Give its pharmaceutical significance.

   d) Write a short note on Strecker's synthesis.

   e) What is the reaction of glucose with

      i) Nitric acid ?

      ii) Bromine water ?

      iii) Sodium bromohydrate ?

   f) Define configuration, conformation, Racemic mixture. Give example of each.

   g) Explain how peptides are formed from amino acids.

3. Answer the following (**any three**) : **15**

   a) Assign (R) and (S) configuration of the chiral centres of all four stereo isomers of 3-phenyl 2-butanol.

   b) Write a short note on combinatorial chemistry.

   c) How will you distinguish between glucose and fructose, glucose and sucrose ?

   d) Write a short note on conformations of monoalkyl and dialkyl cyclohexanes.

   e) What are amino acids ? Discuss any three methods of synthesis of amino acids.

SECTION – II

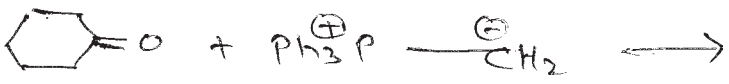
4. a) Give the method of synthesis and reactions of Thiazole. **5**

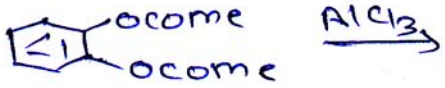
   b) Discuss the Fischer indole synthesis and Skraup quinoline synthesis method . **5**

OR

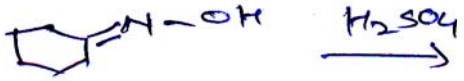
4. a) Predict the product of the following reactions : **5**

   i) $CH_3CH(OH)COOH \xrightarrow[HNO_2]{C_2H_5OH,\ H^+,\ NH_2\text{-}NH_2}$

   ii) 

   iii) 

   iv) $CH_3COOH + NH_3 \xrightarrow{H_2SO_4}$

   v) 

   b) What is retrosynthesis ? Give the retrosynthesis route of propranolol. **5**

5. Answer the following (**any five**) : **15**

   a) Give the mechanism of Favoroski rearrangement with suitable example.

   b) How Curtius rearrangement help to synthesise azide ? Explain with suitable example.

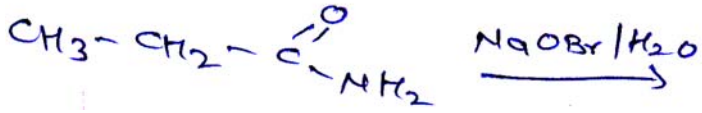
   c) Give the structure and numbering of

      i) Benzylthiazole

      ii) Hydantoin

      iii) Pyrazole.

d) Complete the following reaction.



e) Give the reaction and mechanism of synthesis of isoquinolone.

f) Explain stereochemistry of pinacol pina colone rearrangement reaction.

g) Explain FGI in synthon approach with suitable example.

6. Write a short note on (**any three**) : **15**

a) Cope rearrangement.

b) Hoffman rearrangement.

c) Wilgerodt rearrangement.

d) Losan rearrangement.

e) Bayer - Villiger rearrangement.

Seat No.	

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S.Y.B.Pharm. Examination, 2012
2.6 : PHARMACOGNOSY – I
(2008 Pattern)

Time : 3 Hours Total Marks : 80

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

SECTION – I

1. Define pharmacognosy. Explain the role of various scientists in the development of pharmacognosy. Elaborate the scope and importance of pharmacognosy in the field of pharmacy. **10**

OR

1. Describe in detail morphological and microscopical characterization of leaves with a detail account of stomata. **10**

2. Answer the following (**any five**) : **15**

a) Enlist various methods of cultivation and explain their importance for production of natural products.

b) Define adulteration. Enlist various methods of adulteration with suitable examples.

c) Explain in brief ergastic cell contents and secretary tissue.

d) Explain in brief Banthum and Hooker system of classification.

e) Explain in brief preliminary phytochemical investigation of crude drug.

f) Explain the role of solubility, optical rotation and refractive index in quality control of crude drugs.

g) Explain in brief about the cork tissue morphology.

P.T.O.

3. Write short note on (**any three**) : **15**
   a) Loss on drying
   b) Crude fiber determination
   c) Ash value
   d) Epidermal trichomes
   e) Pest and pest control.

SECTION – II

4. Describe in detail biological sources, method of preparation of wood cellulose. Explain different derivatives of cellulose with their uses. **10**

OR

4. Describe in detail biological source, method of preparation, characteristics and uses of wheat starch. **10**

5. Answer the following (**any five**) : **15**
   a) Explain primary metabolites and secondary metabolites with suitable examples.
   b) Differentiate organised drugs and unorganised drugs.
   c) Explain in brief spirulina as a Herbal dietary supplement.
   d) Explain in brief honey as a natural sweetner.
   e) Write biological source, chemical composition and uses of alginate.
   f) Write biological source, chemical composition and uses of carrageneenan.
   g) Write biological source, chemical composition and identification test for agar.

6. Write short note on (**any three**) : **15**
   a) Continuous hot extraction
   b) Cotton as a natural fiber
   c) Inulin
   d) Locust bean gum
   e) Types of extract.

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[4155] – 207

Seat No.	

Second Year B.Pharmacy Examination, 2012
2.7 : PHARMACOLOGY – I (Including Pathophysiology)
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

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

SECTION – I

1. Discuss the different types of receptors with special emphasis on G-protein coupled receptors. **10**

OR

1. Discuss in detail the process which determines the renal excretion of drugs. Discuss the factors affecting the renal excretion of drugs.

2. Solve **any five** of the following : **15**

i) Discuss the types of gene therapy.

ii) Write the therapeutic uses and adverse drug reaction of H_1 receptor antagonists.

iii) Explain the term clinical pharmacokinetics.

iv) Classify anticoagulants with examples.

v) Explain how tissue storage affects drug distribution.

vi) Explain how pH of gastro intestinal tract affects absorption of drugs.

vii) Explain the term therapeutic index.

viii) Explain synergism and additive effect with examples.

3. Write a note on the following (**any three)** : **15**
   i) Parenteral route of drug administration.
   ii) Specialized transport.
   iii) Brain and CSF barrier.
   iv) Non synthetic reactions involved in biotransformation of drugs.
   v) Pathological states modifying drug action.

SECTION – II

4. Define and classify leprosy. Discuss in detail pathophisiology of leprosy. **10**

OR

4. Discuss the etiology, pathogenesis and clinical aspects of cancer. Add a note on carcinogens.

5. Solve **any five** of the following : **15**
   i) Discuss the etiology and clinical manifestations of amoebic dysentery.
   ii) Write the types and causes of tuberculosis.
   iii) Discuss the types of heart failure.
   iv) Discuss the pathophisiology of allergy.
   v) Write the complications of acute peptic ulcer.
   vi) Discuss the etiology and clinical features of epilepsy.
   vii) Write the clinical features of Chronic Obstructive Airway Disease.

6. Write a note on the following (**any three)** : **15**
   i) Pathophisiology of essential hypertension.
   ii) Types and late systemic complications of diabetes mellitus.
   iii) Pathophisiology of depression.
   iv) Pathophisiology of chronic renal failure.
   v) Acute inflammation.

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[4155] – 208

Seat No.	

Second Year B.Pharmacy Examination, 2012
PHARMACEUTICAL ENGINEERING
(2004 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions : *1) Q.No. **1** and **5** are **compulsory**, out of the remaining attempt **2** questions from Section – **I** and **2** questions from Section – **II**.*
*2) Answer 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

1. Explain the principles of air conditioning and refrigeration. Give applications of environmental control in pharmaceutical industry. **10**

2. a) Explain the heat transfer between fluid and solid boundary. **5**

   b) Give the reasons for caking of crystals; also suggest suitable measures to prevent caking of crystals. **5**

   c) Explain the construction and working of Circulation magma crystallizer. **5**

3. a) Explain the theories of supersaturation and crystal growth. **8**

   b) Explain the principle, construction and working of multiple effect evaporator. **7**

4. Write short notes on following (**any three**) : **15**

   a) Plate heat exchanger

   b) Mechanical steam trap

   c) Pool Boiling

   d) Water deionization.

P.T.O.

SECTION – II

5. Explain the different factors affecting drying of solids, also explain the behavior of solid during drying. **10**

6. Answer the following (**any five**) :

   a) Explain the Poiseulli's approach of Fluid flow. **5**

   b) Explain the principle and working of Basket extractor. **5**

   c) Explain the Construction and working of Tray dryer. **5**

7. a) Explain the importance of boiling point diagram and equilibrium curve in distillation, also explain the molecular distillation. **10**

   b) What is corrosion ? Explain galvanic corrosion. **5**

8. Write short notes on following : **15**

   a) Stainless steel

   b) Orifice meter

   c) Molecular diffusion

   d) Triangular diagram.

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[4155] – 302

Seat No.	

Third Year B.Pharmacy Examination, 2012
3.2 : PHARMACEUTICAL BIOTECHNOLOGY
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Question No.* ***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* ***wherever*** *necessary.*

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

SECTION – I

1. Elaborate on principle of recombinant DNA technology. Write about various vectors used in R-DNA technology. **10**

2. a) What is Southern blotting and Northern blotting ? Give details of their method of southern blotting and application. **8**

   b) What are different types of plant tissue cultures ? Elaborate on method and application of callus culture. **7**

3. a) Compare the characteristics of primary cell lines and established cell lines with examples. **8**

   b) Give details of the technique and applications of PCR. **7**

4. Write short notes on **any 3** : **15**

   a) Secondary metabolites production

   b) RFLP

   c) Anther culture

   d) Advantages and disadvantages of serum in animal cell culture media.

P.T.O.

SECTION – II

5. What is hybridoma technology ? Give the role of HAT medium in monoclonal antibody production. **10**

6. a) What are various techniques used in separation of product from fermentation broth ? **8**

   b) Give details of the fermentation and down stream processing of penicillin. **7**

7. a) What is cell immobilisation ? Brief about on various enzyme immobilization techniques, and their applications. **8**

   b) What are the advantages of recombinant Insulin ? Give details of its production. Write brief about second and third generation insulin. **7**

8. Write short notes on **any 3** : **15**

   a) Artificial insemination

   b) ELISA

   c) Invitro fertilization

   d) Ethical issued arising out of biotechnological products.

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[4155] – 303

Seat No.	

Third Year B.Pharmacy Examination, 2012
3.3 : MEDICINAL CHEMISTRY – I
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

***Note** : 1) **All** questions are **compulsory**.*

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

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

*4) Correct structure and **neat** diagrams must be **drawn wherever** necessary.*

SECTION – I

1. Solve **any one** :

   I) Classify diuretics. Give the MOA and SAR of Thiazide diuretics. **10**

   II) Classify antiarrhythmic agents. Explain MOA of each class. Give an account of Class IA drugs. **10**

2. Attempt **any five** of the following : **15**

   a) Draw synthesis of Propranolol.

   b) Classify CNS stimulants. Describe the chemistry, SAR and MOA of any one class with suitable examples.

   c) Draw synthesis of Bemegride.

   d) Explain chemistry of Beta blocker.

   e) Discuss drugs used in Hypertension.

   f) Write different types of receptor.

   g) Give an account of drugs affecting storage and release of catecholamines.

P.T.O.

3. Write notes on **(any three)** : **15**
   a) Local anaesthetic agents.
   b) Nicotinic receptors.
   c) Tricyclic antidepressants.
   d) Anticholinesterase.
   e) Draw Synthesis of Diazepam and Chlorpromazine.

SECTION – II

4. Classify Sedative and Hypnotics. Give MOA, SAR of Barbiturates. **10**

OR

4. Classify Psychotherapeutic drugs. What structural features are required in Phenothiazine tranquilizer. **10**

5. Attempt **any five** of the following : **15**
   a) Discuss SAR of Sympathomimetics.
   b) Classify the antihistaminics agents according to chemical structures.
   c) Explain the functioning of Renin Angiotensin- Aldosteron system.
   d) Outline Synthesis of lignocaine.
   e) Explain Chemistry of Cardiac glycosides.
   f) Explain in detail MAO inhibitors.
   g) Write about inducers of drug metabolism.

6. Write notes on **(any three)** : test for one-sided alternative. **15**
   a) Anxiolytic agents.
   b) General Anaesthetics.
   c) Receptor site theories.
   d) Design and development of drug.
   e) Draw Synthesis of Hydralzine HCL and Ethosuximide.

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Seat No.	

[4155] – 304

Third Year B.Pharmacy Examination, 2012
3.4 : PHARMACEUTICAL ANALYSIS – II
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

***Instructions** : 1) Answers to the **two** Sections should be written in **separate** answer books.*
*2) **Neat** diagram must be drawn **wherever** necessary.*
*3) Black figures to the **right** indicate **full** marks.*

SECTION – I

1. State Beer-Lamberts law and derive an equation for it. Explain the deviations leading from it. **10**

OR

Discuss the different types of interferences encountered in AAS and the ways to minimize them. **10**

2. Attempt **any five** questions : **15**

a) Explain in the principle involved in Nephelometry and Turbidometry.

b) What is half wave potential ? Give its significance.

c) Draw a neat diagram of double beam UV-vis spectrophotometer and explain the functioning of each part.

d) Explain how chromatography is superior separation technique.

e) Describe the instrumentation and applications of potentiostatic coulometry.

f) Explain the principle and methodology of paper chromatography.

g) Explain specific refraction and molar refraction.

P.T.O.

3. Write a note on **any three** : **15**
   a) Adsorbants used in TLC
   b) Merits and demerits of instrumental analysis
   c) Heat flux DSC
   d) Applications of fluorimetry
   e) Amperometric titrations.

SECTION – II

4. What are different methods of thermal analysis ? Describe the principle, instrumentation and applications of differential thermal analysis. **10**

   OR

   Give the ideal requirements of detector. Discuss in brief about various detectors used in UV-visspectrophotometry. **10**

5. Attempt **any five** questions : **15**
   a) Write the salient features of polarograph.
   b) Note on monochromators.
   c) Discuss in detail the various types of transitions involved in UV-V is spectrophotometry.
   d) Write a note on Line broadening and Doppler effect.
   e) Describe the various optimum conditions for spectrophotometric measurements.
   f) Explain the construction and working of Abbes refractometer.
   g) Write note on partition paper chromatography.

6. Write a note on **any three** : **15**
   a) First and second order derivative spectrophotometry.
   b) Electromagnetic spectrum
   c) Applications of refractometry
   d) Phosphorimetry
   e) Background correction methods in AAS.

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Seat No.	

Third Year B.Pharmacy Examination, 2012
3.5 : PHARMACOLOGY – II
(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.*
*3) Black figures to the **right** indicate **full** marks.*
*4) **All** questions are **compulsory**.*

SECTION – I

1. What is the mechanism of action, the pharmacological actions, adverse effects and therapeutic uses of Acetylcholine ? **10**

OR

What is the mechanism of action, the pharmacological actions, adverse effects and therapeutic uses of Phenytoin ? **10**

2. Answer **any five** :

a) Classify neuromuscular blockers. **3**

b) What is cheese reaction ? **3**

c) Explain the biosynthesis of adrenaline. **3**

d) What are the therapeutic uses of anticholinestrases ? **3**

e) Explain the mechanism of action of benzodiazepines. **3**

f) What are the therapeutic uses of β blockers ? **3**

g) Write a brief note on COX 2 inhibitors. **3**

P.T.O.

3. Write short notes on **any three** :
   a) Stages of general anesthesia. **5**
   b) Treatment of oragnophosporus compound poisoning. **5**
   c) CNS stimulants. **5**
   d) Levodopa. **5**
   e) Chronic alcoholism. **5**

SECTION – II

4. What is the mechanism of action, the pharmacological actions, adverse effects and therapeutic uses of biguanides ? **10**

   OR

   Explain the pharmacotherapy of gout. **10**

5. Answer **any five** :
   a) What are the adverse effects of corticosteroids ? **3**
   b) Classify anti-thyroid drugs. **3**
   c) What is the mechanism of action of insulin ? **3**
   d) Write a brief note on non-systemic antacids. **3**
   e) Explain the role of β_2 agonists in treatment of asthma. **3**
   f) What are the therapeutic uses of growth hormone ? **3**
   g) Classify drugs used in the treatment of peptic ulcer. **3**

6. Write short notes on **any three** :
   a) Pharmacotherapy of Cough. **5**
   b) Local anesthetics. **5**
   c) Testosterone. **5**
   d) Insulin resistance. **5**
   e) Oral contraceptives. **5**

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[4155] – 307

Seat No.	

Third Year B.Pharmacy Examination, 2012
3.7 : PHARMACEUTICAL BUSINESS MANAGEMENT
(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

1. Attempt **any one** : **10**

Give detail account on historical perspective of pharmaceutical industry in India, its current status and growth scenario.

OR

Highlight on R and D in Pharma industry, with Drug Discovery and Drug Development Process.

2. Attempt **any five** : **15**

a) Importance and function of QA and QC

b) Causes of Industrial disputes

c) Decision making process

d) Management thoughts

e) Sales forecasting methods

f) Line and Staff organization

g) Management audit

h) PERT

P.T.O.

3. Write short notes (**any three**) : **15**
   a) Management audit
   b) Inventory control
   c) Trade unions
   d) Break even analysis.

SECTION – II

4. Attempt **any one** : **10**

   Give detail different theories of motivation.

   OR

   Highlight on importance and functions of communication; explain the process of communication.

5. Solve **any five** : **15**
   a) Regulatory agencies
   b) Group discussion
   c) Channels of distribution
   d) Managerial grid
   e) Types of price
   f) Product life cycle
   g) Advertising
   h) Performance appraisal

6. Write short notes (**any three**) : **15**
   a) Leadership styles
   b) Hertzberg's theory
   c) Factors affecting price
   d) Marketing research.

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[4155] – 402

Seat No.	

Final year B.Pharmacy Examination, 2012
4.2 : PHARMACEUTICS – V
(Biopharmaceutics and Pharmacokinetics)
(2008 Pattern)

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 **wherever** necessary.*

SECTION – I

1. Explain various pharmaceutical factors affecting drug absorption. **10**

2. Describe in detail factors influencing protein binding of drug. Give significance of binding of drug. **15**

3. What is biotransformation ? Explain the process of biotransformation and give factors affecting biotransformation. **15**

4. Write short note on : **15**
   1) First pass effect.
   2) Permeability limited drug distribution
   3) Prodrug.

SECTION – II

5. Describe in detail study parameters used for Bioavailability / Bioequivalence studies. **10**

6. Explain one compartmental open model for IV bolus drug administration. Add a note on Non-compartmental analysis of drug. **15**

7. What are pharmacokinetic models ? Give the types and significance of pharmacokinetic models. **15**

8. Write short note on: **15**
   1) Plasma concentration time curve.
   2) Biopharmaceutical classification system.
   3) Invitro-invivo correlation.

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Seat No.	

Final Year B.Pharmacy Examination, 2012
4.4: PHARMACEUTICAL ANALYSIS – III
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

N.B. : *1) Write answer to Section **I** and Section **II** in **separate** answer book.*
*2) Q. No. **1** and Q. No. **5** are **compulsory**.*
*3) Write **two** questions from Section **I** and two questions from Section **II** from the remaining.*

SECTION – I

1. Answer **any five** (**two** marks each) : **10**

   1) Give the major Mass fragments for each of the following
      1) Toluene
      2) Phenyl acetic acid.

   2) What are the important characteristic of adsorbent used in GC ?

   3) What is the principle of fluorimetric detection in HPLC ?

   4) n-Butane shows splitting of signals in its NMR spectrum.

   5) What is the function of detector in infrared spectroscopy ?

   6) Why ^{12}C, ^{16}O, ^{18}O, ^{32}S do not show NMR spectra ?

2. A) Define chemical shift and explain shielding and deshielding of protons. **10**

   B) Explain the Principle and Instrumentation Mass spectrometer. **5**

3. A) What is resolution in Mass spectroscopy ? **5**

   B) Identify the major mass fragments for the following **10**
      1) Toluene
      2) Phenylacetic acid
      3) Triethyl amine.

P.T.O.

4. Write notes on : **15**

   1) Supercritical fluid extraction

   2) Merits and demerits of HPLC

   3) Van Deemter equation

   4) Capillary electrophoresis

SECTION – II

5. Explain principle, instrumentation and application in atomic emission spectroscopy. **10**

6. A) Explain the theory of Nuclear Magnetic Resonance spectroscopy. **10**

   B) How will you differentiate Ethyl acetate and Methyl acetate by NMR ? **5**

7. A) Explain the principle and working of the IR spectrometer. **10**

   B) How will you differentiate the following by IR spectra **5**
      a) Benzaldehyde and Acetone
      b) Acetonitrile and Acetic anhydride
      c) Salicylic acid and p-hydroxyl benzoic acid
      d) Cinnamic acid and benzoic acid.

8. Write notes on **any three**. **15**

   1) Fash chromatography

   2) HETP

   3) Spin-Spin coupling

   4) Validation of analytical methods as per ICH guidlines.

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Seat No.	

Final Year B.Pharmacy Examination, 2012
4.5 : PHARMACOLOGY – III
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

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

SECTION – I

1. Define cardiac arrhythmia. Discuss mechanism of action, pharmacological actions, therapeutic uses and adverse effects of class II antiarrhythmic agents. **10**

OR

1. Classify antineoplastic agents. Explain in detail anti-metabolites with respect to mode of action, therapeutic uses and adverse effects. **10**

2. Solve **any five** : **15**

   a) Discuss mechanisms of drug resistance. **3**

   b) Explain in detail mode of action of fluoroquinolones. **3**

   c) Classify anthelmintic agents. Explain mode of action and adverse effects of mebendazole. **3**

   d) Justify use of organic nitrates in anigina pectoris. **3**

   e) Explain mode of action and adverse effects of loop diuretics. **3**

   f) Classify poisons with examples. **3**

   g) Explain mode of action, therapeutic uses and adverse effects of streptomycin. **3**

P.T.O.

3. Write short notes on **any three** : **15**
   a) Snake Venom poisoning. **5**
   b) Potassium sparing diuretics. **5**
   c) Sulphonamides. **5**
   d) Centrally acting antihypertensives. **5**
   e) Nucleoside reverse transcriptase inhibitors. **5**

SECTION – II

4. What are different drug distribution systems in hospital ? Discuss their advantages and disadvantages. **10**

OR

4. What do you mean by clinical research ? Explain in detail various phases of clinical trials. **10**

5. Solve **any five** : **15**
   a) Discuss special considerations in informed consent. **3**
   b) Discuss contents of hospital formulary. **3**
   c) Discuss reasons for patient noncompliance. **3**
   d) What is composition and responsibilities of institutional review board ? **3**
   e) Discuss unit dose distribution system. **3**
   f) What are role and responsibilities of hospital pharmacist ?
   g) Define and classify adverse drug reactions. **3**

6. Write short notes on **any three** : **15**
   a) Patient counseling **5**
   b) Pharmacodynamic Drug interactions. **5**
   c) Therapeutic drug monitoring. **5**
   d) Essential medicine list. **5**
   e) Pharmacy and Therapeutic Committee. **5**

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Seat No.	

Final Year B.Pharmacy Examination, 2012
4.6 : PHARMACOGNOSY – III
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1)* ***All*** *questions are* ***compulsory****.*
2) Answer 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

1. Solve **any one** : **10**

Describe the ring system for tropane alkaloids. Give chemical accounts for two drugs containing tropane alkaloids.

OR

Give classification and general biosynthetic pathway for flavonoids with examples. Write short note on Blackcurrant.

2. Solve **any three** : **15**
   i) Write in detail cultivation and collection of Ergot.
   ii) Write chemical tests for any two drugs :
      1) Datura,
      2) Rauwolfia,
      3) Ergot.
   iii) Draw neat labeled diagram of T.S. of Ephedra and explain how microscopical features can differentiate different varieties of Ephedra.
   iv) Write substitutes of Rauwolfia serpentina.

3. Write notes on **any three** : **15**
   i) Buckwheat
   ii) Plant Allergens
   iii) Cardiovascular agents of marine source
   iv) Madhunashini and Gulvel.

P.T.O.

SECTION – II

4. Solve **any one** : **10**

What are the parameters recommended by WHO for Q.C. of herbal drugs ? Elaborate on pesticide residue and determination of moisture content.

OR

What is phytochemical investigation of a crude drug ? Explain with special reference to preliminary phytochemical screening and chemical tests to detect it.

5. Solve **any three** : **15**
   i) Define herbal drug interaction and explain digitalis drug interaction.
   ii) What is the method of preparation of Bhasma ? Enlist its evaluation parameters and marketed preparations.
   iii) Write extraction process of caffeine and general characterization of caffeine.
   iv) Describe structural elucidation of Morphine.

6. Write notes on **any three** : **15**
   i) Herbal hair care products
   ii) Asava and Arishta
   iii) Extraction of Eugenol
   iv) Extraction of curcumin and its TLC.

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Seat No.	

Final Year B.Pharmacy Examination, 2012
4.7 : PHARMACEUTICAL JURISPRUDENCE
(2008 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions : *1) Question Nos.* ***1*** *and* ***5*** *are* ***compulsory****.*
2) Out of remaining solve ***2*** *questions from Section* ***I*** *and* ***2*** *questions from Section* ***II****.*

SECTION – I

1. Write functions and constitution of DTAB, CDL under D and C Act 1940. **10**

OR

Write objective of Pharmacy Act. Discuss the details. Duties and qualification of Drug Inspector.

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

a) Write formula for calculation of retail price of drug.

b) Write functions of PCI.

c) What are objectives of Drug and Magic Remedies Act ?

d) Enlist advertisement prohibited by Act.

e) What are consumer disputes redressal agencies ?

f) Write in brief importance of education regulation.

g) What are Schedule M, J and Y ?

3. Attempt **any three** (**each 5** marks) : **15**

a) Write GMP requirements for production and quality assurance.

b) What are conditions for license for manufacturing of drugs other than Schedule X ?

P.T.O.

c) Define illicit traffic. What are operations controlled by government under Narcotic Drugs and Psychotropic Substance Act.

d) Write short note on Industrial Development and Regulation Act 1951.

e) Write brief account of Food Adulteration Act.

SECTION – II

4. Write importance, types, criteria of Patents. **10**

OR

Elaborate Trade mark, copyright and industrial design with respect to Pharmaceutical Industry under IPR.

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

a) Explain latest amendments in Patent Act 1970.

b) What is term of patent ?

c) What are documents required for patent filling ?

d) What is Hatch Waxman Act ?

e) What is Exclusive Marketing Right ?

f) Write provisions of compulsory license.

g) Enlist criteria for Opposition to Grant of Patent.

6. Attempt **any three** (**each 5** marks) : **15**

a) Explain patent grant procedure in India.

b) What are IND, ANDA and SNDA ?

c) Write significance and contents of NDA.

d) Write short note on FDA.

e) Write brief account of WHO.

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Seat No.	

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Fourth Year B.Pharmacy Examination, 2012
PHARMACOLOGY – III (Including Clinical)
(2004 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *:1) Question No.* ***1*** *and* ***5*** *are* ***compulsory****. Out of the* ***remaining*** *attempt* ***any two*** *questions from Section* ***I*** *and* ***two*** *questions from Section* ***II****.*

2) Answer to the ***two*** *Sections should be written in* ***separate*** *book.*

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

SECTION – I

1. Explain the pharmacological actions, mechanism of action, adverse effects and therapeutic uses of digitalis glycosides. **10**

2. a) Classify diuretics. Explain the pharmacology of high ceiling diuretics. **8**

   b) Write an elaborate note on ACEI. **7**

3. a) Classify anticancer drugs. Explain the pharmacological actions, mechanism of action, adverse effects and therapeutic uses of methotrexate. **8**

   b) Classify the drugs used in the treatment of tuberculosis. Explain the pharmacological actions, mechanism of action, adverse effects and therapeutic uses of isoniazide. **7**

4. Write short notes on (**any three**) : **15**

   a) Co-triamoxazole

   b) Bacterial resistance

   c) Anthelmentics

   d) Antiemetics.

P.T.O.

SECTION – II

5. Define Bioassay. Explain the indications and principles of bioassay. Explain the methods for bioassay of insulin. **10**

6. Explain the various types of adverse drug reactions with their mechanism of action. Write an elaborate note on drug allergy. **15**

7. Explain the general treatment of poisoning. Write an elaborate note on the treatment of lead poisoning. **15**

8. Write short notes on (**any three**) : **15**

   a) Drug information services

   b) Teratogenicity

   c) Placebo

   d) Ethical issues in clinical trials.

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Seat No.	

Fourth Year B.Pharmacy Examination, 2012
PHARMACEUTICS – IV
(2004 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Question No.* ***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 wherever*** *necessary.*

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

SECTION – I

1. Explain concept of formulation of Large Volume Parenterals. Explain factors affecting formulation. **10**

2. Explain in detail preformulation and formulation of proteins and peptides. **15**

3. Enlist various routes of parenteral administration ? Discuss the general requirements of injection. Explain in detail the formulation of injections. **15**

4. Write short notes on **(any three)**: **15**
   a) Glass as a packaging material.
   b) Contact lenses and lens care products.
   c) DOP tests for HEPA.
   d) Optimization techniques.
   e) Batch Vs continuous operations.

P.T.O.

SECTION – II

5. Explain why propellants are called as heart of aerosol. Add a note on various types of propellants. **10**

6. Define microencapsulation. Explain in detail Coacervation phase separation. Add a note on applications of microencapsulation. **15**

7. What are sustained release dosage forms ? Explain prerequisites of drug candidate for sustained release dosage forms. **15**

8. Write short notes on **(any three)** : **15**
   a) Q.C. of aerosols.
   b) Human fibrin foam.
   c) Ophthalmic inserts.
   d) Spray drying and spray congealing for microencapsulation.
   e) Transdermal Drug delivery systems.

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Seat No.	

Fourth Year B.Pharmacy Examination, 2012
PHARMACEUTICS – V
Bio Pharmaceutics and Pharmacokinetics
(2004 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *:* 1) *Question No.* ***01*** *and* ***05*** *are c****ompulsory*** *. Out of the remaining attempt* ***02*** *questions from Section* ***I*** *and* ***02*** *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*** *maks.*

SECTION – I

1. a) Define the terms with suitable examples. **4**

   i) first pass effect

   ii) enteroheptic cycling.

   b) Discuss pharmacokinetic of one compartment model drug upon IV bolus dosing. **6**

2. a) Define the terms with suitable examples :

   i) Volumes of distribution

   ii) Non renal clearance

   iii) Absolute bioavailability. **6**

   b) Discuss the methods of estimation of bioavailability parameters. **9**

3. Explain the factors affecting dosage regimens. **15**

P.T.O.

4. Write short notes on (**any 2**) : **15**

   a) Different mechanism of drug transport

   b) pH-partition theory

   c) Multiple dose pharmacokinetics.

SECTION – II

5. Discuss the physicochemical factors that affect drug bioavailability. **10**

6. Discuss the concept of plasma and tissue binding of drugs and their significance. **15**

7. Discuss the different mechanisms of renal excretion. What are the factors affecting renal elimination ? **15**

8. Write short notes on (**any 2**) : **15**

   1) In vitro and in-vivo correlation and significance.

   2) Effect of enzyme induction on elimination.

   3) Steady state plasma concentration and dosage form regimens.

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Seat No.	

Fourth Year B.Pharmacy. Examination, 2012
PHARMACEUTICAL JURISPRUDENCE AND REGULATORY AFFAIRS
(2004 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions : *1) Q.**1** and **5** are **compulsory**. Solve **any two** questions from the remaining **three** in **each** Section.*
*2) Answer to the **two** Sections should be written in **separate** books.*
*3) Figures to the **right** indicate **full** marks.*

SECTION – I

1. A) Explain the objectives of DPCO 1995. Give formula for calculation of retail price of formulation. **6**

   B) Discuss constitution, functions and working of CDL. **4**

2. A) Schedule M. **8**

   B) Define Misbranded Food Article. Discuss the constitution and functions of Central committee for Food Standard. **7**

3. A) Explain the objectives of NDPS 1985. Discuss various offences and penalties under NDPS 1985. **9**

   B) Define Magic Remedy. Give the classes of Exempted advertisement. **6**

4. Write a short notes on (**any three**) : **15**

   a) PCI

   b) Bonded laboratory

   c) Industrial Development and Regulation Act

   d) Govt. Analyst

P.T.O.

SECTION – II

5. Differentiate between NDA and ANDA. Add a note on 'Orange book'. **10**

6. A) Define IPR. Discuss in detail about filling and processing of Patent. **8**

   B) Explain constitution and applications of Drug Master File. **7**

7. A) Discuss 'Therapeutic Goods Administration'. **5**

   B) Patent Certification. **5**

   C) ANDA and bioequivalence. **5**

8. Write a short notes on (**any three**) : **15**

   A) Ministry of Health and Welfare

   B) Biologics and Licensing Application (BLA)

   C) MCA

   D) US-FDA.

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Seat No.	

Fourth Year B.Pharmacy Examination, 2012
PHARMACEUTICAL ANALYSIS – III
(2004 Pattern)

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Question No.* ***1*** *and* ***5*** *are* ***compulsory****.*
2) Out of ***remaining****, attempt* ***two*** *questions from Section –* ***I*** *and* ***two*** *questions from Section –* ***II****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) Draw well labelled diagrams ***wherever*** *necessary.*

SECTION – I

1. a) Explain the principle of Atomic Emission Spectroscopy. **5**
   b) Describe the instrumentation of 'Flame photometry'. **5**

2. a) Discuss different types of molecular vibrations and write a note on Fermi Resonance. **8**
   b) Explain different types of interference and their corrections in Atomic Absorption Spectroscopy. **7**

3. a) What is chemical shift ? Describe various factors affecting it. **8**
   b) Describe TOF analyzer in Mass Spectrometer. **7**

4. Write short notes **(any three)** : **15**
   a) FTIR
   b) X-ray Diffraction Technique
   c) LC-MS
   d) ESR.

P.T.O.

SECTION – II

5. a) Explain Van Deemter Equation. **5**

   b) Describe Isocratic and Gradient elution modes in HPLC. **5**

6. a) Enlist various types of detectors used in HPLC and describe UV-Detectors. **8**

   b) Write a note on various quantitation techniques in GC. **7**

7. a) Explain principle and instrumentation of 'simulated moving bed technology'. **8**

   b) Give the principle of Electrophoresis. Add a note on 'Capillary electrophoresis'. **7**

8. Write short notes **(any three)** : **15**

   i) Electron capture detector.

   ii) Pumps in HPLC.

   iii) Applications of HPTLC.

   iv) Measurement of radioactivity.

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