B. PHARMACY (Semester – I) Examination, 2014
PHARMACEUTICS – I (New)

Day and Date: Friday, 5-12-2014  Max. Marks: 70
Time: 10.30 a.m. to 1.30 p.m.

MCQ/Objective type questions:  
(1×15=15)

I. 1) The 7th edition of I.P. was published in ____________
   a) 2007  b) 1996  c) 2014  d) 2012

2) 1 Gallon = ____________ fluid ounces.
   a) 260  b) 160  c) 360  d) 460

3) 1 desertspoonful = _____________ ml.
   a) 4  b) 5  c) 8  d) 6

4) 1 scruple ______________ grains.
   a) 10  b) 20  c) 30  d) 40

5) The direction “shake well before use” is given for ____________
   a) powder  b) suspension  c) syrup  d) none of above

6) Simple syrup is ____________ solution of sucrose in water having sucrose concentration.
   a) 66.7% w/w saturated  b) 66.2% w/w saturated
   c) 65.7% w/w, unsaturated  d) None of above

7) Emulsion meant for external use should be ____________ type.
   a) o/w  b) w/o  c) both a) and b)  d) None of above

8) ____________ is a topical drug used to soften the skin.
   a) Expectorant  b) Counter irritant
   c) Laxative  d) Emollient

9) ____________ is a drug induces mild irritation to produce reddening of skin.
   a) Surfactant  b) Sedative  c) Rubefacient  d) None of above
10) _____________ is determined by angle of repose in preformulation.
   a) Bulk density                           b) Flow properties
   c) Particle size                          d) None of above

11) In GMP and cGMP ‘P’ stand for _____________
    a) Practice                              b) Practical
    c) Price                                 d) None of above

12) Lepa is _____________ dosage form.
    a) Solid                                 b) Liquid
    c) Semisolid                             d) None of above

13) Asava and arista are _____________ dosage form.
    a) Solid                                 b) Liquid
    c) Semisolid                             d) None of above

14) _____________ are concentric bilayered vesicles in which an aqueous phase
    is enclosed by bilayered phospholipid membrane.
    a) Liposomes                             b) Implants
    c) All of above                          d) None of above

15) Liniments must not be applied on _____________ skin.
    a) Broken                                b) Oily
    c) Open                                  d) None of above

II. Answer any five :  

A) Discuss in short Ayurveda as a system of medicine.

B) Give advantages and disadvantages of solid dosage form.

C) What is metrology ? Write conversion of following imperial system to metric system.
   a) 1 pint
   b) 1 desertspoonful
   c) 1 fluid drachm
   d) 1 pound.

D) Discuss “Pharmacy as a career”.

E) Elaborate manufacturing, packaging, store, labelling condition and use of syrup.

F) Write a note on aromatic water.

III. Answer any three :  

A) Discuss in detail the various parameters involved in preformulation study.

B) Write a note on Indian Pharmacopoeia.

C) Discuss in detail GMP.

D) Define and classify dosage form with examples.
1. Planetary mixer is used for mixing of __________
   a) solids    b) liquids    c) semisolids    d) none of above

2. For mixing of miscible liquids and suspension __________ mixer is used.
   a) propeller mixer   b) turbine mixer
   c) both a) and b)   d) none of above

3. __________ is the term used to describe the situation when material acts as its own filter medium.
   a) Autofiltration   b) Impingement   c) Straining   d) None of above

4. __________ is the example of pressure filters.
   a) rotary drum filter   b) centrifugal filter
   c) metafilter   d) none of above

5. Roller mill works on the principle of __________
   a) impact   b) compression   c) none of above   d) attrition

6. Hammer mill works on the principle of __________
   a) Impact   b) Compression   c) Both a) and b)   d) Attrition

7. Based on impact and attrition __________ mill works.
   a) hammer mill   b) fluid energy mill   c) all of above   d) none of above

8. Surface treated glass is also called as __________
   a) Type I glass   b) Type II glass   c) Type III glass   d) None of above
9. _________ method is used for determination of particle size.
   a) sieving
   b) sedimentation
   c) optical microscopy
   d) all of above

10. _________ factors affect rate of filtration.
    a) area of filter surface
    b) particle size
    c) temperature
    d) all of above

11. _________ is the mechanism of size reduction.
    a) toughness
    b) hardness
    c) cutting
    d) none of above

12. The clear liquid passing through the filter medium is known as _________
    a) filtrate
    b) filter cake
    c) slurry
    d) none of above

13. Starch can be used as _________ in tablet formulation.
    a) binder
    b) colouring agent
    c) flavouring agent
    d) none of above

14. The porous medium used to retain the solids is known as _________
    a) filter medium
    b) filter cake
    c) slurry
    d) none of above

15. _________ is the method of preparation of granules.
    a) wet granulation
    b) dry granulation
    c) both a) and b)
    d) none of above

16. Type I glass is prepared from _________
    a) borosilicates
    b) sodalime
    c) pyrex
    d) none of above

SECTION – I

I Note : Answer any four : (4×4=16)

1. Write construction and working of cartridge filter.

2. Draw a neat labeled diagram of fluid energy mill.

3. Describe the wet granulation process for preparation of granules.

4. Write in brief factors affecting rate of filtration.
5. Write a note on size gradation of powder.
6. Write construction and working colloid mill.

**II Note**: Answer the following: \(8 \times 2 = 16\)

1. Discuss mechanism of fluid mixing. Draw a neat labeled diagram of sigma blade mixer and double cone blender.
2. Explain in detail factor affecting size reduction.
   OR
   Differentiate between absorbable and non absorbable sutures. Add a note on sterilization of surgical catgut.

**SECTION – II**

**I Note**: Answer any four \(4 \times 4 = 16\)

1. Explain principle and procedure for after shave lotion.
2. Draw a neat labeled diagram of plate and frame filter.
3. Write a note on selection of packaging material.
4. Write principle and procedure for preparation of talcum powder.
5. Explain sensitivity and irritation test for cosmetic preparation.
6. Draw a neat labeled diagram of cutter mill and roller mill.

**II Note**: Answer the following: \(8 \times 2 = 16\)

1. Discuss in detail role of organoleptic additives in formulation. Discuss surfactant as pharmaceutical additives.
2. Define powder. Write advantages and disadvantages of powder and write principle and procedure for oral rehydration salt.
   OR
   With a neat labeled diagram explain the construction, working, advantages and disadvantages of planetary mixer.
1. Multiple choice questions: (1×16=16)

1) Hospital formulary is the __________
   a) List of hospital staff  b) List of equipment
   c) List of patient  d) List of drug in hospital

2) Color coding for nitrous oxide cylinder is __________
   a) Blue  b) Grey  c) Orange  d) Black body

3) Incompatibility solved by addition or substitution of an ingredients in the prescription is called as
   a) Tolerated  b) Adjusted  c) Drug related  d) Primary

4) The substances that have same atomic number but different atomic weight are called as __________
   a) Isotopes  b) Atomic number
   c) Mass number  d) Isomers

5) An isotonic solution is one which
   a) Does not cause crenulations  b) Has a freezing point less than the plasma
   c) Does not cause hemolysis  d) None of the above

6) Subscription includes __________
   a) Direction to the pharmacist  b) Direction to the patient
   c) Name and quantity of medicament  d) None of the above

7) Which of the following formula is used to calculate the dose for children based on weight?
   a) Young’s formula  b) Fried’s formula
   c) Cowling’s formula  d) Clark’s formula
8) English meaning for the Latin term “Post Cibos” is __________
   a) Before meals   b) After meals
   c) Between meals  d) All of the above

9) The method is used when diffusible precipitates are formed in chemical incompatibility.
   a) Method A       b) Method B
   c) Method A and B d) All of the above

10) Which of the following dispensing record maintained by pharmacist?
    a) Dispensing and compounding  b) PIL
      c) PMR                     d) All of the above

11) Which department supplies sterilized equipment to all departments?
    a) C.S.S.D.           b) P.T.C.
      c) Hospital formulary d) Hospital Pharmacy

12) Fluids with an osmotic pressure lower than that of blood or 0.9% sodium chloride are referred to as __________
    a) Isotonic solution b) Hypotonic solution
      c) Hypertonic solution d) Paratonic solution

13) An act of obtaining an article by making payments in term of money or its equivalent, to buy for price is called as __________
    a) Purchase       b) Inventory
      c) Control       d) None of the above

14) OTC in drug selling means
    a) One Time Clinic  b) Over the Counter
      c) Inscription drug d) Prescription drug

15) When two or more drug are used in combined form their action is increased is called as __________
    a) Tolerance       b) Antagonism
      c) Synergism      d) Addiction

16) The incompatibility of quinine sulphate with potassium iodide and sulphuric acid is known as
    a) Hypertensive reaction b) Hypotensive reaction
      c) Allergic reaction  d) Herapathic reaction
SECTION – I

2. Answer any four: (4×4=16)

1) Elaborate the fundamental operation in compounding of medicine.

2) Define posology. Explain the factor affecting on dose.

3) Enlist the pharmaceutical calculation used in pharmacy. Explain any two.

4) Describe in brief the isotonic solution.

5) Explain in brief the drug distribution system in hospital.

6) Calculate the dose for child having age of 7 years for paracetamol by using Young’s and Dilling’s formula.

3. Answer the following: (8×2=16)

1) Write a note on dispensing of the sterile products injectables, eye drops, and insulin injection?

2) What is incompatibility? Enumerate its types. Explain in detail therapeutic incompatibility with example.

OR

2) What is prescription? Explain the parts of prescription? Write a note on handling of prescription.

SECTION – II

4. Answer any four: (4×4=16)

1) What are the duties of pharmacist in C.S.S.R. Write a note on selection of staff for C.S.S.R?

2) What is Hospital formulary? What are the general criteria for addition and omission of drug in the formulary?

3) Explain the maintenance of record and issue of the narcotic drug.
4) What is P.T.C.? Explain the composition of P.T.C. Give the purpose of P.T.C. committee.

5) What is inventory control? Explain purchasing procedure of drug in hospital.

6) Write a note on Ambulatory aids.

5. Answer the following: \((8\times2=16)\)

1) What is Hospital Pharmacist? Describe in detail duties and responsibility of Hospital pharmacist.

2) What is Hospital? Describe various criteria of classification of Hospital.

OR

2) Describe in detail surgical instruments used in hospital.
1. Multiple choice questions :  

1) Which of the following reaction is an elimination reaction ?
   a) Hydroboration       b) Hydrogenation
   c) Oxymercuration      d) Dehydrohalogenation

2) Which of the following contain Pi bond ?
   a) Alkenes           b) Ketones
   c) Aldehyde          d) All of the above

3) Propyne can be converted to propene by using __________
   a) H₂ + lindlar’s catalyst     b) H₂ + Pt catalyst
   c) NH₂NH₂              d) NH₂NH₂ + KOH

4) Ozonolysis of 2-Butyne gives __________
   a) Formic acid     b) Acetic acid
   c) Propanoic acid  d) Butanoic acid

5) Which compound react most rapidly by SN¹ mechanism ?
   a) Methyl chloride  b) Ethyl chloride
   c) Isopropyl chloride   d) Ter-butyl chloride

6) The divalent intermediate of carbon compound is called as __________
   a) Carbocation       b) Free radical
   c) Carbanion         d) Carbene

7) Which of the following carbonium ion will be most stable ?
   a) CH₃⁺                 b) CH₃CH₂⁺
   c) (CH₃)₂C⁺H           d) (CH₃)₃C⁺
8) If the double bonds are separated by more than one single bond called ____________
   a) Conjugated diene   b) Non-Conjugated diene
   c) Cumulated diene   d) None of the above

9) What is the IUPAC name of neopentane?
   a) 1-Methylbutane   b) 1, 1-dimethylpropane
   c) 2-Methylbutane   d) 2, 2-dimethylpropane

10) In nucleophilic substitution on an alkyl halide, the halogen will usually be the ____________
    a) Leaving group   b) Nucleophile
    c) Substrate   d) Solvent

11) Which alkyl halide react most readily by nucleophilic substitution reaction?
    a) CH₃CH₂-Cl   b) CH₃CH₂-Br
    c) CH₃CH₂-I   d) CH₃CH₂-F

12) The electronegativity of an atom refers to the ability to ____________
    a) Form ionic bonds   b) Attract electrons to itself
    c) Push electron away from itself   d) Be a strong base

13) An E₂ reaction of alkyl halide ____________
    a) Occurs in two steps   b) Will yield an alkene
    c) Occurs via a carbocation   d) All the above

14) Ethyl alcohol reacts with conc. H₂SO₄ at 140° to form ____________
    a) Acetone   b) Acetic acid   c) Ethylene   d) Diethyl ether

15) Which statement best describes the mechanism of SN² reaction?
    a) Front side attack with inversion of configuration
    b) Back side attack with inversion of configuration
    c) Back side attack with retention of configuration
    d) Front side attack with retention of configuration

16) 1, 3-Butadiene reacts with Br₂ to mainly give ____________
    a) 3, 4-Dibromo-1-butene   b) 1,4-Dibromo-2-butene
    c) 4-Bromo-1-butene   d) 1-Bromo-2-butene
2. Answer the following questions: \textbf{(any four)}: \hspace{1cm} (4\times4=16)

1) Give IUPAC names of the following compounds.

\begin{align*}
&\text{a) } \text{CH}_3 - \text{CH} = \text{CH} - \overset{\circ}{\text{C}} - \overset{\circ}{\text{H}} \\
&\text{b) } \text{CH}_3 - \text{CH} - \text{CH}_2 - \overset{\circ}{\text{C}} - \overset{\circ}{\text{OH}} \\
&\text{c) } \text{CH}_3 - \text{CH}_2 - \overset{\circ}{\text{C}} - \text{CH}_2 - \text{Cl} \\
&\text{d) } \text{HO} - \text{CH}_2 - \text{CH}_2 - \overset{\circ}{\text{C}} \text{O}_\text{OH}
\end{align*}

2) Explain in detail generation, stability and reaction of carbanion with suitable example.

3) Write any four methods of preparation of alkyl halide.

4) Explain the terms electrophile and nucleophile with suitable example.

5) Write any four methods of preparation of ether.

6) Explain inductive effect and mesomeric effect.

3. Answer the following questions \textbf{(Any Two)}: \hspace{1cm} (8\times2=16)

1) Explain generation, stability and reaction of carbocation and carbene.

2) Give any four methods of preparation and reactions of alkynes and alkenes.

3) Explain in detail electromeric and resonance effect. Add a note on energy profile diagram.

4. Answer \textbf{any four} of the following questions: \hspace{1cm} (4\times4=16)

1) Write a note on diel’s alder reaction.

2) What is Lucas test ?

3) Explain polarity of bond and electronegativity.

4) Write any four chemical reactions of alkyl halide.

5) Discuss the effect of solvent and structure on SN\(^2\) reaction.

6) Write a note on different types of organic reaction.

5. Answer the following questions \textbf{(Any Two)}: \hspace{1cm} (8\times2=16)

1) What are alcohols ? Classify alcohols. How will you separate pri., sec., and ter. Alcohols ?

2) What are the theories of acid and base ? Explain in detail factors affecting acid base strength.

3) Explain in detail E1 and E2 reactions with mechanism.
B. Pharm. (Sem. – II) Examination, 2014
BIOCHEMISTRY – II

Day and Date : Saturday, 13-12-2014  Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

1. Choose the correct alternative : 16

1) An enzyme which is secreted ready for action is called _________ Secretion.
   a) Zymase  b) Zymogen  c) Intracellular  d) Extracellular

2) Factors affecting enzymes activity __________
   a) Concentration  b) pH  c) Temp.  d) All of them

3) Purine nucleotide is __________
   a) AMP  b) UMP  c) CMP  d) TMP

4) Sakaguchi reaction is specific for __________
   a) Tyrosine  b) Proline  c) Arginine  d) Cysteine

5) The protein present in hair is __________
   a) Keratin  b) Elastin  c) Myosin  d) Tropocollagen

6) Translation results in a product known as __________
   a) Protein  b) tRNA  c) mRNA  d) rRNA

7) Differentiation between amino acid and proteins can be done by _________ test.
   a) Ninhydrine  b) Biuret  c) Million’s  d) Nitroprusside

8) DNA strands for replication are separated by __________ enzyme.
   a) DNA ligase  b) DNA polymerase  c) DNA helicase  d) DNA isomerase

9) Each turn of α -helix contains the amino acid residues (number)
   a) 3.6  b) 3.0  c) 4.2  d) 4.5

10) Iron containing protein present in ETC is called __________
    a) Cytochrome  b) Coenzyme Q  c) Ubiquinones  d) b) and c) both

11) The sugar found in RNA is
    a) Ribose  b) Deoxyribose  c) Ribulose  d) Erythrose
12) Histamine is formed from histidine by
   a) Deamination   b) Dehydrogenation
   c) Decarboxylation  d) Carboxylation

13) Replication of DNA is
   a) Conservative   b) Semi-conservative
   c) Non-conservative  d) None of these

14) Edman’s reagent contains
   a) Phenylisothiocyanate b) 1-Fluoro-2, 4-dinitrobenzene
   c) Dansyl Chloride  d) tBOC azide

15) Nonsense codons are present on
   a) mRNA   b) tRNA  c) rRNA  d) None of these

16) Example of enzyme specificity
   a) Stereo specificity  b) Reaction specificity
   c) Substrate specificity  d) All of these

SECTION – I

2. Answer any four of the following questions:  (4x4=16)
   1) Write note on decarboxylation of amino acid.
   2) Write in short about types of RNA.
   3) Explain in short Biuret test, Xantoprotic test and Sakaguchi test.
   4) Give in details about Replication of DNA.
   5) Write note on ATP and UDP as coenzymes.
   6) What is biological oxidation ? Give enzymes involved in biological oxidation.

3. Answer the following questions.  (2x8=16)
   1) Explain in detail oxidative phosphorylation. Write inhibitors of ETC and uncouplers of oxidative phosphorylation.

   2) What are different methods of determination of amino acid sequence in proteins ?
      OR

   3) What is genetic code ? Give its characteristics. Explain the process of translation of mRNA.
SECTION – II

4. Answer any four of the following questions: \((4\times4=16)\)
   1) Explain in short chemical properties of amino acid.
   2) Define terms zymase, zymogen and hole enzymes.
   3) Give importance of SGPT and SGOT.
   4) Give oxidative and non-oxidative deamination reactions of amino acids.
   5) Give in short about factors affecting enzyme activity.
   6) Give detail about gene, genome and its characteristics.

5. Answer the following questions: \((2\times8=16)\)
   1) What are proteins? Give their classification based on functional nature with e.g. add note on secondary structure of proteins.
   2) Write note on transamination reaction. Explain urea cycle in detail.

   OR

   3) Define enzyme. Explain enzyme action with the help of models. Write in details about inhibitors of enzymatic action.
B.Pharm. (Semester – II) Examination, 2014
ANATOMY, PHYSIOLOGY AND HEALTH EDUCATION – II

Day and Date : Tuesday, 16-12-2014
Time : 10.30 a.m. to 1.30 p.m.

Max. Marks : 80

1. Multiple Choice Questions :  
(16×1=16)

1) The condition in which amount of urine is decreased is known as
   A) anuria  
   B) Oligourea  
   C) Glycosuria  
   D) Polyurea

2) Vagus nerve is also known as Cranial nerve ___________
   A) VIII  
   B) IX  
   C) X  
   D) XI

3) Tetanus is also known as
   A) Marsh fever  
   B) Lockjaws  
   C) Dumdum fever  
   D) Injury

4) The smallest bone in human body is
   A) Stapes  
   B) Incus  
   C) Malleus  
   D) Coccyx

5) Which gland is also known as Supra-Renal Gland
   A) Kidney  
   B) Adrenal gland  
   C) Pancreas  
   D) Pineal gland

6) Which of the following is a function of urinary system ?
   A) Regulation of blood volume  
   B) Regulation of blood pH  
   C) Regulation of blood pressure  
   D) All of the above

7) Which of the following is not a symptom of diabetes mellitus ?
   A) Insomnia  
   B) Polyphagia  
   C) Polydipsia  
   D) Polyurea
8) Stimulation of sympathetic nervous system causes
   A) Increased sweating   B) Increased bile secretion
   C) Increased GI secretion   D) Airway constriction

9) pH of semen is
   A) 3.4 – 4.7   B) 5.8 – 6.1
   C) 7.2 – 7.7   D) 9.2 – 10.3

10) Blind spot in eye is a synonym for
    A) Sclera   B) Choroid
    C) Optic disc   D) Macula lutea

11) ‘Master endocrine gland’ is synonym for
    A) Adrenal gland   B) Pituitary gland
    C) Pancreas   D) Cerebrum

12) Most unreliable birth control method with maximum failure rate is
    A) Vasectomy   B) Pills
    C) Condoms   D) Coitus interruptus

13) If 1st day of menstruation is considered as 1st day of new reproductive cycle, on which day does ovulation occur ?
    A) Day 5   B) Day 9
    C) Day 14   D) Day 23

14) The thick filament of skeletal muscle contains
    A) Myosine   B) Actin
    C) Troponin   D) Tropomyosine

15) Causative organism for Small Pox is
    A) Paramyxovirus   B) Variola virus
    C) Tropodema pallidum   D) Clostridium tetani

16) Which of the following is not a physical sensation ?
    A) Gustatory   B) Vision
    C) Auditory   D) Touch
2. Answer any four of the following questions: (4×4=16)
   1) Write a note on gustatory and olfactory pathway.
   2) Draw a neat labeled diagram of nephron.
   3) Describe the principal actions of thyroid hormones.
   4) With a help of neat diagram, describe the anatomy of neuron.
   5) What is spermatogenesis? Describe the process of spermatogenesis.

3. Answer any two of the following questions: (2×8=16)
   1) Describe the process of urine formation in details.
   2) Write a note on anatomy of female reproductive system in detail.
   3) Based on anatomy and physiology, differentiate between sympathetic and parasympathetic nervous system.

4. Answer any four of the following questions: (4×4=16)
   1) Define health. What is the role of pharmacist in health education?
   2) Write a note on reflex arc.
   3) Describe the anatomy of skeletal muscle.
   4) Enlist various methods of birth control. Write a note on IUDs.
   5) What are the causes, symptoms and preventive measures of hypertension?

5. Answer any two of the following questions: (2×8=16)
   1) Give causative organism, mode of transmission, symptoms and prevention of malaria and tuberculosis.
   2) Enlist the hormones secreted by pituitary gland. Give role of any six hormones.
   3) Describe the anatomy of eye in detail.
SLR-T – 16

B.Pharm. (Semester – III) Examination, 2014
PHYSICAL PHARMACY – I

Day and Date : Friday, 5-12-2014
Time : 3.00 p.m. to 6.00 p.m.

I. MCQ :

1) When water is cooled to ice its entropy ?
   A) Increases    B) Decreases
   C) Not affected D) Both a) and b)

2) Amorphous solid does not have __________
   A) Sharp melting point    B) Characteristic geometric shapes
   C) Regulating structure   D) All of these

3) Polymorphism refers to compound having __________
   A) Different stereochemistry
   B) Different crystal structure
   C) Different compositions
   D) None of these

4) Work done by the system is maximum when it is __________
   A) Irreversible    B) Isothermally
   C) Adiabatic      D) Reversible

5) Heat of combustion always __________
   A) Neutral    B) Negative
   C) Positive   D) Zero

6) A semi permeable membrane allows the passage of __________
   A) Solvent and solute    B) Solvent
   C) Solute   D) All of these

7) Beckmon’s method is used to determine __________
   A) Freezing point depression    B) Boiling point elevation
   C) Freezing point elevation     D) Boiling point depression
8) The study of depression in freezing point of solution is called as __________
   A) Freezing point depression   B) Cryoscopy
   C) Ebullioscopy               D) None of these

9) How many parts of solvent needed to dissolve slightly soluble solute?
   A) 1 to 10 parts         B) 1 to 100 parts
   C) 100 to 1000 parts    D) 30 to 100 parts

10) For a pure gas and mixture of gases, the degree of freedom are _________
    A) 2 and 2              B) 2 and 3
    C) 3 and 3             D) 4 and 3

11) The process in which pressure remains constant is known as __________
    A) Isothermal            B) Isobaric
    C) Adiabatic             D) Reversible

12) The phase rule is applicable to __________
    A) Homogenous system     B) Reversible system
    C) Heterogeneous system  D) Irreversible system

13) Flocculated suspension exhibit which type of flow __________
    A) Dilatant              B) Plastic
    C) Newtonian            D) All of the above

14) Liquid paraffin exhibits __________
    A) Dilatant              B) Plastic
    C) Newtonian            D) All of the above

15) The phase rule was first discovered by
    A) Nernst                 B) Gibbs
    C) Arrhenius             D) Le Chatelier

16) The occurrence of the same substance in more than one crystalline form is known as
    A) isomerism              B) racemisation
    C) polymorphism          D) none of these
SECTION – I

II. Answer any four of the following : 16

1) What is polymorphism? Give its applications with examples.
2) Add a note on enthalpy and entropy.
3) State and explain Hesse’s law of constant heat summation.
4) Explain first law of thermodynamics.
5) Explain escaping tendency.
6) Give the different types of solvents.

III. Answer any two of the following : 16

1) Define viscosity and explain various multi-point viscometers.
2) Explain phase rule-one component system.
3) Discuss non-Newtonian types of flow with examples.

SECTION – II

IV. Answer any four of the following : 16

1) Discuss efficiency of heat engine.
2) Explain Linde’s process of liquefaction of gases.
3) Explain closed and open system with appropriate examples.
4) Explain factors affecting solubility of gases in liquids.
5) Determine distribution coefficient.
6) How the solubility of solids in liquids determined?

V. Answer any two of the following : 16

1) State and explain Raoult’s law with deviation.
2) What is thixotropy and anti-thixotropy? Give the methods for the determination of thixotropy.
3) Prove that elevation of boiling point is a colligative property.
B. Pharmacy. (Semester – III) Examination, 2014
PHARMACEUTICAL ENGINEERING

Day and Date: Monday, 8-12-2014
Time: 3.00 p.m. to 6.00 p.m.
Total Marks: 80

SECTION – A

1. Multiple choice questions: (1×16=16)

1) The flow in open channel is laminar if the Reynold’s number is
   a) < 2000          b) > 4000
   c) Lies in between 2000 to 4000  d) None of the above

2) The rate of evaporation directly proportional to the ____________
   a) Surface area       b) Temperature
   c) Both a) and b)    d) Concentration

3) If a non-condensed gas is not removed from evaporator ____________
   a) Reduce the film coefficient
   b) Decreases the efficiency of evaporators
   c) Both a) and b)
   d) None of the above

4) In which process the direct change of water from solid into vapour without
   conversion to a liquid phase?
   a) Condensation       b) Sublimation
   c) Evaporation        d) None of the above

5) Which piston pump requires a minimum of two valves?
   a) Double acting       b) Triple acting
   c) Single acting       d) None of the above

P.T.O.
6) Tray dryer is based on which mechanism?
   a) Pneumatic dryer   b) Static bed dryer
   c) Fluidised bed dryer   d) Moving bed dryer

7) Which distillation is used for the separation of high-boiling substances from non-volatile impurities?
   a) Steam distillation   b) Simple distillation
   c) Rectification   d) None of the above

8) In steam jacketed Kettle, the heat is transferred to the aqueous extract by which mechanism?
   a) Conduction   b) Convection
   c) Both a) and b)   d) None of the above

9) ___________ solution distills unchanged at constant temperature.
   a) Azeotropic   b) Zeotropic
   c) Both a) and b)   d) None of the above

10) In which evaporator, heat transfer takes place through the tubes and the liquid outside the tubes get heated?
    a) Evaporating pan   b) Vertical tube
    c) Horizontal tube   d) None of the above

11) The mass and the velocity of the fluid particles trying to diffuse the fluid particles are due to
    a) Drying forces   b) Inertial forces
    c) Viscous forces   d) Turbulent forces

12) Flash distillation is also known as ____________
    a) Rectification   b) Differential
    c) Dry   d) Equilibrium

13) In which feed method, the feed enters the last effect and moves from I to II and III?
    a) Forward feed method   b) Mixed feed method
    c) Backward feed method   d) Parallel feed method
14) In which evaporator the preheated feed enters?
   a) Evaporating pan
   b) Falling film
   c) Rising film
   d) Horizontal tube

15) Multiple effect evaporator (MEE) is used for __________ operation.
   a) Batch
   b) Continuous
   c) Both a) and b)
   d) None of the above

16) Beyond the equilibrium moisture content (EMC), the drying rate is equal to __________
   a) Zero
   b) One
   c) Two
   d) Three

SECTION – B

2. Answer any four: (4x4=16)
   1) Explain in brief principle, construction and working of Pitot tube.
   2) Explain the rate of drying.
   3) Describe in brief construction and working of Piston pump.
   4) Give the construction and working of Horizontal tube evaporators.
   5) Draw a neat labeled diagram of Freeze dryer.
   6) What is manometer? Explain in detail simple manometer.

3. Answer the following: (8x2=16)
   1) Discuss in detail Mc. Cabe Thiele method.
   2) Explain in detail Bernoulli’s theorem. Derive an expression for Bernoulli’s theorem and its application.

   OR

   2) Explain the principle, construction and working of spray dryer with a neat labeled diagram.
SECTION – C

4. Answer any four: 

   1) What is Pharmaceutical Engineering? Explain in detail unit operation and unit process.
   2) Discuss in detail principle and working of Tray dryer.
   3) Explain principle and construction of Belt conveyors.
   4) Describe in brief Blowers and Compressor.
   5) Define and classify pump. Explain in detail Centrifugal pump.
   6) What is Evaporation? Describe in detail factor affecting Evaporation.

5. Answer the following: 

   1) Discuss in detail the film type of evaporator.
   2) Give the principle involved in steam distillation. Describe construction and working of steam distillation with neat labelled diagram.

       OR

   2) Explain in detail principle, construction and working of orifice meter.
1. Choose the appropriate option : (1×16=16)

1) Benzene under goes substitution reaction more easily than addition reaction because of __________
   a) It has a cyclic structure  b) It has three double bound
   c) It has six hydrogen atom  d) There is delocalization of electron

2) Naphthalene undergoes oxidation with Na₂Cr₂O₇/H₂SO₄ to form __________
   a) Phthalic anhydride  b) Benzoic acid
   c) Tetraline  d) Phenyl acetic acid

3) Acetic acid undergoes reduction with LiA/H₄ to give __________
   a) Ethane  b) Ethanol  c) Ethanal  d) Ethyne

4) When ketone reacted with α-bromoester in the presence of __________ the product is β-hydroxy ester.
   a) aq.NaOH  b) Piperidine  c) Zn/ether, H₂O  d) CH₃COOH

5) The pyrrole undergo electrophilic substitution reaction primarily at __________ position.
   a) C₁  b) C₂  c) C₃  d) C₄

6) When phenol react with excess bromine water to give __________
   a) Bromobenzen  b) m-bromophenol
   c) 2, 4, 6 tribromo phenol  d) o-plus-p-bromophenol

7) When carboxylic acid react with alcohol in presence of strong acid to form __________
   a) Ether  b) Ester  c) Acid  d) Amide
8) Which of the following does not react with acyl chloride to form amides.
   a) Ammonia          b) Primary amine
   c) Secondary amine  d) Tertiary amine

9) In the separation of naphthalene __________ and __________ is used to remove basic and acidic impurity.
   a) Dil. HCl and Water  b) Dil. H₂SO₄ and Water
   c) Water and naphtha solvent  d) Dil. HNO₃ and Water

10) In Nitrous acid reaction of amines when secondary amine react with nitrous acid to produce.
    a) Nitrogen gas    b) Yellow oil
    c) Carbon dioxide gas  d) Soluble salt

11) Pyridine is considerably less reactive than benzene to words electrophilic substitution reaction because of __________
    a) Delocalization of electron  b) Nitrogen atom in pyridine
    c) Cyclic structure  d) Six carbon atom

12) The thiophene gives a __________ colour when it is added to a solution of Isatin in sulphuric acid.
    a) Blue-Green    b) Violate    c) Dard red    d) Brown

13) __________ group is activate the ring in reactivity.
    a) NH₂  b) NO₂  c) CL  d) SO₄

14) When phenol react with __________ then it form a benzene.
    a) Zinc dust    b) NaOH    c) Acid    d) Dil. HCl

15) Amine’s are classified as primary, secondary and tertiary amine based on
    a) Number of hydrogen atom  b) Number of alkyl group
    c) Number of carbon atom  d) All of the above

16) Formation of 3-hydroxyl butanal is the final synthesized compound in __________ reaction.
    a) Aldol condensation  b) Cannizaaro
    c) Reformtasky  d) Knoevenagel
SECTION – I

2. Solve any four: (4×4=16)
   1) How to identify the compound is aromatic or non-aromatic explain with example?
   2) Write the synthesis of Anthracene.
   3) Write reaction and mechanism of Aldol condensation reaction.
   4) Write preparation of Pyrrole.
   5) Explain the preparation of Phenol
   6) Write the synthesis of Indole.

3. Answer the following: (2×8=16)
   1) Write the synthesis, reaction and structural elucidation of Naphthalene.
   2) Give the preparation and reaction of Pyridine and Quinoline.
   OR
   2) Note on: i) Cannizaros reaction ii) Reformtasky reaction iii) MPV reduction.

SECTION – II

4. Solve any four: (4×4=16)
   1) Note on benzene reaction.
   2) Write the perkin reaction.
   3) Write the synthesis of thiophane.
   4) Write down the preparation of aliphatic carboxylic acid.
   5) Explain why naphthalene is less aromatic than benzene.
   6) Explain use of diazonium salt in synthesis.

5. Answer the following: (2×8=16)
   1) Write the general mechanism of electrophilic substitution reaction explain
      with any two example.
   2) Write the preparation, reaction and structural elucidation of phenanthrene.
   OR
   2) Write mechanism of nucleophilic addition reaction of aldehyde and ketone.
      Explain with addition of hydrogen cyanide and addition of alcohol.
B.Pharm. (Semester – III) Examination, 2014
PHARMACEUTICAL ANALYSIS – I

Day and Date: Friday, 12-12-2014
Time: 3.00 p.m. to 6.00 p.m.

Instructions: 1) All questions are compulsory.
               2) Figures to the right indicate full marks.

1. Choose the correct answer:

   (16×1=16)  

   1) In Argentometric titrations, tiritant is ____________
      A) Silver chloride                           B) Silver nitrate
      C) Sodium chloride                          D) Sodium nitrate

   2) Due to poor calibration ____________ error arises.
      A) Operational                              B) Human
      C) Personal                                 D) Instrumental

   3) Lewis proposed acid as species that can accept ____________
      A) Electron pair                            B) Proton pair
      C) Neutron                                  D) None of above

   4) 8.5 ml HCL in 1 liter ____________
      A) 0.1 M                                   B) 0.1 N
      C) 0.5 M                                   D) Both A) and B)

   5) Potassium permanganate can be standardized by using ____________
      A) Oxalic acid                             B) Cinnamic acid
      C) Salicylic acid                          D) Sodium hydroxide

   6) ____________ is a type of analysis.
      A) Trace                                   B) Complete
      C) Partial                                 D) All of above

P.T.O.
7) The pH at equivalence point for strong acid and weak base is ____________
   A) Less than 7          B) 7
   C) More than 7          D) None

8) The indicator in Mohr’s method is ____________
   A) Fluorescein          B) Potassium chlorate
   C) Potassium bromate    D) All of above

9) No. of moles of solute present in one litre of solution is known as ____________
   A) Normality          B) Molarity
   C) Molality          D) Formality

10) Standardization of 0.1 N Iodine is done by ____________
    A) Arsenic trioxide    B) Granulated zinc
    C) KI                 D) KBr

11) ____________ is used as primary standard for standardization of NaOH.
    A) Sodium carbonate    B) Sodium bicarbonate
    C) PHT                D) Potassium dichromate

12) ____________ indicator method is used in redox titrations.
    A) Internal              B) External
    C) Self                 D) All of above

13) For standardization of iodine ____________ is used.
    A) Sodium carbonate    B) Sodium sulphate
    C) Sodium thiosulphate D) Sodium molybdate

14) The e.g. of method error is ____________
    A) Kjeldahl’s method    B) Mohr’s method
    C) Gay-Lussac method    D) Volhard’s method

15) Assay of ferrous sulphate is based on ____________ type of titration.
    A) Aqueous              B) Non-aqueous
    C) Precipitation       D) Redox

16) The strength of the acids and bases depends upon ____________
    A) Degree of dissociation   B) Degree of saturation
    C) Both a) and b)          D) None of above
2. Answer **any four** of the following questions :  
   1) Define normality, molarity, molality and formality.  
   2) Give the difference between iodimetry and iodometry.  
   3) Explain the standardization of potassium bromate along with principle.  
   4) Define acid and base according to various theories.  
   5) How potassium permanganate behaves as self indicator ?  

3. Answer **any two** of the following questions :  
   1) Explain in detail strong acid-strong base neutralization curve.  
   2) Explain in detail turbidity method.  
   3) Give an complete account of errors.  

4. Answer **any four** of the following questions :  
   1) Write a note on significant figures.  
   2) Give the factor calculation with two examples.  
   3) Explain the theory behind assay of ascorbic acid.  
   4) What are the possible errors in volumetric analysis ?  
   5) Explain the Henderson-Hasselbatch equation.  

5. Answer **any two** of the following questions :  
   1) Explain in detail factors affecting precipitation.  
   2) Explain in detail Volhard’s method.  
   3) Give an complete account of permangnometry.
1. Multiple choice questions: (15×1=15)

1) ____________ is used as an inert atmosphere to retard air oxidation in susceptible products.
   A) Oxygen  B) Helium  C) Nitrogen  D) None of above

2) ____________ % W/V of ammonium chloride is isotonic with serum.
   A) 5%  B) 8%  C) 0.8%  D) 0.5%

3) ____________ is used for avoiding passage of $\text{H}_2\text{S}$ gas from glass tube in Guitzeit apparatus.
   A) Lead acetate cotton plug  B) Lead acetone cotton plug  C) Lead oxide cotton plug  D) None of above

4) ____________ is major extracellular electrolyte in body.
   A) Magnesium  B) Calcium  C) Potassium  D) Sodium

5) Bismuth subcarbonate is
   A) Antidiarrhoeal  B) Protective  C) Adsorbent  D) All of above

6) ORS contain ____________
   A) NaCl  B) NaOH  C) $\text{Na}_2\text{CO}_3$  D) All of above
7) Sodium hydroxide is __________
   A) Very deliquescent B) Hygroscopic
   C) Effloroscent D) None of above

8) Potassium permanganate is acts as
   A) Reducing agent B) Oxidizing agent
   C) Antidote D) None of above

9) Guitzeit apparatus is having
   A) 110 B) 120
   C) 130 D) 140

10) When cyanide poisoning treated with sodium nitrite it converts blood hemoglobin to
    A) Oxyhemoglobin B) Haemoglobin
    C) Carboxyhemoglobin D) Methanemoglobin

11) Calcium glucanate is assayed by
    A) Acid base titration B) Complexometric Titration
    C) None aqueous titration D) Redox titration

12) The molecular weight of hydrogen peroxide is
    A) 34.16 B) 33.106
    C) 34.616 D) 33.016

13) Chemically borax is _________
    A) Boric acid B) Sodium borate
    C) Both A) and B) D) None of above

14) ____________ is manufactured by heating scrap copper with dil.\(H_2SO_4\).
    A) Copper B) Copper chloride
    C) Copper sulphate D) Cuprous sulphate

15) Saline purgative is
    A) Magnesium chloride B) Sodium chloride
    C) Ammonium chloride D) Magnesium sulphate
2. Answer any five of following questions: (5×5=25)
   1) Write the principle and reaction involved in limit test of chloride.
   2) Explain in detail electrolyte replacement therapy.
   3) Enlist the content of monograph as per I.P. 2007.
   4) What are antacids? Explain in detail magnesium containing antacid.
   5) Write a note on nitrous oxide as official gas.
   6) What are the important biochemical role of iodine? Add a note on assay of Potassium iodide.

3. Answer any three of following questions: (10×3=30)
   1) Discuss in detail of sources of impurities in pharmaceuticals.
   2) Write assay of:
      1) H₂O₂
      2) CaCO₃
      3) Boric acid.
   3) Write properties and reaction:
      1) Silver nitrate
      2) Magnesium carbonate.
   4) Discuss in detail about mechanism of action of antimicrobial agent.
1. Choose the correct answer : 

   (1×16=16)

1) Acquired causes of cell injury is ______________
   a) Hypoxic and Ischemia
   b) Mechanical trauma
   c) Thermal trauma
   d) Electricity

2) Pathogenesis of cell injury depends on ______________
   a) Reduced protein synthesis
   b) Damage of plasma membrane sodium pump
   c) Reduced intracellular pH
   d) All of these

3) Which one of the following morphological cause is produce the reversible cell injury ?
   a) Fatty changes
   b) Mucoid changes
   c) Coagulative necrosis changes
   d) All of these

4) Which of the following statement is correct for Apoptosis ?
   a) It is internally programmed cell death
   b) It is involvement of singe cells or small clusters of cells
   c) It is fragmented nuclear chromatin
   d) All of these

5) CL – 2 protein in human counterpart of CED9 is ______________gene.
   a) Cell death
   b) Inducer of necrosis
   c) Inducer of atrophy
   d) None of these
6) One of the following statements is not correct for ischemic atrophy.
   a) Gradual diminution of blood supply due to atherosclerosis may result shrinkage of the affected organ
   b) Small atrophic kidney in atherosclerosis of renal artery
   c) Atrophy in cerebral atherosclerosis
   d) Interruption in nerve supply leads to wasting of mussel

7) The most common route of transmission of hepatitis A.
   a) Transplacental route
   b) Respiratory route
   c) Feco-oral route
   d) Parental route

8) Decreased oxygen concentration in blood is called as
   a) Hypoxia
   b) Atrophy
   c) Hypoventilation
   d) Anemia

9) Membrano prolitative glomerulonephritis is characterized by lobular proliferation of
   a) Epithelial cell
   b) Leukocytes
   c) Mesangial cells
   d) Endothelial cells

10) Which one is example for hormone regulate the sodium ion in human body is ___________
    a) Antidiuretic hormones
    b) Aldosterone
    c) Atrial natriuretic peptide
    d) All of these

11) Write correct statement for nutcracker esophagus
    a) This type of spasm is an irregular, uncoordinated squeezing of the muscles of the esophagus
    b) This type of spasm is a regular, coordinated squeezing of the tissue of the esophagus
    c) This type of spasm squeezes the esophagus in a coordinated way, the same way food is moved down the esophagus normally
    d) All of these

12) Chronic renal failure mainly depends on ____________
    a) Diseases causing glomerular pathology
    b) Diseases causing tubulointerstitial pathology
    c) Primary and secondary pathology
    d) All of these
13) Cholesterol stone contains ____________
   a) Excess of cholesterol and phospholipids
   b) Excess of bile pigment and calcium
   c) Excess of bile pigment and cholesterol
   d) Excess of cholesterol and calcium

14) Which one example for genetic causes of cell injury is ____________?
   a) Cytogenetic defect
   b) Psychological defect
   c) Physical defect
   d) Microbial defect

15) To produce irreversibly cell injury the concentration of calcium ions in intracellular fluid is__________
   a) 10 – 3 Millimole
   b) 2 – 3 Millimole
   c) 17 – 9 Millimole
   d) 3 – 3 Millimole

16) One of the following is autoimmune disease.
   a) Rheumatoid arthritis
   b) Tuberculosis arthritis
   c) Suppurative arthritis
   d) Gountlo arthritis

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SECTION – I

2. Answer any four of the following: (4×4=16)

1) What is apoptosis? Write the morphology and mechanism of apoptosis.

2) Write events which are responsible to cell undergo irreversible cell injury.

3) How physiological mechanisms maintains fluid volume of sodium in human body?

4) Explain in detail how respiratory system regulates the acid base balance.

5) Write brief note on tuberculosis of intestine.

6) Differentiate crohn disease and ulcerative colitis.

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3. Answer the following any two: (2×8=16)

1) Write etiology, pathogenesis and management of acute pancreatitis and chronic pancreatitis.

2) What esophageal achalasia? Write symptoms and diagnosis and treatment of esophageal achalasia.

   OR

2) Write in detail etiology, morphology and pathophysiology of reversible cell injury.
SECTION – II

4. Answer **any four** of the following : (4×4=16)
   1) Write a note on acute pyelonephritis.
   2) What is emesis ? Write complication, pathogenesis and treatment of emesis.
   3) Classify peptic ulcer and write note on duodenal ulcer.
   4) Write types of glomerulonephritis and write note on nephrotic syndrome.
   5 ) Write symptoms and diagnosis and treatment of acute cholecystitis.
   6) What is hepatitis ? Classify hepatitis and write mechanisms of liver damage caused by alcohol.

5. Answer the following **any two** : (2×8=16)
   2) What is neoplasm ? Write a note on pathophysiology of benign and malignant tumors.
       OR
   2) Define pain. Classify the different types. Explain in detail etiology, pathogenesis and clinical manifestations of gout.
S.Y.B. Pharm. (Semester – III) Examination, 2014  
ELEMENTS OF CALCULUS AND BIOSTATISTICS  
(For Annual Students Only)

Day and Date: Monday, 15-12-2014  
Time: 3.00 p.m. to 6.00 p.m.  
Total Marks: 80

Instructions:  
I. All questions are compulsory.  
II. Figures to the right indicate full marks.  
III. Use of log table, non-programmable calculator are allowed.

I. MCQ: Select the correct alternative:

1) The differential equation \( \frac{dy}{dx} = \sqrt{1 + 4 \frac{d^2y}{dx^2}} \) has order __________ and degree __________
   a) 1, 1  
   b) 2, 1  
   c) 2, 1  
   d) None

2) If A is square matrix, then A + A^t is __________ matrix.
   a) Symmetric  
   b) Scalar  
   c) Identity  
   d) Skew-symmetric

3) Series expansion of sinx is __________
   a) \( 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + ... \)  
   b) \( 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + ... \)
   c) \( x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + ... \)  
   d) None of these

4) \( f(x) = 2x^2 - 7x + 10 \) over (2, 5) according to Lagrange’s MVT, the value of \( c = \) __________
   a) \( \frac{5}{2} \)  
   b) \( \frac{7}{2} \)  
   c) 7  
   d) 4
5) The non-homogenous equation has the number of unknown equal to rank of the system then the system has ____________
   a) No solution  b) Unique solution  
   c) Infinite number of solution  d) None

6) The solution of the system
   4x – 5y – 22 = 2
   5x – 4y + 22 = 3
   2x + 2y + 82 = 1
   a) Unique  b) Infinite  
   c) Inconsistent  d) None of these

7) The partial fraction of the function f(x) \( \frac{3x^2 + 4x + 1}{(x + 2)(x^2 + 1)} \) is
   a) \( \frac{A}{x+2} + \frac{B}{(x^2+1)} \)  
   b) \( \frac{A}{x+2} + \frac{Bx}{(x^2+1)} \)
   c) \( \frac{A}{x+2} + \frac{Bx + c}{(x^2+1)} \)  
   d) None

8) Solution of the differential equation \( \frac{d^2y}{dx^2} + y = 0 \).
   a) \( y = A \cos x + B \sin x \)  
   b) \( y = Ae^x + be^{-x} \)
   c) \( y = Ax + Bx^2 \)  
   d) None

9) The mode of the following distribution is

<table>
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<tr>
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<th>35</th>
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<th>55</th>
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<td>14</td>
<td>23</td>
<td>27</td>
<td>21</td>
<td>15</td>
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   a) 65  b) 45  c) 27  d) 25

10) A card is drawn from a pack of 52 cards the probability of this even is

   a) \( \frac{1}{4} \)  b) \( \frac{3}{13} \)  
   c) \( \frac{1}{52} \)  
   d) None
11) The mean and standard deviation of 100 observation is 45 and 10 respectively. If each observation is increased by 5 the new mean and standard deviation is _______________ and _______________ resp.

a) 10, 50  

b) 10, 45  
c) 50, 10  
d) None

12) In a moderately skewed distribution, the mode and mean are 40 and 32.5 respectively then the value of median ______

a) 35.06  
b) 42.6  
c) 72.6  
d) 30.24

13) The correlation coefficients between x and z is $\frac{1}{4}$ then corr $(4x, -5z) =$ __________

a) $\frac{1}{4}$  
b) $-\frac{1}{4}$  
c) $\frac{4}{5}$  
d) None

14) Ten students obtain the following percentage of marks in a certain examination

% of marks : 50, 60, 75, 84, 47, 52, 59, 44, 33, 46 then the range of distribution is

a) 51  
b) 4  
c) 50  
d) None

15) The value of median can be calculated by ______

a) Histogram  
b) Ogive curves  
c) Pie chart  
d) None of these

16) For a positively skewed distribution then mean, median and mode are such that

a) mean < median < mode  
b) mean = median = mode  
c) mean > median > mode  
d) none of these

SECTION – I

II. Solve any four : (4x4=16)

1) Find the value of c in the conclusion of Lagrange’s MVT for the function $F(x) = 2x^3 - 12x^2 + 24x - 9$ on [0, 1].

2) Solve : $(D^2 - 5D + 6)y = \sin 3x$ where $D = \frac{d}{dx}$.

3) Expand : $x^3 + x^2y + y^2x$ in powers of $(x - 2)$ using Taylor’s series.
4) Evaluate: \( \int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin^4 x \cos^3 x \, dx \).

5) Solve: \( y(1 + x)dx + x(1 + y)dy = 0 \).

6) State Rolle's theorem and verify for \( f(x) = x(x - 2)e^x \) on \([0, 2]\).

III. Solve the following: (8x2=16)

1) Using Lagrange's interpolation find the value of \( y \) when \( x = 3 \).

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<td>3</td>
<td>5</td>
<td>8</td>
<td>12</td>
</tr>
</tbody>
</table>

2) Find the inverse of the following matrices by adjoint method

\[
\begin{bmatrix}
2 & 3 & 4 \\
4 & 3 & 1 \\
1 & 2 & 4
\end{bmatrix}
\]

OR

2) Obtain the solution of the following system:
\[
\begin{align*}
2x - 3y + 4z &= 2 \\
3x - 3y + 4z &= -1 \\
y - z &= 0.
\end{align*}
\]

SECTION – II

IV. Solve any four: (4x4=16)

1) The following are the marks obtained by 60 students in Statistics. Find arithmetic mean

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<td>13</td>
<td>9</td>
<td>2</td>
<td>10</td>
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</tbody>
</table>

2) Number of articles supplied by a small scale industry on 10 days are as follows:
98, 75, 80, 94, 96, 108, 102, 100, 270, 90
Calculate variance and coefficient of variation.
3) Twenty balls are serially numbered and placed in a bag. One ball is selected at random. Find the probability that a number on ball drawn is multiple of 3 or 5.

4) Find the coefficient of correlation for the data given below:
   \[ n = 20, \sum x = 80, \sum x^2 = 1680, \sum y = 40, \sum y^2 = 320, \sum xy = 480. \]
   Comment on your result.

5) In a shooting competition, the probability of a man hitting a target is \(1/5\). If he hits the target for 5 times, what is the probability of hitting the target:
   i) Only two times
   ii) At least two times.

6) Find mode of the following data:

<table>
<thead>
<tr>
<th>Daily wages</th>
<th>Below 50</th>
<th>50 – 70</th>
<th>70 – 90</th>
<th>90 – 110</th>
<th>Above 110</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of workers</td>
<td>14</td>
<td>62</td>
<td>69</td>
<td>18</td>
<td>27</td>
</tr>
</tbody>
</table>

V. Solve the following: \((8 \times 2 = 16)\)

1) Suppose the observation of X and Y are given as

<table>
<thead>
<tr>
<th>X</th>
<th>59</th>
<th>65</th>
<th>45</th>
<th>52</th>
<th>60</th>
<th>62</th>
<th>70</th>
<th>55</th>
<th>45</th>
<th>49</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>75</td>
<td>70</td>
<td>55</td>
<td>65</td>
<td>60</td>
<td>69</td>
<td>80</td>
<td>65</td>
<td>59</td>
<td>61</td>
</tr>
</tbody>
</table>

Where X-marks in Economics, Y-marks in Maths.
Compute the regression equation of Y on X, and X on Y. If a student gets 63 marks in Economics, estimate his marks in Maths.

2) A hospital in a city receives on an average 4 emergency calls in a day. What is the probability that on a randomly selected day it receives
   i) At least one emergency call?
   ii) Exactly one emergency call?
   OR

2) A problem in probability is given to three students A, B the probability of solving them are \(1/3\) and \(1/4\). Find the probability that
   i) All will solve problem.
   ii) Exactly one of them will solve the problem.

____________________
B.Pharm. (Semester – IV) Examination, 2014
PHYSICAL PHARMACY – II

Day and Date : Saturday, 6-12-2014
Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

MCQ/Objective Type Questions

Duration : 30 Minutes
Marks : 16

I. Choose the correct options :

1) Wetting agent HLB scale is in between ______________
   A) 16 – 18 B) 7 – 9
   C) 13 – 16 D) 1 – 3

2) On alcohol addition to hydrophilic colloid leads to
   A) Crystallization B) Precipitation
   C) Hydration D) Stabilization

3) As the temperature increases degradation of drugs ______________
   A) Increases B) Decreases
   C) Remains constant D) Stops

4) Ist order biological half life of a drug is expressed as ______________
   A) 1/K B) log K
   C) 0.693/K D) 2.303/K

5) At.critical temperature surface tension of liquid is
   A) 0 B) 1
   C) Negative D) Maximum

6) Anti-foaming agent HLB scale is in between ______________
   A) 16 – 18 B) 7 – 9 C) 13 – 16 D) 1 – 3

7) The average particle size of a powder sample can be determined by ______________
   A) Andersen equation B) Hatch Schote equation
   C) Stokes equation D) Edemundsons equation
8) On electrolyte addition zeta potential ______________
   A) Increases  B) Decreases
   C) Remains constant  D) None of the above

9) For an ideal suspension sedimentation volume should be ______________
   A) More than 1  B) Equal to 1
   C) Zero  D) Less than one

10) Molecularity of a reaction always
    A) Higher than order  B) Lower than order
    C) Same as order  D) All of these

11) Detergents HLB scale is in between ______________
    A) 16 – 18  B) 7 – 9
    C) 13 – 16  D) 1 – 3

12) Solubilizing agent HLB scale is in between ______________
    A) 16 – 18  B) 7 – 9
    C) 13 – 16  D) 1 – 3

13) For granules high angle of repose indicates ______________
    A) High porosity  B) Smooth surface
    C) High bulk density  D) Rough surface

14) The term light pharmaceutical powder indicates ______________
    A) Low granule density  B) Low bulk density
    C) High granule density  D) High bulk density

15) On addition of lecithin surface tension ______________
    A) Increases  B) Decreases
    C) Remains constant  D) None of the above

16) Addition of wetting agent causes
    A) Increase in contact angle
    B) Contact angle remains constant
    C) Decrease in contact angle
    D) None of the these
SECTION – I

II. Answer any four of the following :

1) Provide the applications of surfactants in pharmacy.
2) State and explain Langmuir adsorption isotherm.
3) Write a note on angle of repose.
4) Explain second order reaction with example.
5) Give the classification of complexes.
6) Explain kinetic properties of colloids.

SECTION – II

III. Answer any two of the following :

1) Discuss derived properties of powders and give its methods of determination.
2) Elucidate electrical properties of colloids.
3) What do you mean by CMC ? Give the factors affecting CMC.

IV. Answer any four of the following :

1) Differentiate between molecularity and order of a chemical reaction
2) What is lyophobic colloid ? Give its techniques of stabilization.
3) Discuss Ring detachment method.
4) Explain particle size determination by microscopy method.
5) Brief about expiration dating.
6) Explain methods of HLB estimation.

V. Answer any two of the following :

1) Give the methods for the determination of surface area.
2) Illustrate DLVO theory.
3) Discuss different modes drug degradation with their correction.
B.Pharmacy (Semester – IV) Examination, 2014  
MICROBIOLOGY

Day and Date : Tuesday, 9-12-2014  
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 80

Instructions: 1) All questions are compulsory.
   2) Figures to the right indicate full marks.

1. Multiple choice questions: (1×16=16)

1) An electron dense material such as phototungstic acid used in following technique.
   a) Shadow casting  
   b) Ultrathin sectioning
   c) Negative statining  
   d) Autoradiography

2) The __________ complex may possibly play a role in the heat resistance of endospores.
   a) Magnesium-DPA  
   b) Calcium-DPA
   c) Iron DPA  
   d) a) and b)

3) For determining the efficacy of moist heat sterilization spores of __________ used as test organism.
   a) Bacillus stearothermophilus  
   b) Clostridium Tetani
   c) E. coli  
   d) Clostridium welchi

4) Which of the following exhibits pseudohyphae
   a) Candida  
   b) Aspergillus
   c) Penicillium  
   d) Cryptococcus

5) HIV can infect which of the following
   a) CD4 + T lymphocytes  
   b) Macrophages
   c) Monocytes  
   d) All of above

P.T.O.
6) Transfer of portion of DNA from one bacterium to another bacterium by bacteriophage is known as
   a) Conjugation  b) Transduction
   c) Transformation  d) Mutation

7) Indole production test is done to demonstrate
   a) To detect the production of acid during acid fermentation
   b) Ability of bacteria to decompose amino acid tryptophan
   c) Acetyl methyl carbinol (acetoin) production from pyruvic acid
   d) Ability of bacterium to utilize citrate as a carbon source

8) Staphylococcus Aureus are
   a) Gram positive cocci, arranges in grape like structure non-motile and non spore forming
   b) Gram positive cocci, arranges in grape like structure motile and spore forming
   c) Gram positive cocci, arranges in grape like structure, motile and spore forming
   d) Gram positive cocci, arranges in grape like structure, non-motile and associated with UTI

9) Which of the following is not mediated by humoral immune response
   a) Type I hypersensitivity  b) Type II hypersensitivity
   c) Type III hypersensitivity  d) Type IV hypersensitivity

10) Microorganism that do not obeys Koch’s postulates
    a) *M. Leprae*  b) *Streptococcus*
    c) *M. tuberculosis*  d) *Salmonell*

11) Bacteria that utilises CO₂ as their source of Carbon called as
    a) Chemotrophs  b) Heterotrophs
    c) Autotrophs  d) None of these

12) For the most bacteria optium growth temperature is
    a) 25°C  b) 37°C
    c) 50°C  d) 0°C
13) Urase production is common in
   a) *Salmonella*          b) *Shigella*
   c) *Escherichia*         d) *Klebsiella*

14) Which of the following causes tuberculosis in humans
   a) *M. Tuberculosis*      b) *M. Bovis*
   c) *M. Microti*           d) All the three

15) Following statement are true in case of viruses except
   a) They are obligate intra cellular parasites
   b) They requires only living media for their growth
   c) They contain both DNA and RNA
   d) Can not be seen under ordinary microscope

16) Select the correct pair from the following
    1) Robert Koch-Anthrax and Tuberculosis
    2) Robert Koch-Anthrax and Cholera
    3) Robert Koch-Anthrax and Tetanus
    4) Robert Koch-Tuberculosis and Tatanus
    a) 1 and 2               b) 2 and 3
    c) 1 and 3               d) All the three

2. Attempt any four questions : \((4\times 4 = 16)\)
   1) Write a short note on Ricketssia.
   2) Define the following terms
      1) D value
      2) Z value
      3) Sanitization
      4) Exaltation.
   3) Write a note on Cell Mediated Immunity.
   4) What is Bioburden ? Add a note on Kelsey-Syke’s test.
   5) Comment on characteristics of viruses.
   6) Discuss Koch’s contributions to Microbiology.
3. Attempt any two of the following:  (2x8=16)
   1) Explain in detail cultivation of Viruses.
   2) Define sterilization. Classify the different methods of sterilization. Discuss in
detail gaseous and radiation sterilization.
   3) Define bacterial genetic transfer methods. Discuss in detail about bacterial
   conjugation.

4. Attempt any four question:  (4x4=16)
   1) Differentiate between endotoxins and exotoxins.
   2) Write general properties of Fungi.
   3) Draw a neat labelled diagram of bacterium.
   4) Describe general characteristics of *Clostridium*.
   5) Write a note on biological indicators used in sterility testing.
   6) Write a note on arrangement of Flagella.

5. Attempt any two of the following:  (2x8=16)
   1) Give principle of Transmission Electron Microscopy. Explain various
   techniques used in it.
   2) Explain various biochemical tests used in identification of bacteria.
   3) Explain in detail spore formation and germination.
B.Pharm. (Semester – IV) Examination, 2014
ORGANIC CHEMISTRY – III

Day and Date: Thursday, 11-12-2014
Time: 3.00 p.m. to 6.00 p.m.

Total Marks: 80

1. Multiple choice questions: (16×1=16)

1) __________ rearrangement reaction involves conversion of benzyl phenyl ether to alcohol.
   A) Wittig  B) Favourskii  C) Claisen  D) Curtius

2) __________ rearrangement reaction is used for preparing aryl acetic acid.
   A) Fries  B) Claisen  C) Willgerodt  D) Wittig

3) __________ is not a conformation of cyclohexane.
   A) Chair  B) Boat  C) Y-shaped  D) Twist boat

4) __________ conformation of n-butane is most stable.
   A) Anti  B) Staggered  C) Eclipsed  D) Gauche

5) Isomers which are non superimoppable mirror images are called as __________
   A) Meso  B) Enantiomer  C) Epimer  D) Diastereomer

6) Stereochemistry of __________ reaction involves retention of configuration.
   A) SN₁  B) SN₂  C) SNi  D) All of these

7) Which of the following are electrophilic rearrangement reactions?
   A) Neber  B) Favourskii  C) Wittig  D) All of the above

P.T.O.
8) Migration of allyl group to ortho and para position in allyl ether of phenol at 200°C is ____________ rearrangement reaction.
   A) Fries              B) Claisen
   C) Baeyer-Villiger    D) Dakin oxidation

9) ____________ rearrangement reaction involves decomposition of acyl azides.
   A) Lossen            B) Wittig
   C) Schmidt           D) Curtius

10) In Wagner-Meerwein rearrangement where migrating group or atom migrates to ____________ atom.
    A) Electron deficient carbon  B) Electron deficient nitrogen
    C) Electron deficient oxygen  D) Electron deficient sulphur

11) Willgerodt is an ____________ rearrangement reaction.
     A) Intermolecular          B) Intramolecular
     C) Both A) and B)         D) None of the above

12) ____________ are the methods of resolution of racemic mixture.
     A) Biochemical            B) Conversion to diastereomers
     C) Chromatography         D) All of the above

13) 3-bromo-2-butanol have ____________ stereoisomers.
     A) 2                        B) 6
     C) 4                        D) 8

14) ____________ reaction involves formation of one product in predominant out of other possible product.
     A) Stereoselectivity       B) Stereospecificity
     C) Electrospecificity      D) None of the above

15) At low temperature, fries rearrangement favours ____________ product.
     A) Ortho                   B) Para
     C) Meta                    D) A) and B)

16) Ketene product is formed in which of the following rearrangement reaction.
     A) Wolf                    B) Curtius
     C) Wittig                  D) Lossen
2. Answer any four of the following questions:
   1) Write in short on cycloaddition reaction.
   2) Explain optical isomerism.
   3) Write on E and Z nomenclature system for geometrical isomers.
   4) Explain potential energy curve diagram of ethane molecule.
   5) Explain E1cb elimination reaction.

3. Answer any four of the following questions:
   1) Write a note on cope elimination reaction.
   2) Define and classify molecular rearrangement reaction.
   3) Explain Schmidt rearrangement reaction.
   4) Explain Dakin oxidation.
   5) Write on conformations of 1-methyl cyclohexane.

4. Answer any two of the following questions:
   1) Enlist different methods of resolution of racemic mixtures. Explain any four methods of it.
   2) Explain in detail on Baeyer-Villiger oxidation and Curtius rearrangement reaction.
   3) Write in detail on SN₂ and E₂ reaction.

5. Answer any two of the following questions:
   1) Write on any two aromatic rearrangement reaction.
   2) Explain with suitable examples stereoselectivity. Write on hydroboration of alkene.
   3) Explain in detail on Favorskii rearrangement and conformations of cyclohexane.
1. MCQ:

1) Assay of nor-floxacin is based on __________ type of titration.
   a) aqueous acid-base  b) non-aqueous acid-base
   c) complexometric  d) gravimetry

2) Murexide is used for determination of __________
   a) Ba++  b) Cd++  c) Zn++  d) Ca++

3) The advantage of ELISA is __________
   a) Sensitivity  b) Ease of handling
   c) No use of radioactivity  d) All of above

4) In the direct EDTA titrations __________ pH is maintained.
   a) 1  b) 5  c) 10  d) 15

5) For gravimetry __________ filter papers are used.
   a) ash value  b) ashless
   c) normal  d) none

6) For standardization of perchloric acid __________ is used as primary standard.
   a) NaOH  b) Na₂CO₃
   c) PHT  d) All

7) __________ is a masking agent.
   a) Ascorbic acid  b) Sod. cyanide
   c) Hydroxylamine  d) All of above

8) Gasometry is used for separation of __________
   a) Solid  b) Liquid  c) Gas  d) All

9) ELISA is used for testing of blood for __________ contamination.
   a) HIV 1  b) HIV 2
   c) Both a) and b)  d) None

10) According to statistical methods, reliability of sample is proportional to __________ of sample.
   a) $\sqrt{n}$  b) $\sqrt{n}/2$  c) $\sqrt{n}/2$  d) n
11) To increase the selectivity of EDTA titrations ______________ can be done.
   a) Adjustment of pH     b) Use of masking agent
   c) Use of precipitating agent   d) All of above

12) The standardization of K.F.R. can be done with ______________
   a) Tartaric acid     b) Sodium tartarate
   c) Succinic acid   d) Sodium succinate

13) For flowing liquid, sampling is done with ______________
   a) Sampling probe     b) Spatula
   c) Pipette   d) Multiple sampling tube

14) The rate of diffusion of two gases is proportional to ______________ of their densities.
   a) Sum     b) Difference
   c) Square root   d) None

15) Digestion is not done for ______________ ppt.
   a) Curdy     b) Gelatinous
   c) Both a) and b)   d) None

16) The diffusive samples work on principle of ______________ law of diffusion.
   a) Fick’s     b) Newton’s
   c) Karl Fischer’s   d) None

2. Write any four:  
   1) Explain in detail Kjeldahl’s method.  
   2) Explain in detail assay of sulpha drugs.  
   3) Write a note on filtration.  
   4) Define: Increment, gross sample, sample, sub-sample.  
   5) Draw a neat labelled diagram of K.F. apparatus.  
   6) Give the principle behind non-aq. titrations.

3. 1) Explain in detail classification of EDTA titrations. Add a note on masking and demasking.
2) Explain RMA of paracetamol.

OR

2) Explain in detail filtration and precipitation.
4. Write any four:

1) Explain in detail titrants used in non-aqueous titrations.
2) How will you prepare and standardize 0.1 M NaNO₂?
3) Write a note on washing and drying.
4) Explain in detail RMA of starch.
5) Explain in detail theory of sampling.
6) Define gravimetry. Enlist the steps involved in it.

5. 1) Explain in detail RIA. (8×2=16)

2) Explain in detail oxygen flask combustion method.

OR

2) Explain in detail factors affecting precipitation.
SLR-T – 26

B.Pharm. (Semester – IV) Examination, 2014
PATHOPHYSIOLOGY AND CLINICAL BIOCHEMISTRY – II

Day and Date : Tuesday, 16-12-2014
Time : 3.00 p.m. to 6.00 p.m.
Total Marks : 80

1. Choose the correct answer : \((1\times16=16)\)

1) Myasthenia gravis reflect a deficiency of ______________ receptor due to its destruction.
   a) Acetylcholine  b) Norepinephrine  c) GABA  d) Dopamine

2) When person dies suddenly from “Heart attack” the most likely event of sudden death is
   a) Rupture of heart  b) Cardiac arrythmia  c) Coronary embolism  d) Pulmonary hypertension

3) Which out of following is preferred mode of transmission of HIV infection from mother to child ?
   a) During pregnancy through placenta  b) During delivery through mixing of blood  c) Through breast milk during lactation  d) All of above

4) The virus which cause AIDS is attack on
   a) B cell  b) Cytotoxic T cell  c) Helper T cell  d) The membrane of lymph node

P.T.O.
5) Majority of autoimmune disease are
   a) Cell mediated
   b) Antibody mediated
   c) Macrophage mediated
   d) Mast cell mediated

6) Epilepsy is characterized by ___________
   a) Decrease level of glutamate
   b) Decrease level of GABA
   c) Increase level of Ach
   d) Decrease level of dopamine

7) Which of the following is most common cause of COPD?
   a) Chronic Bronchitis
   b) Emphysema
   c) Both of above
   d) None of above

8) The neurotransmitter involved in depression are
   a) GABA and dopamine
   b) Serotonin and norepinephrine
   c) Dopamine and serotonin
   d) GABA and Acetylcholone

9) Untreatd diabetes may result of all except ___________
   a) Blindness
   b) Cardiovascular disease
   c) Kidney disease
   d) Tinnitus

10) The most sensitive test for diagnosis of myasthenia gravis is
    a) Positive edrophonium test
    b) Repetitive nerve stimulation test
    c) Elevated serum Ach receptor binding antibody
    d) None of above

11) Tremor, Rigidity and Bradykinesia are characteristic of which of following disease
    a) Alzheimer’s disease
    b) Parkinson disease
    c) Multiple sclerosis
    d) Schizophrenia

12) Which of the following is the cause of heat failure?
    a) Intrinsic pump failure
    b) Increase workload on heart
    c) Impair filling of cardiac chambers
    d) All of above
13) The most common causative organism for lobar pneumonia is
   a) Staphylococci   b) Streptococci
   c) Pneumococci   d) Haemophilus

14) The characteristic inclusion seen in parkinsonism are
   a) Lewy bodies   b) Hirano bodies
   c) Negri bodies   d) None of above

15) The specific enzyme known to increase pancreas damage is
   a) LDH   b) SGOT
   c) Amylase   d) Creatinine kinase

16) Contributory factor in developing septic shock is
   a) Endotoxin from gram negative rods
   b) Pyrexia secondary to interleukin 1 and TNF$_\alpha$
   c) Peripheral vasodilation
   d) None of above

2. Solve any four: \( (4 \times 4 = 16) \)
   1) Define atherosclerosis, write morphologic feature of atherosclerosis.
   2) Explain briefly neurosis.
   3) Write note on thyroid function test.
   4) Describe briefly schizophrenia.
   5) Write note on Arthus reaction.
   6) Define pulmonary embolism, write its etiopathogenesis and consequence.

3. Solve any two: \( (2 \times 8 = 16) \)
   1) What is autoimmune disorder? Describe in detail Rheumatoid arthritis.
   2) Define shock. Describe its type, pathogenesis and etiology.
      OR
   2) Describe in detail liver function test.
4. Solve **any four**: 

1) Write note on status epilepticus.
2) Describe briefly diffuse intestinal lung disease.
3) Write note on hypothyroidism.
4) Describe briefly Alzheimer’s disease.
5) Define Pneumonia. Explain cause and type of pneumonia.
6) Explain clinical significance of 
   a) SGOT 
   b) Lipase 
   c) LDH 
   d) CPK.

5. Solve **any two**: 

1) Define Depression, give its type, etiology, clinical manifestation and management.
2) Define COPD. Explain indetail etiopathogenesis and management with complication of COPD.
   
   **OR**

2) Define AIDS, write etiology, pathogenesis, clinical feature, management of AIDS.

____________________________
B.Pharm. (Sem. – V) Examination, 2014
SOLID DOSAGE FORM

Day and Date : Friday, 5-12-2014
Time : 10.30 a.m. to 1.30 p.m.

Max. Marks : 80

MCQ/Objective Type Questions:

I. 1) Inadequate spreading of coating solution before drying causes __________
effect on film coating.
   A) Bumpy       B) Bloom       C) Orange-peel D) Both A) and C)

2) __________ is the example of microencapsulation method.
   A) Spray drying and spray congealing
   B) Air suspension
   C) Solvent evaporation
   D) All of the above

3) In sugar coating of tablet __________ material is used for polishing.
   A) Carnauba wax       B) Coca powder
   C) Oleic acid         D) Gelatin

4) Picking and sticking processing problem of tablet is prevented by addition of __________
   A) Lactose       B) Mannitol
   C) Stearic acid    D) None of these

5) __________ is example of film former in film coating of tablet.
   A) Hydroxy propyl methyl cellulose
   B) Methyl hydroxy ethyl cellulose
   C) Sodium carboxy methyl cellulose
   D) All of the above

6) __________ technique not belongs to coacervation phase separation method.
   A) Polymer-polymer interaction       B) Pan coating
   C) Temperature change               D) Sult addition

P.T.O.
7) USP apparatus – II dissolution testing is __________ type.
   A) Basket  B) Flow through cell
   C) Paddle  D) Paddle over disc

8) __________ is the modified starch derivative, low substituted carboxymethyl starch used as disintegrant.
   A) Ac-Di-Sol  B) Primogel  C) Avicel  D) Cab-o-sil

9) __________ is kinetic or dynamic method of angle of repose measurement.
   A) Fixed funnel  B) Tilting box
   C) Revolving cylinder  D) Fixed base

10) Uncoated tablets disintegrate at maximum time of __________ minute.
    A) 45  B) 30  C) 50  D) 60

11) Microcrystalline cellulose is also known as __________
    A) Avicel  B) Veegum HV  C) Cab-O-Sil  D) None of the above

12) Separation of tablet into two or more distinct layer is referred as __________
    A) Capping  B) Lamination  C) Sticking  D) Picking

13) __________ material is used for seal coat in sugar coating of tablet.
    A) Gelatin  B) Dextrin  C) Kaolin  D) Zein

14) Ward capsule is derived from the Latin, Capsula meaning __________
    A) Small box  B) Small cone  C) Small circle  D) Both A) and C)

15) Reason for enteric coating __________
    A) To protect acid-labile drugs
    B) To deliver drug to intestine
    C) To provide a delayed release component
    D) All of the above

16) In hard gelation capsule shell __________ ratio of dry glycerin: Dry gelatin is used.
    A) 0.4 : 1  B) 0.6 : 1  C) 0.8 : 1  D) 0.1 : 1
II. Answer any four. \((4 \times 4 = 16)\)

1) Enlist evaluation tests for tablets. Explain disintegration and friability test.
2) Explain in brief opaquant extenders and colorants in film coating of tablet.
3) What is enteric coating of tablet? Give account on enteric coating material.
4) Describe mechanism of granule formation.
5) Explain briefly evaluation of microspheres or microcapsules.
6) Describe in brief sugar coating of tablets.

III. Answer any two. \((8 \times 2 = 16)\)

1) Explain in detail coacervation-phase separation method of microencapsulation.
2) Describe rotary compression machine of tablet.

OR

2) Discuss characterization and evaluation of granules.

IV. Answer any four. \((4 \times 4 = 16)\)

1) Define capsule and write briefly about concept of site selection of capsule.
2) Give an account on layout of tablet manufacturing section.
3) Enlist different tablet coating equipment. Explain acceta-cota system.
4) Define and classify tablets. Write its advantages and disadvantages.
6) Explain briefly materials used in film coating of tablets.

V. Answer any two. \((8 \times 2 = 16)\)

1) Describe preparation of hard gelatin capsule shell and IPQC tests.
2) What are different additives used in tablets? Explain with examples.

OR

2) What are the needs of granulation? Explain in detail granulation equipments.
1. MCQ: (1×16=16)

1) The term bioavailability refer to the relative amount of drug that reaches.
   a) Small intestine     b) Stomach
   c) Liver              d) Systemic circulation

2) The unit of Area Under Curve (AUC) are
   a) cm$^2$          b) mg/cm$^2$     c) mg/ml/min     d) cm$^2$/hr

3) Absorption of drug is not required when it is given by __________ route.
   a) Oral              b) Intra muscular
   c) Intra venious     d) Subcutineous

4) Most of drug absorbed by __________ mechanism.
   a) Passive diffusion   b) Poor transportation
   c) Carried medicated transportation     d) Facilitated diffusion

5) Strongly basic drug are __________ absorbed in body.
   a) Poorly           b) Highly       c) Erratically    d) None of the above

6) $C_{\text{max}}$ in plasma concentration Vs time curve indicate.
   a) Rate of absorption = Rate of Elimination
   b) Complete absorption of drug
   c) Beginning of drug excretion
   d) Saturation of metabolizing enzyme

7) The term Pharmacokinetics is not applied in one of the field.
   a) Bioavailability measurement         b) Dosage adjustment in disease state
   c) Evaluation of drug adjustment      d) Stability of drug component
8) AUC reflect the
   a) Amount of drug which recharge the systematic circulation
   b) Amount of drug which is absorbed
   c) Amount of drug which is protein bounded
   d) Amount of drug which is metabolized

9) Creatinine clearance is a measurement of
   a) Renal excretion rate
   b) Glomerular filtration rate
   c) Active renal secretion
   d) Passive renal absorption

10) All the drug elimination pathway follows.
    a) First order kinetics
    b) Mixed order kinetics
    c) Zero order kinetics
    d) None of the above

11) Which of the following statement
    a) Unionized drug is readily absorbed because it is more water soluble than ionized form
    b) Ionized drug is readily absorbed because it is more lipid soluble than unionized form
    c) Unionized drug is readily absorbed because it is more lipid soluble than ionized form
    d) None of the above

12) Large variety of drug bind to __________
    a) HAS
    b) Acid glyco protein
    c) Haemoglobin
    d) Globulin

13) Pharmacokinetic is study of __________
    a) Drug effect
    b) t_{1/2}
    c) ADME
    d) None of the above

14) The volume of distribution (Vd) of drug is
    a) Total body volume
    b) Indication of patient total body volume
    c) Indication of patient total fluid volume
    d) Ratio of total amount of drug in the body to plasma concentration of drug

15) Factors affecting on absorption
    a) Polymorphism
    b) Intestinal transit time
    c) Dissolution time
    d) All of the above

16) How much bioavailability may be predicated during intra venous administration?
    a) 100%
    b) 89%
    c) 50%
    d) 92%
SECTION – I

2. Answer any four: (4×4=16)
   i) What are the ICH guidelines for Bioequivalence study?
   ii) Explain briefly about Volume of distribution.
   iii) Explain in detail absorption of drug.
   iv) Explain Blood Brain Barrier (BBB).
   v) Explain Organ clearance in detail.
   vi) Write a note on biopharmaceuticals classification system.

3. Answer any two: (8×2=16)
   i) Enlist factor affecting of absorption, describe physiochemical factor in detail.
   ii) Define compartment modeling, explain one compartment open model intravenous bolus.

   OR

   ii) What is dissolution? Describe the theories of the drug discoloration.

SECTION – II

4. Answer any four: (4×4=16)
   i) Define following term:
      1) Pharmacokinetic
      2) Biopharmaceutics
      3) Bioequivalence
      4) Bioavailability.
   ii) Explain Mechawal mention equation.
iii) Explain characteristic of passive diffusion of drug.
iv) Discuss the factor affecting renal elimination.
v) What are the perfusion limitation and permeation limitation in drug distribution?
vi) Explain in detail pH partition hypothesis.

5. Answer any two: (8×2=16)
   i) Define drug distribution, explain miscellaneous factor affecting on drug distribution.
   ii) Factor affecting renal excretion or renal clearance.

   OR

   ii) Explain in detail about method for enhancement of bioavailability.
1. Multiple choice questions:  

1) The heterocyclic ring is present in thiabendazole is  
   A) Benthiazole  B) Thiazole  
   C) Benzimidazole  D) Furan  

2) ___________ is not concerned with phase I reaction.  
   A) Oxidation  B) Conjugation  
   C) Reduction  D) Hydrolysis  

3) Penicillin on degradation in alkaline medium forms  
   A) Penillic acid  B) Penicillic acid  
   C) Penicilloic acid  D) None of the above  

4) One of the following diuretics acts on the loop of Henle  
   A) Spironolactone  B) Ethacrynic acid  
   C) Clorexiolone  D) Dichlorphenamid  

5) Glibenclamide belongs to the class  
   A) Sulphonyl ureas  B) Thiazolidinediones  
   C) Benzoic acid derivatives  D) Biguanides  

6) The microlide antibiotics do not have  
   A) A large lactone ring  B) A glycosidically linked aminosugar  
   C) A spirotetal group  D) A ketone group  

7) Synonym of mebendazole is  
   A) Antiminth  B) Vermox  
   C) Pyrental  D) Mentazole  

P.T.O.
8) Niridazole is used as
   A) Antiamoebics       B) Anthelmintics
   C) Antiviral          D) Antimalerial

9) Chloramphenicol is obtained from
   A) Streptomyces capreolus   B) Streptomyces venezuela
   C) Streptomyces orchidaceus D) Streptomyces griseus

10) Main site of drug metabolism is
    A) Intestine       B) Blood
    C) Liver          D) Plasma

11) B-lactum antibiotics inhibit the synthesis by inhibiting ____________
    A) Peptidoglycon   B) Peptoglycon
    C) Polypeptide     D) Peptidase

12) Which class of diuretics is useful in reducing intraocular pressure during acute attack of glaucoma ?
    A) Loop diuretics    B) Thiazide diuretics
    C) Potassium sparing diuretics   D) Osmotics diuretics

13) For nonvolatile drug according to Ferguson principle relative supersaturation is
    A) St/So       B) Pt/Po
    C) So/St       D) None

14) Antibiotics which interacts with calcium ion is
    A) Erythromycin    B) Streptomycin
    C) Tetracycline    D) Ampicilline

15) The metabolism of drug involves
    A) 1st order    B) 2nd order
    C) Zero order   D) Pseudo order

16) Which of the following drug is used in candidiasis ?
    A) Griseofulvin   B) Tolnafate
    C) Tolbutamide    D) Thiacetazole
SECTION – I

2. Answer any four of the following questions: (4×4=16)
   1) Define drug receptor interaction.
   2) Write a note on osmotic diuretics.
   3) What are the factors affecting drug metabolism?
   4) Draw the structure of glipizide, tinidazole Ethacrynic acid.
   5) Write chemistry of sulphonyl ureas.
   6) Write a note on diloxanide furoate.

3. Answer the following questions: (2×8=16)
   1) Explain phase I metabolic reaction with e.g.
   2) Write MOA and SAR of penicillin.

   OR

   3) What is relation between hydrogen bonding and biological activity.

SECTION – II

4. Answer any four of the following questions: (4×4=16)
   1) Explain in detail of partition coe.
   2) What are different factors affects the drug metabolism.
   3) Draw structure and MOA of potassium sparig diuretics (any one).
   4) Write a note on benzimidazole as a Anthelmintics.
   5) Discuss chemistry of cephalosporin.
   6) Write a note surface tension.

5. Answer the following questions: (2×8=16)
   1) Write the synthesis of Mebendazole, Metronidazole and Tolbutamide.
   2) Discuss in detail receptor and biological response.

   OR

   3) Discuss conversion of tetracycline
      1) 4-epitetracycline by epimerization
      2) anhydrotetracycline by degradation
      3) isotetracycline by cleavage
      4) chelate compound
1. 1) During cell fractionation rough ER is disrupted to form small vesicles called
   __________
   a) Cristae          b) Mitosol
   c) Chromosomes      d) Microsome
   
   2) Golgi apparatus is cluster of __________
   a) Dictyosomes      b) Lysosomes
   c) Chromosomes      d) Cytosomes
   
   3) Intake of macromolecules by cells is called __________
   a) Pinocytosis      b) Endocytosis
   c) Osmosis          d) Entrrocytosis
   
   4) Movement of water from dilute solution to concentrated solution is called
   __________
   a) Osmosis          b) Reverse osmosis
   c) Passive transport d) Active transport
   
   5) Specific carrier proteins are required for __________ transport.
   a) Active           b) Passive
   c) Facilitated      d) Osmotic
   
   6) Stereo isomers which are not mirror images of each other are called __________
   a) Isomers          b) Stereoisomers
   c) Diastereomer     d) Enantiomers
7) Inter-conversion of $\alpha$ to $\beta$ form of glucose is called as ____________
   a) Inversion           b) Tautomarism
   c) Mutarotation        d) Racemization

8) Reducing property of sugars is attributed to presence of ____________ group.
   a) Free aldehydic       b) Free aldehydic or ketonic
   c) Ketonic              d) Aromatic

9) ____________ give same type needle-shaped osazone crystals.
   a) Glucose, fructose, maltose         b) Glucose, galactose, fructose
   c) Glucose, fructose, mannose        d) None of the above

10) Kerasin consists of
    a) Nervonic acid                 b) Lignoceric acid
    c) Cervonic acid                 d) Clupanodonic acid

11) Higher alcohol present in waxes is
    a) Benzyl                       b) Methyl
    c) Ethyl                        d) Cetyl

12) Hydrolysis of fats by alkali is called
    a) Saponification number       b) Saponification
    c) Both A) and B)              d) None of these

13) The concentration of sphingomyelins are increased in
    a) Gaucher’s disease            b) Fabry’s disease
    c) Fabrile disease              d) Niemann-Pick disease

14) $\alpha$-D-glucose and $\beta$-D-glucose are
    a) Stereoisomers               b) Epimers
    c) Anomers                    d) Keto-aldo pairs

15) Cori cycle is ____________
    a) Synthesis of glucose       b) Reuse of glucose
    c) Uptake of glucose          d) Both A) and B)
2. Answer any five of the following questions: 

   1) What are epimers? Write note of optical rotation.
   2) Define terms uniport, symport and antiport transport mechanism.
   3) What are lipids? Classify them with suitable example.
   4) Give structure and functions of hyaluronic acid and heparin.
   5) Write note on propionate pathway.
   6) Give structure and function of mitochondria and golgi apparatus.

3. Answer any three following questions: 

   1) What is glycolysis? Enumerates the steps of glycolysis and energetic.
   3) Explain in detail classification of phospholipids with structures.
   4) Describe $\beta$-oxidation of fatty acid. Calculate net ATP yield.
B.Pharm. (Semester – V) Examination, 2014
PHARMACEUTICAL ANALYSIS – III

Day and Date : Friday, 12-12-2014
Time : 10.30 a.m. to 1.30 p.m.

1. Choose the correct options :  
   (16×1=16)

   1) In spectrofluorimeter light source is ________________
      A) Xenon lamp          B) Tungsten lamp
      C) Carbon arc lamp     D) H₂ lamp

   2) What color of visible light has the longest wavelength ?
      A) Blue               B) Violet
      C) Red                D) Yellow

   3) Reciprocal of wavelength is ________________
      A) Speed              B) Wave number
      C) Frequency          D) Velocity

   4) Dissolved oxygen ________________
      A) F.I. increases     B) F.I. decreases
      C) F.I. depends on amount of O₂ D) None of above

   5) Filler gas in hollow cathode lamp is ________________
      A) Neon               B) Xenon
      C) Hydrogen           D) Helium

   6) Maximum energy is required for ________________
      A) Translation        B) Rotational
      C) Vibrational        D) Electronic excitation

   7) Detector used in AAS is ________________
      A) Ruby crystal      B) Silicon crystal
      C) PMT               D) PVC

   Total Marks : 80
8) Increase in intensity of absorption called ______________
   A) Hyperchromic effect  B) Hypochromic effect
   C) Red shift  D) Blue shift

9) K band is ______________
   A) \( \Pi \rightarrow \Pi^* \)  B) \( \sigma \rightarrow \sigma^* \)
   C) \( \eta \rightarrow \Pi^* \)  D) \( \eta \rightarrow \Pi \)

10) Highly sensitive detector in UV-Visible spectroscopy is ______________
    A) Photovoltaic cell  B) Phototubes
    C) PMT  D) Amplifier

11) Absorption of energy by ground state atoms in gaseous state forms the basis of ______________
    A) AES  B) FES
    C) AFS  D) AAS

12) Chromophore is ______________
    A) Covalently saturated  B) Coordinately saturated
    C) Coordinately unsaturated  D) Covalently unsaturated

13) ______________ °C temperature is achieved from propane and air.
    A) 2700-2800  B) 2500-2400
    C) 1700-1900  D) 2100-2400

14) The radiations emitted the element in flame photometry is mostly in the ______________ region.
    A) UV  B) IR
    C) Visible  D) X-ray

15) Flame photometry is also called flame ______________ spectroscopy
    A) Absorption  B) Emission
    C) A and B  D) None

16) Sample to be analyzed by Atomic absorption must be vaporized or atomized by using a ______________
    A) Flame atomizer  B) Graphite furnace
    C) A) or B)  D) None
SECTION – I

2. Answer any four of the following questions:  
   (4×4=16)
   1) Give structural requirements of molecule to show fluorescence.
   2) Enlist various burners used in AAS. Discuss in brief any two.
   3) Explain principle of Flame Photometry.
   4) Explain the term red shift, hypochromic effect and auxochrome.
   5) Give different types of transition in organic molecules.
   6) Define triplet state, fluorescence and phosphorescence.

3. Answer the following:  
   (2×8=16)
   1) Derive Beer-Lamberts law in details.
   2) Explain the factors affecting fluorescence.
      OR
   3) Derive the simultaneous equation method for assay of substances in multicomponent samples.

SECTION – II

4. Answer any four of the following questions:  
   (4×4=16)
   1) Give in brief the reasons of deviation from beer’s law.
   2) Explain with a neat labeled diagram of fluorimeter.
   3) Write principal and working of PMT.
   4) Write the interferences in atomic absorption spectroscopy.
   5) Explain in details instrumental conditions required for spectroscopic measurement.
   6) Give the applications of flame photometry.

5. Answer the following:  
   (2×8=16)
   1) Give principal involved in AAS. Give advantage of AAS over FES. Difference between AAS and AES.
   2) With an energy level diagram for photoluminescent molecule explain whole deactivation process.
      OR
   3) Derive the Q-absorbance ratio method for assay of substances in multicomponent samples.
B.Pharm. (Semester – V) Examination, 2014
PHARMACOLOGY – I

Day and Date : Monday, 15-12-2014
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 80

1. MCQ : Choose the correct alternative :
   1) An example of ganglionic blocker is _____________
      a) Pirenzepine b) Hexamethonium c) Atropine d) Oxybutynin
   2) Yohimbine is a _____________
      a) $\alpha_2$-blocker b) $\alpha_1$-blocker c) $\beta_1$-blocker d) $\beta_2$-blocker
   3) The volume of distribution of drug is _____________
      a) An expression of total body volume b) A measure of total fluid volume
      c) A relationship between total amount of drug in the body and the concentration
         of the drug in blood d) Proportional to bioavailability of the drug
   4) Belladonna alkaloid (Atropine) is used prior the administration of general
      anesthetics agent due to _____________
      a) Inhibition of G.I. motility b) Prevention of miosis
      c) Inhibition of salivation and secretion of respiratory tract
d) Causing skeletal muscle relaxation
   5) Which of the following is directly acting sympathomimetic agent ?
      a) Ephedrine b) Amphetamine c) Dopamine d) Morphine
   6) Epinephrine is added to local anaesthetics because _____________
      a) To cause hemostasis b) To prolong the action of local anaesthetics
c) To stimulate wound healing d) To decrease efficacy of drug

P.T.O.
7) Pilocarpine is _______________
   a) Cholinomimetic  b) Cholinesterase inhibitors
   c) Sympathomimetic  d) Dopamine receptor antagonist

8) Drug of choice in the treatment of cardiogenic shock _______________
   a) Dopamine  b) Acetylcholine
   c) Epinephrine  d) Imipramine

9) Which of the following agent is cholinesterase reactivator ?
   a) Aspirin  b) Pilocarpine  c) Scopolamine  d) Pralidoxime

10) Which route of drug administration shows 100% bioavailability and rapid onset of action ?
    a) Intravenous route  b) Oral route
    c) Rectal route  d) Topical route

11) Down regulation of receptor can occur as a consequence of _______________
    a) Continuous use of agonists  b) Continuous use of antagonists
    c) Chronic use of CNS depressant  d) Denervation

12) Therapeutic index of drug is a measure of it's _______________
    a) Safety  b) Potency  c) Efficacy  d) Variability

13) Marked distribution is a feature of _______________
    a) Highly lipid soluble drugs  b) Poorly lipid soluble drug
    c) Depot preparation  d) Highly plasma protein bound drug

14) Drug administered through the following route is most likely to be subjected to first pass metabolism _______________
    a) Oral  b) Sublingual
    c) Subcutaneous  d) Rectal

15) Essential drug are _______________
    a) Life saving drug  b) Drug that meet the priority health care need of the population
    c) Drug that most be present in the emergency bag of a doctor  d) Drug that are listed in the pharmacopeia of a country

16) The most appropriate route of administration for adrenaline in a case of anaphylactic shock is _______________
    a) Intracardiac  b) Intravenous
    c) Intramuscular  d) Subcutaneous
2. Answer any four: (4x4=16)
   a) Give the advantages and disadvantages of oral route.
   b) Define agonist, antagonist, synergism, bioavailability.
   c) Write a note on drug distribution.
   d) Write note on excretion of drugs.
   e) Explain briefly concept of receptor.

3. Answer any four: (4x4=16)
   a) Give the adverse effect and uses of atropine.
   b) Classify skeletal muscle relaxants and give their uses.
   c) Brief Dales vasomotor reversals.
   d) Discuss pharmacology of nicotine.
   e) Give classification of adrenergic drugs with example.

4. Answer any two: (8x2=16)
   a) Discuss in detail drug toxicity in man.
   b) Discuss in detail the factor modifying drug absorption.
   c) What is metabolism and explain in detail phase – I metabolism?

5. Answer any two: (8x2=16)
   a) Discuss in detail pharmacology of Atropine.
   b) Classify Adrenolytics. Name the different adrenergic receptor and their distribution.
   c) Discuss the symptoms, care and treatment of organophosphorus poisoning.
B.Pharmacy (Semester – V) Examination, 2014
BIOTECHNOLOGY

Day and Date : Wednesday, 17-12-2014
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 80

1. Choose the correct answer : (1×16=16)

1) Coding region in the gene is called as ________________
   a) Adaptor  b) Intron  c) Exon  d) Spacer

2) In genetic engineering, plasmid is used as ________________
   a) Vector  b) Adaptor  c) Linker  d) None of the above

3) To release intra-cellular product ________________ technique is used.
   a) Alkali treatment  b) Detergent treatment  c) Homogenization  d) All of the above

4) In animal cell culture ________________ used for cell dis-aggregation.
   a) Ligase  b) Trypsin  c) Gyrase  d) Dismutase

5) In plant tissue culture, generally meristematic cells are used because of ________________
   a) Rapid growth  b) Develop disease free plant  c) Callus formation  d) All of above

6) Protoplast viability can be determined by using ________________ dye.
   a) Fluorescein diacetate  b) Safranine  c) Crystal violet  d) Congo red

7) For cryopreservation of germ plasm liquid ________________ gas is used.
   a) Oxygen  b) Hydrogen  c) Nitrogen  d) Carbon di-oxide
8) Serum is added in animal cell culture medium because it contains

   __________
   a) Growth factors  b) Micronutrients
   c) Hormones      d) All of the above

9) Temperature needed for DNA strand separation (Melting temperature) in PCR is

   a) 95°C   b) 74°C   c) 45°C   d) 100°C

10) ____________ shows blue color with DNA.

   a) Bial's reagent  b) Barfoads reagent
   c) Diphenyl amine reagent  d) Benedict reagent

11) ____________ is starting codon in transcription.

   a) AUG   b) UUA   c) UAA   d) UAG

12) ____________ received a license to make human insulin in 1983.

   a) Eli Lilly  b) Merk  c) Genetech  d) Immunex

13) Chemically enzymes are ____________ in nature.

   a) Carbohydrates b) Proteins  c) Lipids  d) All of the above

14) Aspect ratio of fermenter is ____________ ratio.

   a) Feed/product  b) % of product produced
   c) Height/Diameter  d) Both a) and b)

15) Formation of RNA from DNA in cell nucleus is called as ____________

   a) Replication  b) Transcription  c) Translation  d) Transduction

16) Immobilization of enzyme is carried out for ____________

   a) Better stability   b) Better recovery
   c) Repeated use      d) All of the above

SECTION – I

2. Answer any four from the following: (4x4=16)

1) Write applications of biotechnology in pharmaceutical industry.

2) Explain construction and working of typical fermenter.

3) Explain medium used for plant tissue culture.

4) Explain cloning vectors in genetic engineering.
5) Explain production of single cell proteins.
6) What are explants in plant tissue culture? How callus is induced from it?

3. Answer the following: (8x2=16)
   1) Discuss steps involved in polymerase chain reaction. Write its applications.
   2) Describe the isolation and purification of enzyme in detail.
   OR
   2) Explain MAb production, write its applications.

SECTION – II

4. Answer any four from the following: (4x4=16)
   1) Enlist different stages in downstream processing and add a note on purification.
   2) Write short note on plant growth regulators used in plant tissue culture.
   3) Write applications of animal cell culture.
   4) Write short note on restrictional endonuclease in genetic engineering.
   5) Explain human growth hormone production by rDNA technology.
   6) Define sera. How it can be prepared for a bacterial antigen?

5. Answer the following: (8x2=16)
   1) Explain the production of streptomycin by considering following points:
      a) Strains used
      b) Inoculum development
      c) Fermentation process
      d) Recovery.
   2) Explain production of insulin by rDNA technology.
   OR
   2) Explain different molecular biology tools used in genetic engineering.
1. MCQ : 
   (1×16=16)
   1) How much % of concentration of Borax should be used for cold cream ?
      a) 1% of total formula  
      b) 0.5% of total formula  
      c) 2% of total formula  
      d) 2.5% of total formula
   2) Which vegetable oil is mostly useful in lipstick ?
      a) Caster oil  
      b) Liquid paraffin  
      c) Almond oil  
      d) Peanut oil
   3) Vanishing cream is an ointment but may be classified as
      a) Water soluble base  
      b) Oleaginous base  
      c) Absorption base  
      d) Emulsion base
   4) Cold cream phase containing long chain alcohol or Easter or acid while ointment containing.
      a) Aromatic compound  
      b) Hydrocarbon  
      c) Resin  
      d) Fat
   5) Mascara is applied on ________________
      a) Lips  
      b) Nail  
      c) Eyelashes  
      d) None
   6) Mascara preparation is available in ________________ form.
      a) Liquid  
      b) Cream  
      c) Cake  
      d) All the above
   7) What is the use of stearic acid in vanishing cream ?
      a) Increase consistency  
      b) Increase transparence  
      c) Increase white shining  
      d) Maintain stiffness
   8) What is concentration of lanoline should be appropriate as lipstick base ?
      a) More than 25%  
      b) Less than 50%  
      c) More than 20%  
      d) Up to 15%
   9) Which Viscosity (Poise) is appropriate as lipstick base ?
      a) 300  
      b) 100  
      c) 250  
      d) 200
10) Unnas paste contain ___________
   a) Zinc oxide                    b) Zinc oxide and sulphar
   c) Zinc oxide and gelatin       d) Zinc oxide and boric acid

11) Barrier cream is used to protect skin from
   a) Microorganism               b) Viral infection
   c) Sunlight injury             d) Ultra violet rays

12) Gel property of carbopol is affected by ___________
    a) Solubility                 b) Acidity
    c) Alkali                    d) pH

13) Paste are ___________ greasy than ointment.
    a) More                        b) Moderate
    c) Less                        d) Average

14) ___________ Jellies are sometimes called Bassorin paste.
    a) Tragacanth                b) Pectin
    c) Starch                    d) Sodium alginate

15) Endodermic ointment act as ___________
    a) Parasiticide               b) Protectative
    c) Local irritant             d) All the above

16) Hydrous wool fat is ___________ type of emulsion.
    a) W/O                       b) O/W/O
    c) O/W                       d) W/O/W

SECTION – I

2. Answer any four: (4×4=16)
   1) Define Gel. Add note on rheology of gel.
   2) Describe mfg procedure and principle behind Lipstick.
   3) Give the ideal properties of ointment base.
   4) Highlight Quality control taste for jellies.
   5) What is mascara and give ideal characteristic.
   6) Classify creams, note on cold cream.

3. Answer any two: (8×2=16)
   1) Define cream. Write their advantage, disadvantage and evaluation parameter of creams.
   2) Define ointment. Write in detail about packaging and evaluation of ointment.

   OR

   2) Define paste. Write their advantage, disadvantage and write formulation preparation of Unnas paste.
4. Answer any four:

1) Write a note on cosmetics and write advantage and disadvantage.
2) What is mean by Non-staining iodine ointment with example?
3) Classify semisolid dosage form. Write factor affecting as drug permeability.
4) Who to perform stability test for gelis?
5) Classify cosmetic with their examples.
6) Short note on vanishing cream.

5. Answer any two:

1) Write formula, procedure, principle for any antifungal ointment preparation.
2) Explain sensitivity test and irritation test for cosmetics.

OR

2) Define jellies and write in detail about jellies agent with example.
B.Pharm. (Semester – VI) Examination, 2014  
MEDICINAL CHEMISTRY – II

Day and Date : Tuesday, 9-12-2014  
Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

1. Multiple Choice Questions : (16×1=16)

1) One of the following does not contain pyrimidine in its structure.
   A) Sulphadiazine  B) Sulphadoxime  
   C) Pyrimethamine  D) Dapsone

2) A potent inhibitor of thymidylate synthetase
   A) Naftifine  B) 5-Flucytosine  
   C) Ciclopirox  D) Ketoconazole

3) Which one is alkylating agent ?
   A) Thioguanine  B) Mitomicin  
   C) Tacrolimus  D) Doxorubicin

4) Name pyrazine containing drug used in treatment of TB
   A) Pyrazinamide  B) Ethionamide  
   C) Praziquantel  D) Ethambutol

5) Nalidixic Acid is used in treatment of
   A) UTI infection  B) Respiratory infection  
   C) Fungal infection  D) Viral infection

6) Which of the antineoplastic agent is metabolized by xanthine oxidase ?
   A) 6-Mercaptopurine  B) Vincristine  
   C) 6-Chloambucil  D) 6-Thioguanine

7) Mechanism of action of Nevirapine is
   A) Uncoating inhibitor  B) Adsorption inhibitor  
   C) R. T. inhibitor  D) Protease inhibitor

P.T.O.
8) The antimalarial drug mepacrine is derivative of
   A) Quinacrine  B) Quinazoline
   C) Acridine    D) Thiazine

9) Cycloserine, an antibiotic used in tuberculosis contains
   A) Pyrrole      B) Isooxazole
   C) Imidazole   D) Oxazole

10) Alpha interferons are secreted by __________ cells.
    A) Fibroblast  B) Lymphocyte
    C) T-cell      D) Beta cell

11) Which of the following antimalarial drug is not a 4-amino quinoline derivative ?
    A) Chloroquine  B) Amodiaquine
    C) Primaquine   D) Hydroxyquinazoline

12) HIV infection can be clinically controlled by
    A) Cytarabine  B) Acyclovir
    C) Zidovudine  D) Amantidine

13) Chloroquine is a derivative of
    A) 3-aminoquinoline  B) 4-aminoquinoline
    C) 2-aminoquinoline  D) 8-aminoquinoline

14) Dapsone + Rifampicin + Clofazimine combination therapy is used in treating
    A) Fungal      B) Cancer
    C) Tuberculosis D) Aids

15) One of the following is a glycopeptide antibiotics.
    A) Bleomycin   B) Actinomycin D
    C) Mithramycin D) Mitomycin

16) The long acting sulphonamide is
    A) Sulphamethoxazole  B) Sulphadiazine
    C) Sulphadoxine     D) Sulphacetamide
SECTION – I

2. Answer any four of the following questions : (4×4=16)
   1) Draw the structure Flucanazole, Sulphamethoxazole.
   2) Write MOA 5-Fluorouracil.
   3) Explain reverse transcription inhibitor. Give structure of zidovudine.
   4) Write SAR of Isoniazid.
   5) Write a note on antimetabolites. Give two e.g. with structure.
   6) Write the synthesis of Clotrimazole.

3. Answer the following questions : (2×8=16)
   1) Write the synthesis of Nalidixic acid, Amantidine, Chloroquine.
   2) Write a note on Quinoline antibacterial agent with e.g.
   OR
   3) What is viral replication and classify with e.g.

SECTION – II

4. Answer any four of the following questions : (4×4=16)
   1) What is reverse transcription inhibitor ?
   2) Write a note on combination therapy.
   3) Write a note on DOT.
   4) Write a note on Azole derivative.
   5) Classify antiviral agent with e.g.
   6) Explain MOA and SAR of INH with adverse effect.

5. Answer the following questions : (2×8=16)
   1) Write the life cycle malarial and classify with e.g.
   2) What is antineoplastic agent and classify with e.g. Write the MOA antimetabolites.
   OR
   3) Write MOA and SAR of sulphonamide.

______________
I. Multiple choice questions : 16

1) Globar unit is  
   a) Silicon sulphide  
   b) Tungsten  
   c) Silicon carbide  
   d) None of these

2) Optical activity is concerned with _____________  
   a) Plane polarized light  
   b) Refractive index  
   c) Ordinary light  
   d) All of these

3) Gas cell which is used for sampling of gases in IR is made up of _____________  
   a) Potassium bromide  
   b) Potassium sulphide  
   c) Potassium Cyanide  
   d) None of the above

4) The solvent not used in IR _____________  
   a) CHCl₃  
   b) CCl₄  
   c) CS₂  
   d) H₂O

5) Conductivity cell are made up of _____________  
   a) Two silver rods  
   b) Two parallel sheets of platinum  
   c) Glass membrane with Ag/Agcl  
   d) None of these

6) Position of IR peaks can be expressed in  
   a) cm⁻¹  
   b) mm⁻¹  
   c) cm  
   d) mm

7) _____________ is a type of sample holder in TG.  
   a) Deep crucibles  
   b) Shallow pans  
   c) Retort cups  
   d) All of these

8) Dextrose injection IP is assayed by _____________  
   a) Conductometry  
   b) Polarography  
   c) Polarimetry  
   d) Refractometry
9) In acid base titration which of electrode used as reference electrode is ________
   a) Calomel electrode  b) Glass electrode
   c) Silver chloride electrode  d) Quinhydrone electrode

10) Potentiometer is used to measure ________________
    a) Concentration  b) EMF  c) Conductance  d) Temperature

11) Faradic current is due to
    a) High current  b) Traces of impurities in electrolyte
    c) Low potential  d) DME

12) The parameter measured in thermogravimetry is
    a) dH/dt  b) Temperature difference
    c) Mass  d) None of these

13) The number of vibrational degree of freedom of carbon dioxide is
    a) 2  b) 4  c) 6  d) 8

14) The Nernst glower rod is heated to produce IR radiation at ____________ °C.
    a) 1500  b) 6000  c) 3000  d) 4000

15) The specific conductance of conductor is reciprocal of ____________
    a) Equivalent conductance  b) Specific resistance
    c) Molar conductance  d) All of these

16) In TG temperature is measured by ____________
    a) Thermocouple  b) Thermistor  c) Thermometer  d) All of these

II. Solve any four: (4×4=16)

1) Give the applications of DSC.

2) What is DTA ? Explain thermogram of DTA.

3) How do you calibrate conductometer and pH meter ?

4) Explain half wave potential with its significance.

5) Give different types of TG. What are the advantages of TG 750 over other balances ?

6) Explain instrumentation of polarimeter.
III. Solve the following:  

1) What are reference and indicator electrode? Explain the working of saturated calomel electrode and glass electrode with suitable diagram.

2) Discuss the instrumentation of thermogravimetry.

OR

2) What is polarography? Discuss each part of polargram. Write a node on differential pulse polarography.

SECTION – II

IV. Solve any four:  

1) Enlist various types of detectors of IR and explain the working of thermocouple.

2) Explain cell constant discuss the conductometric titration of strong acid against strong base.

3) How do instrumental parameters affect the thermogram in TG?

4) Write a note on potentiometric titrations.

5) How you will determine solubility of sparingly soluble salt by conductometry?

6) Write a note on light sources used in IR spectrophotometer.

V. Solve the following:  

1) What is IR spectroscopy? Write a note on requirement of IR spectroscopy and discuss factors affecting vibrational frequency.

2) Explain with neat labeled diagram construction working and theory of Abbe’s refractometer.

OR

2) Discuss in detail optical rotatory dispersion and circular dichroism. Add a note on applications of circular dichroism.
1. Choose the correct answer :

1) All the following are indication for use of antihistamines except ___________
   a) Hay fever          b) Anaphylactic reaction
   c) Allergic rhinitis  d) Anticholinergic poisoning

2) This drug both inhibits an enzyme and indirectly enhances clearance of Low Density Lipoproteins (LDL).
   a) Cholestyramine    b) Lovastatin
   c) Nicotinic acid    d) Probufol

3) The drug acts at the proximal tubule ___________
   a) Acetazolamide      b) Furosemide
   c) Hydrochlorothiazide d) Spironolactone

4) The drug has a steroid-like structure which is responsible for its anti-androgenic effect ___________
   a) Amiloride          b) Furosemide
   c) Hydrochlorothiazide d) Spironolactone

5) Identify the positive inotropic drug of non-glycoside structure ___________
   a) Digitoxin         b) Digoxin         c) Dobutamine        d) Strophanthin

6) The main principle of shock treatment is ___________
   a) To increase the arterial pressure
   b) To increase the peripheral vascular resistance
   c) To increase the cardiac output
   d) To improve the peripheral blood flow
7) Choose the vasodilator which releases NO __________
   a) Nifedipine  b) Hydralazine
   c) Minoxidil  d) Sodium nitroprusside

8) Choose the group of antihypertensive drugs which diminishes the metabolism of bradykinin __________
   a) Ganglioblockers  b) $\alpha$-adrenoblockers
   c) Angiotensin-converting enzyme inhibitors  d) Diuretics

9) This drug is a non-peptide angiotensin II receptor antagonist_________
   a) Clonidine  b) Captopril  c) Losartan  d) Diazoxide

10) All of these drugs are antiplatelet agents except_________
    a) Aspirin  b) Urokinase  c) Ticlopidine  d) Clopidogrel

11) Indicate the drug belonging to antagonists of heparin_________
    a) Aspirin  b) Dicumarol  c) Dalteparin  d) Protamine sulfate

12) Choose the drug that causes constipation __________
    a) Sodium bicarbonate  b) Aluminium hydroxide
    c) Calcium carbonate  d) Magnesium oxide

13) Which drug is an analog of prostaglandin E1 ?
    a) Misoprostole  b) Ranitidine  c) Sucralfate  d) Omeprazole

14) Gastric acid secretion is under the control of the following agents except_________
    a) Histamine  b) Acetylcholine  c) Serotonin  d) Gastrin

15) Which of the following drugs may cause reversible gynecomastia ?
    a) Omeprazole  b) Pirenzepine  c) Cimetidine  d) Sucralfate

16) Drug of choice in atropine poisoning is
    a) Physostigmine  b) Aderaline  c) Heparin  d) Neostigmine
2. Answer **any four**: (4×4=16)
   a) Define antacids and expectorants? Give two examples.
   b) Why aspirin is contraindicated in peptic ulcer patient?
   c) Give physiological role of histamine.
   d) Write in brief about erythropoietin.
   e) What are anticoagulants? Enlist their name and mention their uses.

3. Answer **any four**: (4×4=16)
   a) Give mechanism action of dimercaprol and D-penicillamine as heavy metal antagonist?
   b) What are antiemetic? Classify giving suitable examples.
   c) Classify diuretics with suitable examples.
   d) Discuss the cardiovascular action of angiotensin?
   e) Classify antihyperlipedemic drugs with examples.

4. Answer **any two**: (8×2=16)
   a) What are autacoids? Enlist their name. Discuss in detail 5-HT as autacoids.
   b) Classify antiasthmatics? Discuss the role of inhalational corticosteroid therapy in asthma treatment.
   c) Classify antianginal agents with example. Discuss pharmacology of nitroglycerin.

5. Answer **any two**: (8×2=16)
   a) What are prostaglandins? Give account of physiological role of prostaglandins.
   b) Classify antiulcer drugs. Discuss the brief mechanism of action, uses, adverse effect of cimitidine.
   c) Discuss in details pharmacology of digitalis.
B. Pharmacy (Semester – VI) Examination, 2014  
CLINICAL PHARMACOLOGY

Day and Date: Tuesday, 16-12-2014  
Max. Marks: 80
Time: 10.30 a.m. to 1.30 p.m.

Note: 1) All questions are compulsory.  
2) Figures to the right indicate full marks.

1. Choose the most appropriate answer from amongst the four choices for each of the following questions.

1) The system to discover trends across studies that may have used different procedures, numbers of participants, types of control procedures and different forms of measurement in known as ____________
   a) Null Hypothesis  
   b) Blind study  
   c) Double blind study  
   d) Meta analysis

2) Following represents First Order Drug Elimination __________
   a) Fixed quantity of the drug is eliminated per unit time  
   b) Fixed percentage of drug is eliminated per unit time  
   c) Rate of absorption is directly proportional rate of elimination  
   d) None of the above

3) The drug toxicity leading to defective development of organs in the foetus is referred to as ____________
   a) Mutagenicity  
   b) Genotoxicity  
   c) Teratogenicity  
   d) Cytotoxicity

4) Displacement of ____________ drug by ____________ drug with greater affinity for plasma protein binding leads to hemorrhage.
   a) Phenytoin, Sodium valporate  
   b) Digoxin, Quinidine  
   c) Warferin, NSAIDS  
   d) Sulphonylureas, Sulphonamides

P.T.O.
5) An inert substance given as a control device in Clinical Trials in place of a drug is __________
   a) Excipient  b) Placebo  c) Additive  d) Supplement

6) Which of the following antimicrobial needs dose reduction even in mild renal failure?
   a) Ciprofloxacin  b) Metronidazole
   c) Aminoglycosides  d) Cefotaxim

7) Development of tolerance to pharmacologically related drugs is called __________
   a) Natural Tolerance  b) Racial Tolerance
   c) Cross Tolerance  d) Pseudotolerance

8) Nearly complete drug elimination occurs in ___________ half lives.
   a) 1-2  b) 4-5  c) More than 5  d) More than 10

9) An effective prophylactic bronchodilator for asthma is __________
   a) Ipratropium  b) Salbutamol  c) Cromoglycate  d) Montelukast

10) ‘Steady state concentrations of a drug after repeated administrations are reached in 4 to 5 half lives’. This statement is called as __________
    a) Dosing principle  b) Plateau Principle
    c) Therapeutic principle  d) None of these

11) Drug metabolism in most cases leads to __________ of the following.
    a) Formation of pharmacologically inactive metabolite
    b) More water soluble metabolite
    c) Both a) and b)
    d) Only b

12) Genetically determined abnormal reactivity to a drug is called __________
    a) Idiosyncracy  b) Allergy
    c) Hypersensitivity  d) Toxicity

13) Dose reduction in renal disease is based on __________
    a) Heart Rate  b) Blood Pressure
    c) Creatinine Clearance  d) Body weight

14) Tetracyclines are contraindicated in pregnancy because they cause __________ in newborns.
    a) Bone and teeth damage  b) Phocomelia
    c) Goiter  d) Low IQ
15) When a same dose of drug if appropriate for most individuals such dose is called _________
   a) Titrated Dose  b) Standard Dose
   c) Target Level Dose  d) Regulated Dose

16) __________ of the following is a drug of choice for anaphylaxis.
   a) Dopamine  b) Acetylcholine
   c) Atropine  d) Adrenaline

SECTION – I

2. Answer any four of the following. (4x4=16)
   i) Define and explain the term ‘Clinical Pharmacology’.
   ii) Write the role of Clinical Pharmacologist.
   iii) Write a note on applications of Clinical Pharmacokinetics.
   iv) Write a note on consequences of prolonged drug administration.
   v) Write a note on ethical concerns of clinical research.
   vi) Brief the importance of drug distribution in drug therapy.

3. Answer the following. (8x2=16)
   i) Give an extensive account of designs of clinical trials. Add a note on randomization and blind trials.
   ii) Describe various “unwanted effects” and “adverse drug reactions”.

   OR

   ii) Write an account of drug therapy in pregnancy and renal failure.

SECTION – II

4. Answer any four of the following. (4x4=16)
   i) What is status asthmaticus? How it is to be treated?
   ii) Write a note on Meta-analysis.
   iii) Briefly write on the drug therapy during breast feeding. Justify with an example.
iv) What is geriatric practice? Why special care is needed in pharmacotherapy in Geriatric patients?

v) Write short notes on the importance of statistics in clinical research.

vi) What are the different types of allergic conditions due to drugs?

5. Answer the following. (8x2=16)

i) Discuss the pathophysiology and the pharmacotherapy of CHF, Acute MI.


OR

ii) What are the different types of drug interactions? Elaborate them with suitable examples.

________________________
I. M.C.Q./Objective Type Questions : 

(1×16=16)

1) Drug not belonging to volatile oil class 
   a) Peppermint  
   b) Clove 
   c) Castor oil  
   d) Garlic 

2) In the patient with deficiency of vitamin A, which oil capsules you will suggest ? 
   a) Shark liver oil  
   b) Mustard oil 
   c) Arachis oil  
   d) Linseed oil 

3) Resins are classified into following subclasses except 
   a) Acid  
   b) Ester 
   c) Resin alcohol  
   d) Resin ether 

4) Out of the following, which is an example of oleoresin ? 
   a) Copaiba  
   b) Canada balsam 
   c) Capsicum  
   d) Myrrh 

5) Resins containing benzoic acid or cinnamic acids are called as 
   a) Oleoresins  
   b) Glycoresins 
   c) Oleogum  
   d) Balsam 

6) Ginger contains volatile oil in the percentage range 
   a) 1 – 4%  
   b) 5 – 10% 
   c) 10 – 15%  
   d) 15 – 20% 

7) Terpenes made up of 
   a) Calcierene  
   b) Pseudopriene 
   c) Neoprene  
   d) Isoprene
8) Synonym for peppermint oil is  
   a) Mentha oil  
   b) Oleum terbinthae  
   c) Eucalyptus  
   d) Chenoposan

9) The chief active constituent of fennel  
   a) Carvone  
   b) Borneol  
   c) Dill-Apiole  
   d) Fenchone

10) Clove oil is used in the manufacturing of  
    a) Salicylic acid  
    b) Vanillin  
    c) Cinnamic acid  
    d) Benzoic acid

11) Condensed tannins are called as  
    a) Hydrolysable tannins  
    b) Non hydrolysable  
    c) Pseudotannins  
    d) Prototannins

12) Black catechu contains about percentage of acacatechin  
    a) One percentage  
    b) Three percent  
    c) Seven percent  
    d) Ten percent

13) The biological source for Indian gum is  
    a) Cyamopsis tetragonoglobules  
    b) Astragalus gamifer  
    c) Acacia Arabica  
    d) Acacia Senegal

14) Which test is used for the purity of Isapgol ?  
    a) Barfoed test  
    b) Millon’s test  
    c) Molisch test  
    d) Swelling factor

15) The size of potato starch varies from  
    a) 30 to 100 micron  
    b) 100 to 130 micron  
    c) 130 to 10 micron  
    d) 160 to 180 micron

16) Peppermint oil contains important terpenoid  
    a) Geraniol  
    b) Anethol  
    c) Menthol  
    d) Eugenol
SECTION – I

II. Answer any four:

1) Write the chemical constituents of Myrobalan and Fennel.
2) Explain tobacco as a natural pesticide.
3) Give chemical tests for Silk and Jute.
4) Describe commercial varieties of Cardamom.
5) Draw the structures of following:
   a) Menthofuran
   b) Amylose
   c) Pyrethrin I
   d) Eugenol.
6) Write biological source, method of preparation and uses of Castor oil.

III. Answer the following:

1) What are Umbelliferous fruits? Explain general characteristics of umbelliferous fruits.
2) Explain pharmacognosy of Benzoin and Bahera.
   OR
   2) Explain quantitative microscopy with reference to leaf constants.

SECTION – II

IV. Answer any four:

1) Define Leaf constants and give merits of stomatal index.
2) Note on natural fibers.
3) Define:
   a) Iodine value
   b) Acetyl value
   c) Ester value
   d) Acid value.
4) Give the pharmacognostic scheme of Curcuma longa.

5) Explain chemical tests for Jute and Silk.

6) Define Lipids and classify with examples.

V. Answer the following: (8x2=16)

1) Describe Black catechu Pharmacognostically.

2) Write biological source, family, chemical constituents and pharmacological uses of followings:
   a) Pyrethrum
   b) Cassia bark
   c) Cod liver oil
   d) Musk

OR

2) Describe biosynthesis of erythrose phosphate pathway leading to formation of primary and secondary metabolites.
B.Pharmacy (Semester – VII) Examination, 2014
STERILE DOSAGE FORMS

Day and Date : Friday, 5-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 80

Instructions : • All questions are compulsory.
• Figures to right indicate full marks.

1. Choose the appropriate answer from the following choices : 
   
   (1×16=16)

   1) The mechanism of dry heat sterilization is ____________
      a) Oxidation    b) Protein coagulation
      c) Alkylation   d) Hydrolysis

   2) Pyrogens in solutions can be eliminated by ______________
      a) Tyndallization b) Gases
      c) Ultrafiltration d) None of these

   3) The effective concentration range of Phenyl mercuric acetate is ____________
      a) 0.001 – 0.002 %    b) 1 – 2 %
      c) 10 – 20 %      d) 0.01 – 0.02 %

   4) The size of a pre-exhibit batch selected is ____________
      a) Minimum 10% of production batch   b) Minimum one lac units
      c) 70 – 100 % of production batch  d) None of the above

   5) To improve slipperiness of rubber closures ____________ can be applied.
      a) PVC    b) Silicone oil
      c) Teflon  d) All of these

   6) ____________ buffers are used in parenterals in the pH range of 5 – 8.
      a) Phosphate   b) Citrate
      c) Borate     d) None of these

   7) The average globule size of a parenteral emulsion is ____________
      a) 0.1 – 0.2 mm   b) 0.1 – 0.5 μm
      c) 0.2 – 0.5 mm   d) 1 – 2 μm
8) In Class – II area _______________ particles of size 0.5 μ/sq.ft. are allowed.
   a) NMT 650  b) NMT 65
   c) NMT 700  d) NMT 10000

9) _______________ is used as biological indicator in radiation sterilization.
   a) Bacillus subtilis  b) Clostridium sporogenes
   c) Bacillus pumilis  d) Bacillus steroethermophilous

10) In case of Tyndallization, the product is heated at ____________ for three days.
    a) 100°C for one hour  b) 80°C for one hour
    c) 100°C for two hours  d) 80°C for two hours

11) An exhibit batch can be _______________
    a) ANDA submission batch  b) Bioequivalence batch
    c) regulatory reference batch  d) All of these

12) The integrity of HEPA filters can be checked by ____________ test.
    a) TOT aerosol challenge  b) DOP aerosol challenge
    c) Killer-Killani  d) Fehling’s

13) The instruction “Not for use in newborns” is applicable to the label of ____________
    a) Sterile Water for Injection  b) Water for Injection
    c) Bacteriostatic Water for Injection  d) Distilled water

14) A sterile suspension must contain ________________
    a) Suspending agent  b) Wetting agent
    c) Colour  d) Both a) and b)

15) Type – II and type – III glass contain nearly ____________ of Sodium.
    a) 0 %  b) 8 %
    c) 81 %  d) 14 %

16) The title used on label for dry solid for suspension of Ampicillin is ____________
    a) Sterile Ampicillin for Suspension  b) Sterile Ampicillin Suspension
    c) Sterile Ampicillin  d) Ampicillin for Suspension
2. Answer any four:
   a) Classify clean areas and give their applicability.
   b) Explain sterile emulsions for parenteral use.
   c) What safety and environmental factors are to be considered for design of a plant layout?
   d) Elaborate on total parenteral nutrition.
   e) What is the significance of isotonicity in ophthalmic preparations?

3. Answer any four:
   a) Write in brief about the rheological properties of parenteral suspensions.
   b) Write a short note on Master Document File.
   c) Give the methods for checking leaks in ampoules.
   d) Elaborate on the methods of training given to personnel in a manufacturing facility.
   e) Write a note on Small Volume Parenterals.

4. Answer any two:
   a) Describe the filling operation for sterile liquids and solids.
   b) Describe the quality control of eye drops.
   c) Explain the method of preparation of sterile solids by lyophilization.

5. Answer any two:
   a) How is the water suitable for parenteral use prepared? Give a comparative review on such waters.
   b) Describe the formulation approaches of sterile solids.
   c) What is the biochemical role of pyrogens? Write a note on Test for Progens.
1. MCQ : Choose the correct answer :  

1) Study of structural features of organs and body is called as  
   A) Anatomy  
   B) Physiology  
   C) Morphology  
   D) Histology  

2) The cartilage at which trachea is divided into bronchi is known as  
   A) Hyoid  
   B) Cricoid  
   C) Cornea  
   D) Carina  

3) The largest lymphatic organ is  
   A) Liver  
   B) Lymph Node  
   C) Spleen  
   D) Pancreas  

4) Formation of blood cells is known as  
   A) Hemolysis  
   B) Hemostasis  
   C) Hemopoiesis  
   D) Hemodynamics  

5) Bi-lobed nucleus is observed in  
   A) Neutrophil  
   B) Eosinophils  
   C) Erythrocytes  
   D) Lymphocytes  

6) Within limits, the relationship between ventricular filling and force of cardiac contraction are  
   A) Directly proportional  
   B) Inversely proportional  
   C) Non linear  
   D) No relationship
7) Difficulty in breathing is known as
   A) Eupnea    B) Apnea
   C) Dyspnea   D) Tachypnea

8) Person with blood group A-ve can donate blood to
   A) A –ve    B) AB +ve
   C) A +ve    D) All of the above

9) Mucus is secreted by
   A) Chief cells    B) Goblet cells
   C) T – cells      D) M – cells

10) Vagus nerve stimulation causes
    A) Increased heart rate    B) Decreased heart rate
       C) No effect on heart rate    D) Arrhythmia

11) Hemolytic Disorder of Newborn is due to
    A) Mismatched blood groups    B) Rh incompatibility
       C) Bacterial infection      D) Bone marrow suppression

12) Adam’s Apple is also known as
    A) Orophaynx    B) Epiglottis
       C) Thyroid cartilage    D) Cricoid cartilage

13) Propagation of food through GIT occurs by
    A) Anaphylaxis    B) Dialysis
       C) Peristalsis    D) Peristalsis

14) Left A V valve is also known as
    A) Semilunar valve    B) Mitral valve
       C) Tricuspid valve    D) Fossa ovalis

15) Clotting factor XIII is
    A) Fibrinogen    B) Prothrombinase
       C) Fibrin stabilizing factor    D) Charismas factor
2. Answer any 5:

1) Define
   a) Stroke volume
   b) Cardiac output
   c) End diastolic volume
   d) End systolic volume
   e) Mean arterial blood pressure.

2) Give the detailed composition of blood. Describe the functions of each component.

3) Describe the anatomy of bronchial tree.

4) With the help of a neat labeled diagram, describe the anatomy of lymph node.

5) Write a note on functions of Liver.

6) Draw a neat labeled diagram of impulse conduction of heart.

3. Answer any 3:

1) Explain the cardiac cycle in detail. Correlate events in cardiac cycle with ECG.

2) Describe the hemostasis mechanism in detail.

3) With the reference to Boyle’s law, explain physiology of pulmonary ventilation.

4) Describe the physiology of digestion in stomach and small intestine.
I. MCQ : Choose the correct answer. (1×16=16)

1) The Pharmacy Act extends to the whole of India except ____________
   A) Jammu and Kashmir  B) Karnataka  
   C) Maharashtra  D) None of above

2) The pharmacy council of India is required to be reconstituted every ____________ years.
   A) 12  B) 05  C) 09  D) None of above

3) The director general of health services is ______________member of pharmacy council of India.
   A) An elected  B) Nominated  
   C) An ex-officio  D) None of above

4) Falsely claiming to be a registered pharmacist is an offence liable to a fine upto Rs. ____________ on first conviction.
   A) 10,000  B) 5,000  C) 1,000  D) 500

5) ______________ is the resin obtained from the cannabis plant as per the narcotics and psychotropic Substances Act.
   A) Charas  B) Ganja  C) Both A) and B)  D) None of above

6) Cultivation of cannabis plant is a controlled operation of ______________govt. as per the narcotics and psychotropic Substances Act.
   A) Central  B) State  
   C) Both A) and B)  D) None of above

7) Drugs not labelled in prescribed manner is called as ______________drug as per the D and C Act.
   A) Spurious  B) Adulterated  
   C) Misbranded  D) None of above
8) Loan licenses can be granted only for drugs other than those specified in schedule ________________
   A) H                      B) M                      C) C_1               D) X

9) Drugs which are imitations or substitutes for other drugs are called as ________________ drugs as per the D and C Act.
   A) Spurious                  B) Adulterated               C) Misbranded       D) None of above

10) The licensed premise for manufacture of schedule C and C1 drugs must conform to the requirements of good manufacturing practices specified in schedule ________________
    A) O                      B) M                      C) J               D) None of above

11) The warning “if irritation persists or increases discontinue use and consult the physician” is given for ________________
    A) Tablets                B) Capsules                 C) Eye drops         D) None of these

12) ________________ is the chairman of Drugs Technical Advisory Board.
    A) Director general of health services
    B) President, PCI
    C) President, MCI
    D) None of above

13) Director, CDRI, Lucknow is ________________ of member of DTAB.
    A) An ex-officio            B) Elected
    C) Nominated               D) None of above

14) All drug inspectors are public servants within the meaning of Section ________________ of the IPC.
    A) 12                      B) 21                      C) 55               D) None of above

15) A license is essential for the sale of ________________ drugs.
    A) Homeopathic             B) Allopathic
    C) Both a) and b)          D) None of above

16) Schedule ________________ gives the standards for ophthalmic preparations.
    A) H                      B) M                      C) J               D) FF
II. Answer any four : 

1) Enumerate the objectives of DPCO. Write the formula for calculating the retail price of formulation as per the Act.
2) Write the Constitution and functions of pharmacy council of India.
3) How is the first register to be prepared as per the Pharmacy Act?
4) Highlight the objectives of the narcotics and psychotropic Substances Act. Define the terms charas and ganja as per the Act.
5) Write a note on import, export and transshipment of narcotics and psychotropic substances as per the narcotics and psychotropic Substances Act.

III. Answer any four : 

1) Define misbranded food article as per the prevention of Food Adulteration Act.
2) Highlight the objectives of drugs and magic remedies (Objectionable advertisements) Act. Define the terms advertisement and magic remedies as per the Act.
3) Enumerate the classes of drugs that prohibited to be made as per the magic remedies (Objectionable advertisements) Act. Add a note prohibition to import certain advertisements as per the Act.
4) Write a note on repacking license as per the D and C Act.
5) Describe the conditions that should be fulfilled for obtaining a license to manufacture drugs for the purpose of examination, test or analysis.

IV. Answer any two : 

1) Define adulterated food article as per the prevention of Food Adulteration Act.
2) Discuss the classes of drugs that are prohibited to be imported as per the D and C Act.
3) Explain the conditions that are to be fulfilled for obtaining a license to manufacture drugs other than C and C₁ and X as per the D and C Act.

V. Answer the two : 

1) Enlist the qualifications that are eligible for being appointed as a Govt. analysts as per the D and C Act. Explain the duties of Govt. analyst in detail.
2) Explain the duties of drugs inspector as per the D and C Act.
3) Explain the conditions that are to be fulfilled for obtaining a license to manufacture cosmetics as per the D and C Act.
1. Multiple choice questions :  
(16×1=16)

1) Oxazepam is a metabolite of __________ Drug.  
   A) Diazepam  
   B) Prazepam  
   C) Clorazepoxide  
   D) All of these

2) __________ is a ethylene bridged-1, 1diphenyl urea class of anticonvulsant agent.  
   A) Carbamazepine  
   B) Lamotrigine  
   C) Gabapentine  
   D) Trimethadione

3) _____________ is a fluorobutyrophenone class of antipsychotic agents.  
   A) Droperidol  
   B) Risperidone  
   C) Haloperidol  
   D) All of these

4) __________ is a dibenzocycloheptane derivative of tricyclic antidepressants.  
   A) Imipramine  
   B) Trimipramine  
   C) Amitriptyline  
   D) Both A) and B)

5) Which of the following H2 antagonist contains thiazole ring ?  
   A) Famotidine  
   B) Cimetidine  
   C) Ranitidine  
   D) Omeprazole

6) Which of the following drugs are used in treatment of gastric ulcers ?  
   A) Lansoprazole  
   B) Rabeprazole  
   C) Omeprazole  
   D) All of these

7) Major side effect of Nimesulide drug is  
   A) Severe Vomiting  
   B) Hepatotoxicity  
   C) Renal damage  
   D) Osteoporosis

8) __________ is a selective COX-2 inhibitor.  
   A) Rofecoxib  
   B) Valdecoxib  
   C) Celecoxib  
   D) All of these

P.T.O.
9) Which of the following drug is piperidine derivative of analgesic agent?
   A) Fentanyl  B) Meperidine  C) Methadone  D) Both A) and B)

10) Which of the following is not a pharmacological effect of morphine?
    A) Analgesic  B) Antispasmodic  C) Constipation  D) Euphoria

11) Which of the following drug is non steroidal oestrogen?
    A) Mestranol  B) Chlorotrianisene  C) Benzestrol  D) Both B) and C)

12) _____________ drug shows antiepileptic activity by blocking voltage gated sodium channel.
    A) Phenytoin  B) Diazepam  C) Paramethadione  D) Mephobarbital

13) _____________ is a triazolobenzodiazepine derivative.
    A) Alprazolam  B) Temazepam  C) Flurazepam  D) None of these

14) Which of the following drug is MAO inhibitors?
    A) Haloperidol  B) Fluoxetine  C) Doxepine  D) Tranylcypromine

15) Aspirin is synthesized by acetylation of _____________
    A) Para amino phenol  B) Para nitro phenol  C) 2-hydroxy benzoic acid  D) 4-hydroxy benzoic acid

16) _____________ is a aryl propionic acid derivative of NSAID’S.
    A) Sulindac  B) Indomethacin  C) Ibuprofen  D) All of these

2. Answer any four of the following questions. (4×4=16)

1) Write on SAR of Glucocorticoids.

2) Draw the structures and give uses of morphine and centrizine.

3) Define and classify NSAID’S.

4) Write synthesis of chlorpromazine and pentobarbital.

5) Write a note on Selective Serotonin Reuptake Inhibitors (SSRI).
3. Answer any four of the following questions. (4×4=16)
   1) Define and classify antihistamines.
   2) Write on oral contraceptives.
   3) Write on SAR of Benzodiazepines class of sedative and hypnotics.
   4) Write on central sympathomimetic agents as CNS stimulants.
   5) Write a note on Morphine antagonist.

4. Answer any two of the following questions. (2×8=16)
   1) Explain in detail on Aryl acetic acid derivatives of NSAID’S. Give synthesis of Paracetamol.
   2) Write on morphine modification carried out by Small and Eddy. Give synthesis of Meperidine.
   3) Write in detail on tricyclic antidepressants.

5. Answer any two of the following questions. (2×8=16)
   1) Define and classify anticonvulsants. Explain any two class of it.
   2) Write in detail on phenothiazine class of antipsychotic agents. Give synthesis of phenytoin.
   3) Draw the structure, give MOA and uses of Diazepam, Phenytoin, Haloperidol and Indomethacin.
SLR-T – 42

B.Pharm. (Semester – VII) Examination, 2014
PHARMACEUTICAL ANALYSIS – V

Day and Date: Friday, 12-12-2014
Time: 3.00 p.m. to 6.00 p.m.
Total Marks: 80

1. Multiple choice questions: (16x1=16)

1) Which of the following is not development technique of TLC?
   A) Ascending  B) Descending
   C) Ascending and Descending  D) A) and B)

2) In ascending paper chromatography the mobile phase will move from \___________\ to \___________\
   A) Horizontally  B) Radial
   C) Top to bottom  D) Bottom to top

3) Which of the following is used as a stationary phase in adsorption column chromatography?
   A) Kieselgurh  B) Silica gel
   C) Alumina  D) All of the above

4) \___________\ is the method of preparation of TLC plate.
   A) Dipping  B) Spraying
   C) Pouring  D) All of these

5) Which of the following is not used as a pump in HPLC?
   A) Reciprocating  B) Pneumatic
   C) Displacement  D) Lumenic

6) Ion exchange resin can be synthesized from \___________\)
   A) Styrene-Divinylbenzene  B) Phenol-Formaldehyde
   C) Alcohol-Formaldehyde  D) A) and B)

7) Which of the following nature of sample mixture can be separated by GC?
   A) Non-Volatile and Thermolabile  B) Volatile
   C) Non-Volatile  D) None of the above

P.T.O.
8) ____________ elution where unvarying composition of mobile phase is used.
   A) Gradient  B) Displacement
   C) Isocratic  D) A) and B)

9) Which of the following solvent is highly polar
   A) Chloroform  B) Ethyl Acetate
   C) Methanol  D) Water

10) ____________ sample mixtures can be separated by chromatography.
     A) Volatile  B) Non-Volatile
     C) Thermolabile  D) All of these

11) ____________ is the time of emergence of the peak maximum of a component
     after sample injection.
     A) Retention volume  B) Retention time
     C) Adjusted retention volume  D) Adjusted retention time

12) Calculate the no. of plates, where length of the column is 20 cm, HETP is
    0.3 mm using suitable formula
    A) 666.66  B) 333.33
    C) 222.22  D) 444.44

13) Van deemter equation is studied by a dutch chemical engineers for the causes
    of ____________
    A) HETP  B) Band Broadening
    C) Capacity Factor  D) Selectivity Factor

14) Which of the following GC detector is non destructive of sample
    A) FID  B) TCD
    C) ECD  D) B) and C)

15) Performance of any chromatography can be increased by considering
    ____________
    A) Small size of S.P  B) Large size of S.P.
    C) A very High Flow Rate of M.P.  D) B) and C)

16) Which of the following chromatography is simple and rapid method
    A) TLC  B) Paper
    C) Column  D) B) and C)
2. Answer any four of the following questions:
   1) Write on applications of paper chromatography.
   2) Explain Van deemter equation.
   3) Define the terms retention time and HETP.
   4) What is gel chromatography? Give its principle.
   5) Write in brief on HPTLC.

3. Answer any four of the following questions:
   1) Define and classify chromatography.
   2) Write on different development techniques of TLC.
   3) Write on various stationary phases used in size exclusion chromatography.
   4) Explain gradient and isocratic elution.
   5) Give difference between HPLC and GC.

4. Answer any two of the following questions:
   1) Write principle, technique and applications of ion exchange chromatography.
   2) Explain with suitable diagram detectors used in GC.
   3) Explain various adsorbents used in column chromatography. Write on various methods used for preparation of chromatoplate.

5. Answer any two of the following questions:
   2) Write in detail on paper chromatography.
   3) Explain carrier gas and columns used in GC. Give applications of HPLC.
B. Pharmacy (Sem. – VII) Examination, 2014
PHARMACOLOGY – III

Day and Date: Monday, 15-12-2014
Time: 3.00 p.m. to 6.00 p.m.
Max. Marks: 80

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

1. Choose the appropriate option. (16×1=16)
   1) Drug that increase salicylate intoxication is
      a) Acetazolamide b) Phenytoin
c      c) Methotrexate d) Tolbutamide
   2) Heroin is a
      a) Synthetic narcotic b) Di-acetyl morphine
c      c) Used in therapeutics d) All of the above
   3) Which of the following is not a unwanted effect of NSAIDs?
      a) Skin reactions b) Gastric ulcer
c      c) Vomiting d) Mental confusion
   4) Which barbiturate among the following is used as anesthetic?
      a) Pentobarbitone b) Thiopentone
c      c) Phenobarbitone d) Secobarbitone
   5) The depressant effect of alcohol is due to ____________
      a) Glutamate b) 5 HT c) GABA d) None of these
   6) Fluoxetine is a ____________
      a) Tricyclic antidepressant b) MAO Inhibitor
c      c) Anti psychotic d) Serotonin uptake inhibitor
   7) In methanol poisoning the anti dote is
      a) Caffeine b) c Disulfuram
c      c) Calcium carbamate d) Ethanol

P.T.O.
8) Which of the following is not a therapeutic use of Barbiturate?
   a) Sedative  b) Hypnotic  c) Anti convulsant  d) Analgesic

9) Which of the following is used as an Anti Convulsant?
   a) Nitrezejapam  b) Flurezejapam  c) Oxazepam  d) Diazepam

10) __________ is the spinal stimulant.
    a) Caffeine  b) Nikethamide  c) Strichnine  d) Piracetam

11) High does paracetamol produces
    a) Gastric ulcers  b) Liver necrosis  c) Respiratory alkalosis  d) All of the above

12) In angina pectoris Aspirin is used because
    a) It inhibits platelet aggregation  b) It inhibits bradykinin
    c) It has uricosuric effect  d) It inhibits prostaglandin synthesis

13) Which of the following is not a contra indication of morphine?
    a) Head injury  b) Bronchial asthma  c) Undiagnosed abdominal pain  d) Dyspnoea

14) Which of the following is not a pharmacological action of CNS Stimulant?
    a) Diuresis  b) Gastric secretion  c) Relaxation of smooth muscle  d) Fatigue

15) __________ contra-indicated if there is a history of epilepsy.
    a) Mefloquine  b) Chloroquine  c) Mepacrine  d) Pyrimethamine

16) Bromides are no more used as hypnotics because
    a) This is very costly  b) Better drugs are available  c) This is highly toxic  d) All of the above

2. Answer any four. (4x4=16)

1) Describe the criteria for a desirable general anesthetic agent.
2) What is the use of lithium? What are its advantages and disadvantages?
3) Enlist the Hallucinogens.
4) Discuss the choice of NSAIDs on the basis of activity, suitability and pharmacokinetic considerations.
5) What are psycho stimulants describe their uses and limitations?
3. Answer any four: 

1) What are the advantages and disadvantages of chloral hydrate and paraldehyde as hypnotics?
2) Name the different opioid antagonists. How do they act?
3) Enlist the local uses of Alcohol.
4) Classify the different anti epileptic drugs with giving suitable example.
5) What is Levodopa why dopamine as such is not used?

4. Answer any two: 

1) Explain in detail the pharmacology in Aspirin, give its mode of action and adverse effects contra-indications and limitations.
2) Classify anti epileptics. Describe in detail the pharmacology of phenytoin.
3) Classify the benzodiazepines. Describe in detail the mode of action, adverse effects and preparations with their uses.

5. Answer any two: 

1) Describe Narcotic Analgesics. Discuss the pharmacological effects, mode of action, preparations, doses and contraindications of Morphine.
2) Define sedative and hypnotics classify them. Describe the pharmacokinetics and pharmacodynamics of Barbiturates. Give their uses, contraindications and drug interactions.
3) Define psychosis. Explain in detail the pharmacology of chlorpromazine.
B.Pharmacy (Semester – VII) Examination, 2014
PHARMACOGNOSY – III

Day and Date : Wednesday, 17-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Note : Figures to right indicate marks.

1. Multiple choice questions (MCQ)/ Objective Type Questions : \(1 \times 16 = 16\)

1) Endoenzymes are \___________
   a) Acting outside the cell
   b) Acting when reactions are taking out of the cell
   c) Are not stable
   d) Act inside the cell

2) Ergosimine alkaloids of ergot belong to \___________ group.
   a) Amino alkaloid
   b) Peptide alkaloid
   c) Indole
   d) Steroidal alkaloid

3) How do you confirm the presence of Cuprea bark in Cinchona bark by microscopy ?
   a) Presence of stone cells
   b) Presence of medullary rays
   c) Presence of starch grains
   d) Presence of calcium oxalate crystals

4) Which one of the following anticancer marine drug activates the protein kinase release ?
   a) Bryostatin
   b) Ara – C
   c) Aplysistantin
   d) Asperidol

5) Protein component of enzyme is called as
   a) Coenzyme
   b) Apoenzyme
   c) Oxido-reductase
   d) Endoenzyme

6) Which one of the following is identified by Vitali’s Test ?
   a) Atropine
   b) Quinine
   c) Morphine
   d) Nicotine

7) Saponin glycoside shows one of the following properties
   a) Luxative
   b) Anticonvulsant
   c) Foaming
   d) Astringent

P.T.O.
8) The principle use of green tea polyphenols is
   a) To prevent ulcer  
   b) To prevent asthma  
   c) To prevent cancer  
   d) To prevent hay fever

9) Glycyrrhizinic acid on hydrolysis gives
   a) Glycyrrhizin  
   b) Liquiritin  
   c) Isoliquiritin  
   d) Glycyrrhetic acid

10) Synonym of drug Ginkgo
    a) Kew tree  
    b) Yam  
    c) Ninja  
    d) Marian thistle

11) Citrus Bioflavonoids increase intracellular
    a) Vitamin C  
    b) Rutin  
    c) Both a) and b)  
    d) Vitamin A

12) Nuxvomica seed contains type of trichomes
    a) Bulbaceous lignified  
    b) Multicellular  
    c) Unicellular  
    d) Non lignified

13) Rhizomes which are cylindrical, torturous, external surface broadly annulated and brown coloured are obtained from
    a) *Withaniasomnifera*  
    b) *Glycyrrhizagalabra*  
    c) *Calotropisgigantea*  
    d) *Cephaelisipecacuanha*

14) Which drug belongs to the class of Cardio active glycoside?
    a) Squill  
    b) Ipecac  
    c) Ergot  
    d) Chirata

15) Borntrger test is used for
    a) Aloe  
    b) Senna  
    c) Digitalis  
    d) Squill

16) Ephedrine is useful in the treatment of
    a) Asthma  
    b) Cough  
    c) Cataract  
    d) Inflammation

2. Answer **any four** :  
   (4×4=16)
   a) Define Marine Pharmacognosy. Classify Marine drugs with examples.
   b) Give the biological source, Family, chemical constituents and uses of Soyabean.
   c) Define Proteins and enzymes with examples.
   d) Explain chemical tests for Aloe.
   e) What are general tests for detection of alkaloids?
3. Answer any four:
   
   a) Give chemical test for detection of alkaloids in Nuxvomica.
   
   b) Give biological source, Family, chemical constituents and uses of Liquorice.
   
   c) Write a short note on Bioflavonoids.
   
   d) Give biological source, method of preparation and uses of Papain.
   
   e) Give biological source, family and uses of Kalmegh.

4. Answer any two:

   a) Explain Ergot under the Pharmacognostical scheme.
   
   b) What are Anthraquinone glycosides? Discuss Pharmacognosy of Senna.
   
   c) Give biological source, family, chemical constituents of Ma–haung. Write the biosynthetic pathway of Ephedrine.

5. Answer any two:

   a) Explain chemistry of Morphine. Write the biosynthetic pathway leading to formation of Morphine.
   
   b) Write detail Pharmacognosy of Digitalis.
   
   c) Give the biological source, family, chemical constituents and uses of:
      i) Crude drug containing Quinazoline alkaloid.
      ii) Crude drug containing isothiocynate glycoside.
B.Pharmacy (Sem. – VII) Examination, 2014
PHARMACOGNOSY AND PHYTOCHEMISTRY – II

Day and Date : Wednesday, 17-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 80

Note : Figures to right indicate marks.

1. Multiple Choice Questions (MCQ)/Objective Type Questions. (1×16=16)

   1) The alcohol part present in the Pyrethrin I is
      a) Chrysanthemum monocarboxylic acid
      b) Keto alcohol pyrethrolone
      c) Keto alcohol pyrethr-in
      d) None of the above

   2) Peppermint oil contains important terpenoid
      a) Geraniol   b) Anethol   c) Menthol   d) Eugenol

   3) Holy basil belongs to the family
      a) Compositae  b) Liliaceae  c) Rubiaceae  d) Labiatae

   4) A true alkaloid has a nitrogen atom as a part of
      a) Side chain   b) Bound form
      c) Heterocyclic system   d) Homocyclic system

   5) The name of alkaloid Pelletierine is based on
      a) Plant source   b) Pharmacological activity
      c) Discoverer   d) Chemical constituent

   6) Which one of the following crude drug contains Vitamin D ?
      a) Cod liver oil   b) Shark liver oil
      c) Olive oil   d) Castor oil

   7) Name the santalol containing crude drug from the following
      a) Jasmine   b) Sandal wood
      c) Musk   d) Lavender
8) *Pseudoplexura porosa* is the botanical source of  
   a) Ara – C  b) Crassin acetate  
   c) Bryostatin  d) Asperidol  

9) Which one among the following amino acid precursor is involved in biosynthesis of Morphine?  
   a) Alanine  b) Tryptophan  c) Tyrosine  d) Phenyl alanine  

10) Which one among the following drug is used against Erlich carcinoma?  
   a) Crassin acetate  b) Aplysistatin  
   c) Ara – C  d) Asperidol  

11) Which of the following crude drug gives Gambier – fluoresin test positive?  
   a) Black catechu  b) Pale catechu  
   c) Brown catechu  d) Green catechu  

12) Identify the peptide alkaloid crude drug from the following  
   a) Rauwolfia  b) Nuxvomica  c) Vinca  d) Ergot  

13) Dried roots of *Withania somnifera* are known as  
   a) Kalmegh  b) Ashwagandha  
   c) Rauwolfia  d) Digitalis  

14) Shatavari belongs to the family  
   a) Liliaceae  b) Rubiaceae  c) Leguminosae  d) Compositae  

15) Alkaloids of Cinchona bark are detected by  
   a) Iodine test  b) Vitall-Morin test  
   c) Thalleoquin test  d) None of the above  

16) Identify the structure?  
   a) Anethole  b) Eugenol  c) Fenchone  d) Menthol  

SECTION – I  

2. Answer any four.  
   (4×4=16)  
   a) Give biological source, chemical constituents and uses of Eucalyptus.  
   b) Write a note on adulterants of clove flower bud.  
   c) What are contactants?
d) What are Peptide alkaloids? Give examples.
e) Give two examples of Anti-spasmodic and anti-inflammatory marine drugs along with uses.
f) Justify the statement: Neem is Natural pesticide.

3. Answer any two:
   (8×2=16)
   a) Write a note on Auxin and Gibberellins as Plant growth regulators.
   b) Write a note on phytochemical screening of crude drugs.
   OR
   b) Discuss the drug Nuxvomica under pharmacognostic scheme.

SECTION – II

4. Answer any four:
   (4×4=16)
   a) Explain hydrolysable tannins with examples.
   b) Explain method of preparation of Asava and Arista.
   c) Write the biological source and chemical test to identify pale and black catechu.
   d) Write a note on parameters of standardization for Bhasmas.
   e) Write a note on oils used in perfumery.
   f) Write a note on Efficacy consideration of herbal drugs.

5. Answer any two:
   (8×2=16)
   a) What are terpenoids? Write the biosynthesis of various terpenoidal constituents.
   b) What are alkaloidal amines? Write examples with their pharmacognosy.
   OR
   b) Write a note on Ayurvedic drugs (any four).
   i) Shilajit
   ii) Ginseng
   iii) Amla
   iv) Guggul
   v) Brahmi.
B.Pharmacy (Semester – VIII) Examination, 2014
NOVEL DRUG DELIVERY SYSTEMS

Day and Date : Saturday, 6-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 80

Instructions:
- All questions are compulsory.
- Figures to right indicate full marks.

I. Choose the appropriate answer from the following choices : (1×16=16)

1) The chemical name of Freon 114 is ___________
   a) Dichlorotetrafluoroethane  b) Trichlorotrifluoroethane
   c) Chloropentafluoroethane  d) Dichloropentafluoroethane

2) Soluble and erodible polymer membranes follow ___________ principle for drug release.
   a) Dissolution  b) Diffusion
   c) Diffusion and Dissolution  d) None of above

3) Drug release from diffusion controlled matrix tablets is explained by ___________ equation.
   a) Ishikawa  b) Toshiba  c) Higuchi  d) Noyes-Whitney

4) Drug absorption under the influence of electric current is called as ___________
   a) Tonophoresis  b) Iontophoresis
   c) Chlorophoresis  d) Sonophoresis

5) Bioadhesive polymers bind to ___________
   a) Pectin  b) Mucin  c) Pepsin  d) Renin

6) The maintenance dose in an oral CRDDS depends upon ___________
   a) Bioavailability  b) Clearance
   c) Plasma concentration  d) All of these

7) Floating drug delivery system is an example of ___________ release.
   a) Slow and continuous  b) Delayed transit and continuous
   c) Delayed  d) None of these
8) A powder aerosol is an example of __________
   a) One phase system   b) Two phase system
   c) Three phase system d) None of these

9) ____________ is an example of targeted drug delivery system.
   a) Liposome       b) OROS       c) Multiple emulsion d) SODI

10) BCS class-III drugs possess __________
    a) Low solubility and low permeability
    b) High solubility and low permeability
    c) Low solubility and high permeability
    d) High solubility and high permeability

11) Propellant __________ is/are relatively stable in presence of water and alcohol.
    a) 12                       b) 114
    c) Both a) and b)          d) None of these

12) ____________ is an example of parenteral controlled drug delivery.
    a) Implant                 b) Sonophoresis
    c) IUD                     d) Iontophoresis

13) ____________ coating can be applied to increase pressure resistance of glass containers.
    a) Ethyl cellulose          b) Polyvinyl cellulose
    c) Polyvinyl alcohol       d) Epoxy-vinyl resin

14) ____________ is an example of surface coating aerosol.
    a) Hair spray              b) Disinfectant
    c) Room deodorant          d) Insecticide

15) The principle of drug release in Ethyl cellulose embedded matrix tablets is __________
    a) Dissolution  b) Diffusion  c) Osmosis  d) Ion-exchange

16) Psig = __________
    a) Psia-14.7  b) Psia+14.7  c) 14.7-Psia  d) None of these
II. Answer any four:

1) Enlist drawbacks of modified release drug delivery systems.
2) Calculate the total pressure of a 37:63 mixture of propane (Vapour pressure = 110, Molecular weight = 44.1) and isobutane (Vapour pressure = 88.2, Molecular weight = 58.1).
3) Explain the drug selection criteria in oral CR formulations.
4) Enlist the problems associated with bioadhesive systems.
5) Describe metal as container material used for pharmaceutical aerosols.

III. Answer any two:

1) Discuss the pharmacokinetic considerations of oral controlled release delivery of drugs.
2) Discuss the different dosage forms of aerosols. Give significance of Rault’s law in aerosol manufacture.
3) Describe the dissolution test for extended release dosage forms as per U.S.P.

IV. Answer any four:

1) What is the rational of using ion-exchange resins in design of oral CRDDS?
2) Write a note on multiple emulsions.
3) Give the approaches to design colon specific drug delivery systems.
4) Explain the principle of working of pharmaceutical aerosols.
5) Write a note on density based modified drug delivery systems.

V. Answer any two:

1) Discuss various quality control tests for pharmaceutical aerosols.
2) Explain the principle of design of osmotically controlled devices.
3) Describe the design of valve assembly used in pharmaceutical aerosols.
Instructions: 1) All questions are compulsory.  
2) Figures to the right indicate full marks.

I. Choose the correct answer:

1) In joint Hindu family firm the right to manage the firm vest in ________________ alone.
   A) Karta           B) Daughter
   C) Daughter in-law D) None of the above

2) ______________ are the persons who provide a link between the manufacturers and the retailers.
   A) Banks           B) Financial institutions
   C) Wholesalers     D) None of the above

3) ______________ organization is the simplest form of business organization.
   A) Functional      B) Line and staff
   C) Line            D) None of the above

4) The outdoor advertising includes _______________
   A) Poster          B) Billboard      C) Electrical    D) All of the above

5) In partnership business, the number of partners should not exceed more than ______________
   A) 2               B) 20
   C) 30              D) None of the above

6) A partner below the age of ______________ years is called as a minor partner in partnership form of business organization.
   A) 16               B) 18
   C) 21               D) None of the above
7) ____________ comes into existence only after registration under the Company Act, 1956.
   A) Sole proprietorship  B) Partnership  
   C) Joint stock company  D) None of the above

8) A good brand name should be ____________
   A) easy to remember  B) brief  
   C) catchy  D) all of the above

9) ____________ involves placing the right people into the organization structure by means of effective selection and appraisal procedure.
   A) Planning  B) Staffing  
   C) Researching  D) None of the above

10) Secondary data in marketing research can be obtained from ____________
    A) Magazines  B) Newspapers  C) Journals  D) All of the above

11) Manufacturer to customer is ____________ channel of distribution.
    A) multi-level  B) direct  
    C) indirect  D) none of the above

12) ____________ is the first stage in the product life cycle.
    A) Introduction  B) Growth  
    C) Maturity  D) None of the above

13) A ____________ can raise huge financial resources.
    A) joint stock company  B) sole proprietor  
    C) both a) and b)  D) none of the above

14) A ____________ marketing strategy consists of launching the product at a low price and spending heavily on promotion.
    A) rapid penetration  B) slow penetration  
    C) slow skimming  D) none of the above

15) ____________ acts as a middleman between the wholesaler and the actual consumer.
    A) Retailer  B) C and F agent  
    C) Super stockist  D) None of the above

16) ____________ is the process of dividing the market into distinct groups of buyers having similar wants and needs.
    A) Market segmentation  B) Motivation  
    C) Advertisement  D) none of the above
II. Answer **any four**:

1) Explain the general principles of management.
2) Highlight the basic phases of decision making.
3) Discuss the techniques of co-ordination.
4) Write a note on functional organization.
5) Discuss partnership form of business organization.

III. Answer **any four**:

1) What is meant by “branding” of drugs? Enlist the advantages and disadvantages of branding.
2) Enlist the desired qualities of medical representative.
3) Highlight the salient features of company form of business organization.
4) Differentiate between general goods marketing and pharmaceutical formulations marketing.
5) Enlist the reasons for conflict between line and staff in the line and staff organization. How can it be overcome?

IV. Answer **any two**:

1) Explain the planning process in detail. Add a note on its advantages and limitations.
2) Explain staffing and directing as functions of management.
3) Compare and contrast between sole proprietorship and Hindu undivided family as forms of business organization.

V. Answer the **two**:

1) Discuss “retail seller” as a form of business organization. Enlist its advantages and disadvantages.
2) Explain the stages of product life cycle.
3) A company wants to manufacture and sell an herbal soap formulation. Explain its marketing research procedure.
B.Pharm. (Semester – VIII) Examination, 2014
MEDICINAL CHEMISTRY – IV

Day and Date: Thursday, 11-12-2014
Time: 3.00 p.m. to 6.00 p.m.

Max. Marks: 80

Note: 1) All questions are compulsory.
2) Figures on the right side indicate marks.

I. Choose the appropriate option: (1×16=16)

1) Which of the following isomer of ephedrine is more active.
   a) 1 R 2S          b) 1S 2R
   c) 1S 2S          d) 1R 2R

2) Digitoxigenin is present in lanatoside
   a) A          b) B
   c) C          d) None of the above

3) One of the following drugs acts by sequestering bileacids in GIT.
   a) Provastatin  b) Cholestyramine
   c) Clofibrate   d) Gemfibrozil

4) One of the following drugs is calcium channel blocker.
   a) Amlodipine   b) Isosorbide dinitrate
   c) Digitalis    d) None of the above

5) The guanidine moiety is present in ____________
   a) Methyl dopa  b) Clonidine
   c) Epinephrine  d) Phenylephrine

6) The following drug does not contain catechol group.
   a) Epinephrine  b) Norepinephrine
   c) Dopamine    d) Ephedrine
7) Diltiazem contains ___________ ring in its structure.
   a) Benzodiazepin       b) Imidazole
   c) Indole             d) None

8) The following is neuromuscular blocking agent.
   a) Bethanecol         b) Carbachol
   c) D – tubocurarine   d) Atropine

9) An alpha methyl analogue of tyrosine is ___________
   a) Epinephrine       b) Phystostigmine
   c) Mettyrosine       d) Dopamine

10) Prazocin contains ___________ nucleus in it.
    a) Quinazoline and piperazine       b) Quinazoline and indole
    c) Piperazine and indole           d) None of these

11) Terbutaline and metaproterenol contains ___________ nucleus in them.
    a) Resorcinol       b) Catechol
    c) Pyrol           d) None of these

12) ___________ is quinazolin alpha 1 blocker.
    a) Prazocin         b) Propranolol
    c) Captopril       d) None of these

13) Mechanism of action of nitro vasodilators is ___________
    a) Stimulation of guanylate cyclase   b) Beta blockers
    c) Calcium channel blockers          d) None of the above

14) Procainamide blocks ___________ channels.
    a) Na⁺                    b) K⁺
    c) Ca²⁺                  d) H⁺

15) The cardiac glycoside elicit their effects through ___________
    a) Inhibition of Na⁺/K⁺ ATPase pump
    b) Inhibition phosphodiasterase
    c) Increasing the amount of NO in blood
    d) None of these

16) One of the following is not antihyperlipidemic agent
    a) Provastatin    b) Clofibrate
    c) Reserpine     d) Gemfibrozil.
II. Answer any four of the following: 

1) Write the biosynthesis of epinephrine.
2) Add a note on cardiac glycosides.
3) Classify antihyperlipidemic agents and write MOA of HMG Co A inhibitors.
4) Define prodrugs and write their applications.
5) How metyrosine affects the biosynthesis of catecholamines?

III. Answer any two of the following: 

1) Write the metabolism of epinephrine and nor epinephrine.
2) Add a note on cholinesterase inhibitors and write the structure use and nomenclature of physostigmine.
3) Write the SAR of adrenergic phenyl ethyl amine agonists.

IV. Answer any four of the following: 

1) Write the synthesis and uses of dicyclomine.
2) Give the goals of QSAR studies in drug design.
3) Enlist the various calcium channel antagonists and write synthesis of nifedipine.
4) Add a note on neuromuscular blocking agents write MOA of D-tubocurarine.
5) Classify antianginal agents and write MOA of nitrates.

V. Answer any two of the following: 

1) Classify antihypertensive agents and discuss the development of captopril as ACE inhibitor.
2) Discuss the development of beta blockers.
3) Add a note adrenergic receptor antagonist and write the MOA of phynoxy benzamine.

__________________________
B.Pharm. (Semester – VIII) Examination, 2014
PHARMACEUTICAL ANALYSIS – VI

Day and Date: Saturday, 13-12-2014
Time: 3.00 p.m. to 6.00 p.m.
Total Marks: 80

1. Multiple choice questions: (16x1=16)

1) Which of the following packaging material, grammage test is done?
   A) Aluminium foil  B) Corrugated box
   C) Paper board cartons  D) All of these

2) __________ solvents are used in proton NMR.
   A) Protic  B) Non-aqueous
   C) Aprotic  D) Aqueous

3) Which of the following parameter used in analytical method validation?
   A) Installation qualification  B) Specificity
   C) Design qualification  D) Operational qualification

4) Which of the following nuclei does not show NMR phenomenon?
   A) $^{12}$C  B) $^{13}$C
   C) $^{16}$O  D) A) and C)

5) Name ionizing agent used in MALDI
   A) Energetic electron  B) Regent gaseous ion
   C) Energetic atomic beam  D) Laser beam

6) The most intense peak in the mass spectrum is called as __________ peak and is assigned value of 100.
   A) Negative ion  B) Fragment ion
   C) Base  D) Rearrangement ion
7) Frequency sweep NMR instrument where ____________
   A) Magnetic field and radiofrequency is kept constant
   B) Magnetic field is kept steady and radiofrequency is continuously changed
   C) Magnetic field is changed and radiofrequency is kept constant
   D) None of these

8) Calculate mean for the body weight (gm) of the 7 mice kept on high protein diet as 230, 260, 310, 285, 295, 325, 315.
   A) 287.57       B) 288.57
   C) 388.57       D) 387.57

9) Which of the following packaging material, folding endurance test is not applicable ?
   A) Paper       B) Glass
   C) Rubber closure       D) B) and C)

10) In mass spectrum, if peak occurs at masses that greater than that of molecular ion, then this peak is called ____________
    A) Fragment ion peak       B) Multiple charged peak
    C) Isotopic peak       D) Rearrangement peak

11) The positive square root of variance is known as ____________
    A) Mean       B) Mode
    C) Median       D) Standard deviation

12) The mode for given values is ____________ values : 14, 15, 13, 12, 11, 9, 14, 10, 13, 14, 15, 16, 12, 13.
    A) 14       B) 12
    C) 13       D) 15

13) ____________ ion peak gives exact mass of the analyte sample.
    A) Isotopic       B) Fragment
    C) Rearrangement       D) Radical cation

14) Which of the following is a correct statement ?
    A) GMP is a part of QC       B) QA is a part of GMP
    C) QC is a part of GMP       D) None of the above
15) No of signals for CH₃-CH₂-CH₃ molecule is ____________
   A) 2  B) 3  C) 4  D) 1

16) Which of the following is a correct sequence of equipment validation.  1.OQ 2.IQ 3.PQ 4.DQ ?
   A) 1, 2, 3, 4  B) 4, 3, 2, 1  C) 4, 2, 1, 3  D) 2, 4, 3, 1

2. Answer **any four** of the following questions :  
   (4x4=16)
   1) Explain the principle of proton NMR.
   2) Calculate standard deviation for given values : 18, 20, 22, 27, 21, 29, 27, 29, 28, 29.
   3) Write on hydrolytic resistance test and carton drop test for packaging material.
   4) Explain chemical ionization as ion source used in mass spectrometry.
   5) Write on quality management system.

3. Answer **any four** of the following questions :  
   (4x4=16)
   1) Write on any two quality control test for plastic container.
   2) Write on solvents used in proton NMR.
   3) Draw a neat labeled diagram of mass spectrometer.
   4) Why statistics is important in analysis ? Justify.
   5) Why TMS is used as an internal standard ?

4. Answer **any two** of the following questions :  
   (2x8=16)
   1) Write on ions produced in mass spectrometry. Write on general rules for fragmentation.
   2) Write on process validation. Write a note on formats of quality manual management.
   3) Explain time of flight mass and quadrupole mass analyzer used in mass spectrometry.

5. Answer **any two** of the following questions :  
   (2x8=16)
   1) Explain with suitable examples spin-spin coupling.
   2) Give details of HPLC method validation for API in formulation.
   3) Write in detail on factors affecting shift.
1. Multiple Choice Questions (MCQ)/Objective Type Questions. (15×1=15)

1) The term Pharmacognosy was coined by
   a) Seydler  
   b) Gantle Fossee
   c) Hippocrate  
   d) Hahnemann

2) Crude drug obtained from Marine source is
   a) Agar  
   b) Senna  
   c) Cochnineal  
   d) Asbestos

3) Long handled fork is used to harvest
   a) Algae  
   b) Fruits  
   c) Rhizomes  
   d) Seeds

4) Bach flower remedies was discovered by
   a) Edward Bach  
   b) J. C. Bose
   c) Albert Einstein  
   d) Alexander Flemming

5) Shellac is used as
   a) Emulsifying agent  
   b) Suspending agent
   c) Filter aid  
   d) Protectant

6) Stem arises from ________ of embryo.
   a) radicle  
   b) plumule  
   c) hilum  
   d) microphyle

7) The system of classification which relies on the chemical similarity of a taxon is
   a) Biological  
   b) Alphabetical
   c) Chemotaxonomical  
   d) Taxonomical

8) Vasaka is used as ________
   a) Expectorant  
   b) Cardio tonic  
   c) Anti diabetic  
   d) Carminative

9) Phloem is ________ conducting tissue.
   a) water  
   b) food  
   c) mineral  
   d) enzyme
10) The term __________ refers to sensory evaluation.
   a) Physical  b) Morphological  c) Chemical  d) Biological

11) Crude drugs are stored at temperature not exceeding
   a) 18°C  b) 5°C  c) 8°C  d) 25°C

12) Eugenol is present in
   a) Garlic  b) Tulsi  c) Amla  d) Linseed

13) Individual member of calyx is called as
   a) Petal  b) Pistil  c) Sepal  d) Carpel

14) __________ is the dead tissue present in plant.
   a) Parenchyma  b) Collenchyma  c) Sclerenchyma  d) Phloem

15) __________ is the example for laminated fracture of bark.
   a) Kurchi  b) Quillia  c) Wild cherry  d) Cinnamon

2. Answer any five.  
   (5×5=25)
   a) Describe the biological source, active constituents and uses of:
      a) Amla
      b) Tulsi
   b) How do you differentiate Organized and Unorganized crude drugs?
   c) Describe the gross morphology of flower.
   d) Enlist the merits and demerits of Pharmacological classification.
   e) Describe different methods of drying of crude drugs with suitable example.
   f) Write biological source and draw a neat labeled histological diagram of Vasaka leaf.

3. Answer any three.  
   (3×10=30)
   a) Enlist the different systems of classification of crude drugs obtained from natural origin, add a note on chemical classification with merits and demerits.
   b) Explain in detail about sources of DONO.
   c) Enlist the Indigenous system of medicine. Describe in detail Ayurveda system of medicine.
   d) Define adulteration of crude drugs. Explain different types of adulteration with examples.
1. Choose the most appropriate alternative for following multiple choice questions: \(1\times16=16\)

1) Which of the following is most common adverse effect of Sulfonamides?
   a) Crystalluria  
   b) Hemorrhage  
   c) Joint pain  
   d) Carcinogenesis

2) A fluoroquinolones most suitable for urinary tract and genital infections is ________
   a) Norfloxacin  
   b) Sparfloxacin  
   c) Ofloxcin  
   d) All of these

3) Which of the following is acid resistant penicillin?
   a) Penicillin G  
   b) Penicillin K  
   c) Penicillin V  
   d) None of these

4) Which of the following is a Beta Lactamase Inhibitor?
   a) Clavulanic Acid  
   b) Tazobactum  
   c) Salbactum  
   d) All of these

5) Teeth and Bone Toxicity is commonly associated with ________
   a) Aminoglycosides  
   b) Cephalosporins  
   c) Tetracyclines  
   d) Penicillins

6) Identify the macrolide antibiotic from the following which inhibits hepatic enzymes
   a) Penicillin  
   b) Erythromycin  
   c) Sulfonamides  
   d) Cefaclor

7) Most important dose dependent toxicity of Isoniazid is ________
   a) Peripheral Neuritis  
   b) Myelosupression  
   c) Asthma  
   d) All of these
8) Identify topically used imidazole antifungal from the following.
   a) Terbinfine  b) Fluconazole  c) Miconazole  d) Tolnaftate

9) __________ is an example of Nucleoside Reverse Transcriptase Inhibitor (NRTI).
   a) Acyclovir  b) Lamivudine  c) Lopinavir  d) Delavirdine

10) Which of the following is an anticancer drug which prevents polymerization and assembly of microtubules?
    a) Busulfan  b) Vincristine  c) Cisplatin  d) 5-Fluorouracil

11) Lindane, a drug used in treatment of pediculosis is chemically __________
    a) Benzoyl Chloride  b) Gamma Benzene Hexachloride  
c) Benzene  d) None of these

12) Comparison of effective dose or median lethal dose is done in __________
    a) Quantal Bioassays  b) Graded Bioassays  
c) Both a) and b)  d) None of these

13) All or None Bioassays are also called __________
    a) Graded Bioassays  b) Quantal Bioassays  
c) Both a) and b)  d) None of these

14) Which is a first choice anthelmintic for Roundworm Infestations?
    a) Albendazole  b) Metronidazole  
c) Praziquantel  d) None of these

15) Which of the following is used in bioassay on Acetylcholine?
    a) Goat Trachea  b) Frog Rectus Muscle  
c) Sheep Plasma  d) Frog Heart

16) Which of the following Nitroimidazole is useful as an Antiamoebic drug?
    a) Tetracycline  b) Diloxanide Furoate  
c) Metronidazole  d) Emetine

2. Answer any four of the following: (4x4=16)
   a) Write common toxicities of Aminoglycosides.
   b) Enumerate different classes of Sulfonamides with examples.
   c) Write drug therapy of Psoriasis briefly.
   d) Write a note on Bacterial Resistance to Antibiotics.
   e) Describe mechanism of action and adverse effects of Erythromycin.
3. Answer any four of the following: (4×4=16)
   a) Classify Fluoroquinolones with examples.
   b) Write a note on drug therapy of Acne.
   c) Describe Bioassay of Insulin briefly.
   d) What are the drugs used in the treatment of Vertigo? Describe briefly.
   e) Enumerate different classes of Antileprosy Drugs with examples.

4. Answer any two of the following: (2×8=16)
   a) Describe general principles of Antimicrobial Therapy. Write classes of penicillins with examples and their mechanism of action.
   b) Describe various targets for Antimalarial Drugs in Life Cycle of Malarial parasites. Add a note on Pharmacology of Quinine.
   c) Enlist various classes of Anti-cancer drugs with examples. Add a note on Alkylating Agents.

5. Answer any two of the following: (2×8=16)
   a) What are Bioassays? Describe types and techniques of bioassays. Add a note on bioassay of d-Tubocurarine.
   b) Why anti-tubercular drugs are classified as first line and second line drugs? Classify then with examples. Describe Pharmacology of Isoniazid.
   c) Write HIV Treatment Guidelines in detail. Enumerate various preferred and alternative anti-HIV regimens.
1. Multiple Choice Questions (MCQ)/Objective Type Questions : \((1 \times 16 = 16)\)

1) Arishtas are made with
   a) Decoctions of herbs in boiling water
   b) Directly using fresh herbal juices
   c) Both a) and b)
   d) None of the above

2) Substances added to prevent drying out of cosmetics are called as
   a) Surfactant
   b) Humectant
   c) Preservative
   d) None

3) If cinchona bark extract is incorporated as an active ingredient while manufacturing Tablet/Capsule or suitable dosage form with the aid of excipients, then it is called as
   a) Monoherbal preparation
   b) Polyherbal preparation
   c) Multiherbal preparation
   d) None

4) Fresh or dried herbs mixed with enough liquid to make a thick, pasty consistency for external application to skin and muscular injuries
   a) Poultice
   b) Liniments
   c) Salves
   d) Fomentations

5) ‘Chyavanprasha’ is well known example of
   a) Pishti
   b) Gutika
   c) Avaleha
   d) None of the above

6) Total ash value in case of crude drug signifies
   a) Organic content of the drug
   b) Mineral matter in the drug
   c) Addition of extraneous matter such as sand, stone etc.
   d) Woody matters present in the drug
7) Cosmetic preparations used for the attractive, healthy looking hair, capable of giving life, softness, silky touch, control of flyaway and ease of styling are called as
   a) Humectant     b) Hair conditioners
   c) Hair colorants d) None

8) Ideal time for collection of roots and rhizomes is
   a) Collected at the end of the vegetation period
   b) Collected in the spring
   c) Collected at the flowering stage
   d) None of the above

9) Cosmetic preparations applied to skin to provide a smooth emollient base or foundation for the application of face powder and other make up preparations are called
   a) Cleansing creams b) Vanishing creams
   c) Night and Massage creams d) Foundation creams

10) The inadequate post-harvest processing results in
    a) Low quality raw material
    b) Loss of active ingredients
    c) Increased microbial load and bad commercial presentation
    d) All the above

11) Less chances of toxicity, less chances of transformations and less chances of adulteration are the merits of
    a) Monoherbal preparation
    b) Polyherbal preparation
    c) Both Mono and Polyherbal preparation
    d) None

12) In the quality control for hair dyes, Net content, Ash value, pH and effect on hard water are considered as
    a) Performance Test b) Physiological Test
    c) Physico-chemical Tests d) All the above
13) Fermentation of Asava/Arista is brought about by the addition of a source of sugar with
   a) *Woodfordia fruticosa* Kurz flowers
   b) Zingiber officinale
   c) *Santalum album*
   d) None

14) Determination of particle size (80-100 mesh) or 40-60 mesh is a parameter in quality control of
   a) Vati  b) Bhasma  c) Churna  d) Taila

15) *Acacia concinna* (Shikakai) is used in the preparation of shampoo for its
   a) Detergent and conditioning property
   b) Antioxidant property
   c) Antiseptic property
   d) None

16) Increased chance of adulteration, difficulty in developing standards and overlapping of chemical and chromatographic profiles are the demerits of
   a) Monoherbal preparation
   b) Polyherbal preparation
   c) Both mono and polyherbal preparation
   d) None

2. Answer **any four**: (4×4=16)

   1) Define Herbal Technology and describe the scope of Herbal Technology in Pharmaceutical Industry.

   2) Define Asava. How do you determine the alcohol content of Asava.

   3) Define Processing and write a brief note on different processing methods.

   4) List four merits and demerits of monoherbal preparations with example.

   5) Write short note on herbal skin care cosmetics.
3. Answer any four:
   1) Define the following with examples:
      a) Avaleha
      b) Chruna
      c) Gutika
      d) Bhasma.
   2) Define phytopharmaceuticals. Name 6 plant derived pharmaceutical products their source, drug and indications.
   3) Write note on efficacy considerations of herbal medicine.
   4) Classify hair care cosmetics, write 4 ideal characteristics of hair colorants.
   5) Describe the classification of herbal drugs under 4 categories.

4. Answer any two:
   1) Describe the method of preparation of Asava with suitable example and how do you standardize Asava.
   2) Define herbal medicine and describe the advantages and limitations of Herbal Medicine.
   3) Write note on:
      a) Herbal Drug regulations in India
      b) Safety considerations of herbal medicine.

5. Answer any two:
   1) Describe the methods in quality assessment of herbal drugs as per WHO guidelines.
   2) Classify hair care cosmetics. How do you standardize a herbal shampoo.
   3) Describe the merits and demerits of polyherbal formulations.
Instructions: 1) All questions are compulsory.
   2) Figures to the right indicate full marks.
   3) Question 1 is compulsory, it should be solved in first 20 minutes in answer book page no. 3. Each question carries one mark.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

1. Multiple choice questions:
   I) World environment day celebrated on _____________
      A) 5th June
      B) 5th May
      C) 5th August
      D) 5th July
II) The term ecosystem was first introduced by ________________
   A) Arthur Stanely  B) Arthur Tansely
   C) E. P. Odum    D) Rachel Carson

III) Conservation of biodiversity in their natural habitats is called ________________
    A) In-situ conservation  B) Ex-situ conservation
    C) Protected conservation D) Stabilized conservation

IV) ___________ is renewable natural resources.
    A) Coal  B) Water
    C) Iron-ore  D) Natural oil

V) The richest and the most threatened reservoirs of plant and animal life on earth are ________________
    A) Host spots  B) Hot spots
    C) National parks  D) Green spots

VI) The first city to compulsory convert all vehicles in to CNG is ____________
    A) Delhi  B) Mumbai
    C) Kanpur  D) Chennai

VII) What is the unit of noise?
    A) Decible (dB)  B) Hertz (Hz)
    C) Kilohertz (KHz)  D) None of these

VIII) The greatest source of energy on the earth is ________________
    A) Coal  B) Water
    C) Wind  D) Sun

IX) The Air (prevention and control) Act, was passed by central government in the year ____________
    A) 1981  B) 1991
    C) 1961  D) 1971

X) _____________ environmentalist is related to the Narmada Movement.
    A) Medha Patankar  B) Baba Amte
    C) Medha Patkar  D) Anna Hajare
B.E./B.Pharm./B.Arch./B.A. LL.B. Examination, 2014
ENIRONMENTAL STUDIES

Day and Date: Sunday, 7-12-2014
Time: 11.00 a.m. to 1.00 p.m.

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

2. Write short answer (any four out of six): 8
   a) What is environmental studies?
   b) Define the term ecosystem.
   c) What is meant by food web?
   d) Define the pollution.
   e) Write any two effects of acid rain.
   f) Effects of deforestation.

3. Write short note (any four out of six): 12
   a) Effects of water pollution.
   b) Effects of ozone layer depletion.
   c) Causes of deforestation.
   d) Causes of noise pollution.
   e) Concept of ecosystem.
   f) Rain water harvesting.

4. a) What is biodiversity? Give its importance in the environment. 10
    OR
    b) Elaborate various measures to protect the environment.

5. Explain the effects of Global warming and suggest control measures of it. 10