SLR-C – 1

Seat No.	

B. Pharmacy (Semester – I) (CGPA) Examination, 2016
PHARMACEUTICS – I

Day and Date : Monday, 25-4-2016 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

1. Multiple choice question : **15**

1) _____ is a suspension of the distillate in water.
   a) Pills b) Asava c) Bhasma d) Arka

2) Suspension is _____ liquid dosage forms.
   a) Monophasic b) Biphasic
   c) Both a) and b) d) None of the above

3) Glycerites contains not less than_____ by weight of glycerine.
   a) 30% b) 50% c) 90% d) None of above

4) The concept of four humors of unani system putforth by
   a) Hippocrates b) Gallen c) Discorides d) Hahneman

5) In invert syrup, levulose formed during inversion_____sweeter than sucrose.
   a) More b) Less c) Same d) Double

6) Simple syrup contains sucrose_____%W/W.
   a) 66.7 b) 70 c) 50 d) 86.6

7) _____ are viscous, liquid and oral preparations that are generally prescribed for the relief of cough.
   a) Spirits b) Syrups
   c) Aromatic water d) Linctuses

8) GMP follows under which schedule

a) H b) U c) M d) G

9) The first edition of National Formulary of United States was published in _____ by American Pharmaceutical Association.

a) 1975 b) 1868 c) 1820 d) 1858

10) High alcoholic elixirs, consists of_____% of alcohol.

a) 8 –10 b) 75 – 80

c) Below 70 d) None of above

11) _____is determined by angle of repose in preformulation.

a) Bulk density b) Flow properties c) Particle size d) None of above

12) First edition of USP was published in

a) Latin b) English

c) Both a) and b) d) None of above

13) _____are sterile dosage forms.

a) Implants b) Ear drops

c) Gargles d) Applications

14) Ointments are_____ preparations meant for external application to skin.

a) Semi-solid b) Solid c) Liquid d) Gases

15) Liquids for external use are dispensed in coloured_____bottles.

a) Plastic b) Flutted c) Tin d) None of the above

2. Answer **any five** : **(5×5=25)**

a) Define and classify syrup. Add a note on method of preparation of syrup.

b) Write conversion of following imperial system to metric system.

a) 1 minim

b) 1 desertspoonful

c) 1 grain

d) 1 pound

e) 1 quart

c) Discuss Homeopathy system as alternative system of medicine.

d) Explain different methods of preparations of aromatic water with examples.

e) Define the following terms :

1) Spirits

2) Lotion

3) Emulsion

4) Glycerites

5) Elixirs.

f) Distinguish between quality assurance and quality control.

3. Answer **any three** : **(3×10=30)**

a) Write reasons of transformation of drug into dosage forms. Add a note on contents of monograph.

b) Write a note on Indian Pharmacopoeia.

c) Explain Tridosha theory of Ayurveda. Add short note on history of a Ayurveda.

d) Write a note on preformulation.

———————

SLR-C – 2

Seat No.	

B.Pharm. (Semester – I) (CGPA) Examination, 2016
PHARMACEUTICAL INORGANIC CHEMISTRY

Day and Date : Wednesday, 27-4-2016 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

1. Multiple choice questions. **15**

1) A chemical agent which destroys or inhibit growth of microorganism on living tissue is called as
   a) Antiseptic b) Bactericidal c) Disinfectant d) Bacteriostat

2) _____ is not a component of ORS.
   a) Sodium chloride b) Calcium gluconate
   c) Potassium chloride d) Dextrose

3) _____ is used to prepare dental cement.
   a) Sodium bicarbonate b) Sodium fluoride
   c) Zinc oxide d) Calcium carbonate

4) Nutritional deficiency of sodium leads to
   a) Hyponaturemia b) Hypernaturemia
   c) Hyperkalemia d) Hypocalcemia

5) The principle use of silver nitrite is in treatment of
   a) Cathartics b) Antimicrobial
   c) Cyanide poisoning d) None of the above

6) The limit test on heavy metals is based on reaction of metal ion with
   a) Thioglycolic acid b) Sodium chloride
   c) Acetic acid d) Hydrogen sulphate

7) Government of India reconstituted the Indian Pharmacopoeia committee in
   a) 1996 b) 1991 c) 1986 d) 1966

8) Normal plasma potassium concentration is _____ mEq/lit.
   a) 4.5 to 5.5 b) 135 to 145 c) 2.1 to 2.6 d) 0.3 to 1.5

9) Magnesium sulphate is also called as
   a) Magnesia b) Precipitated chalk
   c) Epson salt d) None of the above

P.T.O.

10) Titanium oxide is assayed by _____ titration.
   a) Precipitation b) Gasometry
   c) Complexometric d) Aqueous

11) Sodium chloride hypertonic injection contains _____ percent of NaCl.
   a) 0.9 b) 1.6 c) 5.0 d) 3.2

12) Oxygen is assayed by
   a) Precipitation b) Gasometry
   c) Complexometric d) Non-aqueous

13) Oxidised sodium iodide gives _____ colour.
   a) Pink b) Brown c) Blue d) Black

14) Arsenic acid converted to arsine by _____ reaction.
   a) Oxidation b) Elimination c) Nitration d) Reduction

15) _____ is not used as dental product.
   a) Sodium fluoride b) Stannous fluoride
   c) Sodium citrate d) Calcium carbonate

2. Answer **any five** of the following questions : **(5×5=25)**

1) Define antidote. Add a note on treatment of cyanide poisoning.

2) Explain in detail sodium and potassium as physiological ions.

3) Draw a neat labelled diagram of Guitzeit apparatus. Give its specification.

4) Define and classify GIT agents. Explain in detail magnesium sulphate as cathartics.

5) Write a note on CO_2.

6) Write principle and reaction involved in limit test for sulphate.

3. Answer **any three** of the following questions : **(10×3=30)**

1) Write in detail sources of impurities in pharmaceuticals.

2) Explain biochemical role of iron with example of iron preparation.

3) Write a note on topical agents. Give preparation, uses, assay of talc.

4) Write a note on expectorant and emetics. Explain in detail copper sulphate and ammonium chloride.

SLR-C – 3

Seat No.	

B. Pharm. (Semester – I) (CGPA) Examination, 2016
BIOCHEMISTRY – I

Day and Date : Friday, 29-4-2016 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

1. Multiple Choice Questions : **(1×15=15)**

1) The carbon atoms involved in osazone formation
   a) 1 and 2 b) 3 and 4 c) 1 and 3 d) 2 and 4

2) The glycosaminoglycan that serves as an anticoagulant
   a) Heparin b) Hyaluronic acid
   c) Chondroitin sulphate d) Dermatan sulphate

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

4) Inter-conversion of α to β form of glucose is called as
   a) Inversion b) Tautomarism c) Mutarotation d) Racemisation

5) Golgi apparatus is cluster of
   a) Dictyosomes b) Lysosomes c) Chromosomes d) Cytosomes

6) A sugar alcohol is
   a) Mannitol b) Trehalose c) Xylulose d) Arabinose

7) A positive seliwinoff test is obtained with
   a) Glucose b) Lactose c) Fructose d) Maltose

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

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

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

P.T.O.

11) During cell fractionation rough ER is disrupted to form small vesicles called
a) Cristae b) Mitosol c) Chromosome d) Microsomes

12) Carbohydrate reserved in human body is
a) Starch b) Glycogen c) Glucose d) Insulin

13) Invert sugar is
a) Lactose
b) Sucrose
c) Hydrolytic products of sucrose
d) Fructose

14) The membrane proteins loosely bound to the surface of membrane are called
a) Extrinsic b) Intrinsic c) Integral d) None

15) The HMP shunt produces
a) FMN b) NADPH c) GDP d) FAD

2. Answer **any five** of the following questions : **(5×5=25)**

1) What are epimers ? Write note on anomers and optical rotation.
2) Write short note on fluid mosaic model of cell membrane. Write about transport systems.
3) What are lipids ? Classify them with suitable example.
4) Give structure and functions of mucopolysaccharides.
5) Explain structure and biosynthesis of cholesterol.
6) Give structure and function of mitochondria and Golgi apparatus.

3. Answer **any three** following questions : **(3×10=30)**

1) Explain in detail TCA cycle with energetics. Add note on its amphibolic nature.
2) Define carbohydrates. Give detail classification.
3) Explain in detail classification of phospholipids with structures.
4) Describe β-oxidation of fatty acid. Calculate net ATP yield.

———————

SLR-C – 4

Seat No.	

B.Pharmacy (Semester – I) (CGPA) Examination, 2016
ANATOMY, PHYSIOLOGY AND HEALTH EDUCATION – I

Day and Date : Monday, 2-5-2016 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

1. MCQ : **(1×15=15)**

1) How is the majority of oxygen transported around body ?
   a) Dissolved in plasma
   b) Attached to haemoglobin
   c) As bicarbonate ions
   d) Attached to plasma protein

2) The process of taking food into digestive system is known as
   a) Ingestion
   b) Propulsion
   c) Digestion
   d) Elimination

3) Which of these is not a constituent of saliva ?
   a) Salivary amylase
   b) Mucus
   c) Lysozyme
   d) Pepsin

4) The first step in hemostasis is
   a) Vascular spasm
   b) Conversion of fibrinogen to fibrin
   c) Platelet plug formation
   d) Blood clotting

5) Hemolytic disease of newborn is risk during a subsequent pregnancy in which
   a) Type AB mother is carrying a type O fetus
   b) Type O mother is carrying a type AB fetus
   c) Rh^+ mother is carrying an Rh^- fetus
   d) Rh^- mother is carrying an Rh^+ fetus

6) The P wave on the electrocardiogram corresponds to
   a) Atrial depolarisation
   b) Atrial repolarisation
   c) Ventricular depolarisation
   d) Ventricular repolarisation

7) Which of the following is not found in upper respiratory track ?
   a) Oropharnx b) Palatine tonsil
   c) Favces d) Trachea
8) Which valve prevent the backward flow of blood into the left atrium ?
   a) Aortic valve b) Pulmonary valve
   c) Mitral valve d) Tricuspid valve
9) Which artery supplies the stomach with oxygenated blood ?
   a) Carotid artery b) Gastric artery
   c) Celiac artery d) Cephalic artery
10) The lymph leaves the lymph node via the
   a) Afferent lymphatic vessel b) Superior vana cava
   c) Aorta d) Efferent lymphatic vessel
11) The circulatory route that runs from the digestive tract to the liver is called as
   a) Hepatic portal circulation b) Systemic circulation
   c) Pulmonary circulation d) Coronary circulation
12) Which part of digestive track has small adaptation called microvilli
   a) Oesophagus b) Stomach
   c) Small intestine d) Large intestine
13) With regard to the work of breathing, what forces must respiratory muscle overcome in order to inflate the lungs ?
   a) Natural elastic recall of lung tissue b) Liquid/air surface tension
   c) Airway resistance d) All of above
14) The least no. of white blood cells are
   a) Basophils b) Neurophils
   c) Lymphocyte d) Monocyte
15) What happens to dietary carbohydrates ?
   a) Broken down into amino acid by hydrolysis
   b) Broken down into glycerol and fatty acid by catabolism
   c) Broken down into simple sugar by the action of pepsin
   d) Broken down into monosaccharide by the action of amylase

2. Answer **any five** : **(5×5=25)**

   a) Explain location, histology and function of stomach.

   b) Explain composition, circulation and function of lymph.

   c) Give the anatomy and function of RBCs.

   d) Explain conduction system of heart with labeled diagram.

   e) Define Haemostasis. Describe in detail the process of coagulation of blood.

   f) Explain role of renin-angiotensin system in regulation of blood pressure.

3. Answer **any three** : **(3×10=30)**

   a) Define internal and external respiration. Explain the gaseous exchange of lung and tissue level.

   b) Define blood pressure, discuss factor affecting BP and add note on regulation of BP.

   c) Discuss the physiology of digestion of lipid, carbohydrate and protein in GIT and give function of digestive system.

   d) Describe the anatomy of heart in detail.

———————

SLR-C – 5

Seat No.	

B.Pharm. (Semester – I) (CGPA Pattern) Examination, 2016
PHARMACOGNOSY – I

Day and Date: Friday, 6-5-2016 Total Marks: 70

Time: 10.30 a.m. to 1.30 p.m.

1. Multiple choice questions (MCQ) / objective type questions. **(15×1=15)**

1) Phloem is _____ conducting tissue.

a) Water b) Food c) Protein d) Salt

2) Individual member of calyx is called as

a) Sepal b) Petal c) Carpel d) Pistil

3) The term aromatherapy was coined by chemist

a) Seydler b) Gantle Fosse

c) Hahnemann d) Hippocrates

4) Who was classified the plants and introduce the binomial system ?

a) Linnaeus b) Galen c) Mendel d) Aristotle

5) Indentify the organized crude drug

a) Colophony b) Benzoin c) Myrrh d) Isapgol

6) Acid insoluble ash is an example of _____ evaluation.

a) Microscopical b) Biological c) Chemical d) Physical

7) _____ method is more economical for the collection of bark.

a) Felling b) Uprooting

c) Coppicing d) None of these

8) Which of the following is not chromatographic technique ?

a) IR b) TLC c) HPTLC d) HPLC

P.T.O.

9) Who is known as father of medicine ?

a) Dioscorides b) Tschirsh c) Galen d) Hippocrates

10) Pedology is a branch of science which deals with the study of

a) Altitude b) Soil c) Plant d) None of above

11) New extraction process for alkaloids was developed by _____ in 1852.

a) Posselt and Reimann b) Stass and Otto

c) Neumann d) G.Mendel

12) Identify the drug packed in kerosene tin

a) Aloe b) Asafoetida c) Colophony d) Ergot

13) Stomata comprising of two guard cells covered by two subsidiary cells, long axis of which are parallel to that of stoma is called as _____

a) Dicytic b) Paracytic c) Anisocytic d) Anomocytic

14) Identify the factor useful during cultivation of medicinal plants.

a) Altitude b) Temperature

c) Humidity d) All of above

15) A group of plants of a species which have identical morphological characters but differ in their chemical nature is called as

a) Hybrids b) Chemodemes

c) Diploids d) Transgenic plant

2. Answer **any five** of the following questions. **(5×5=25)**

1) Explain different types of pests affecting cultivation of medicinal plants.

2) Write the methods of propagation of medicinal plants.

3) Enumerates the merits and demerits of cultivation over the wild sources of crude drugs.

4) Add a note on vascular bundle.

5) Define the terms :

a) Pharmacognosy

b) Flower

c) Leaf

d) Stomata

e) Weed.

6) Explain alphabetical system of classification of DONO.

3. Answer **any three** of the following questions. **(10×3=30)**

1) Explain Homeopathic system of medicine in detail.

2) Define adulteration. How it is to be carried out ?

3) Enlist different methods of evaluation. Describe physical method of evaluation.

4) Write the general characteristics of bark.

———————

SLR-C – 6

Seat No.	

B.Pharmacy (Semester – II) (CGPA) Examination, 2016
PHARMACEUTICS – II

Day and Date : Tuesday, 26-4-2016 Max. Marks : 70

Time : 10.30 a.m. to 1.30 p.m.

I. Multiple Choice Questions : **(15×1=15)**

1) Glass gets discolored by _____ irradiation.
   a) Alpha b) Beta c) Both a) and b) d) Gamma

2) When two immiscible liquids are mixed it forms _____ type of mixture.
   a) Positive b) Negative c) Both a) and b) d) None of the above

3) _____ is the ability of the talcum powder to remain on the skin surface.
   a) Adhesiveness b) Slip
   c) Bloom d) None of the above

4) Based on impact and attrition _____ mill works.
   a) Hammer mill b) Fluid energy mill
   c) All of the above d) None of the above

5) When amount of soda in the glass is between _____% the resulting glass is called type I glass.
   a) 7 – 10 b) 12.5 – 19 c) 9 – 11 d) 66 – 74

6) The porous medium used to retain the solids is known as
   a) Filter medium b) Filter cake c) Slurry d) None of the above

7) Planetary mixer is used for mixing of
   a) Solids b) Liquids c) Semisolids d) None of the above

8) _____ 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 the above

9) Glycerin used as
   a) Viscosity modifier b) Humectants
   c) Vehicles d) All of the above

P.T.O.

10) The process of size reduction can be affected by
    a) Surface hardness b) Toughness
    c) Crack propagation d) All of the above
11) Starch can be used as _____ in tablet formulation.
    a) Binder b) Colouring agent
    c) Flavouring agent d) None of the above
12) _____ is not a mechanisms of granule formation.
    a) Nucleation b) Transition c) Ball growth d) Slugger
13) Roller mill works on the principle of
    a) Impact b) Compression
    c) Attrition d) None of the above
14) The solids retain on a filter medium after filtration is known as
    a) Filter medium b) Filter cake c) Slurry d) None of the above
15) Ligature are used for
    a) Sewing tissue together b) Tying blood vessels
    c) Both a) and b) d) None of the above

II. Answer **any five** : **(5×5=25)**

1) Explain pharmaceutical applications of size separation.
2) Define and classify surgical sutures and ligature.
3) Draw a neat labelled diagram of ribbon mixer.
4) Write a note on formulation of dry syrup.
5) Write construction and working of Ball mill.
6) Explain principle, working, construction of filter leaf.

III. Answer **any three** : **(10×3=30)**

1) With a neat labelled diagram explain the construction, working, advantages and disadvantages of rotary drum filter.
2) Write in brief about bottle filling and bottle washing machine.
3) Discuss in detail glass as packing material.
4) Define size reduction and explain factors affecting size reduction.

———————

SLR-C – 7

Seat No.	

B.Pharmacy (Semester – II) (CGPA) Examination, 2016
MODERN DISPENSING AND HOSPITAL PHARMACY

Day and Date : Thursday, 28-4-2016 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

1. Multiple choice questions : **(1×15=15)**

1) In prescription Signa is the
   a) Direction to the pharmacist
   b) Direction to the patient
   c) Name and quantity of medicament
   d) Initials of pharmacist

2) Colour coding for carbon dioxide cylinder is
   a) Grey b) Orange c) Brown d) Blue

3) 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

4) As itemised list of goods with their estimated worth, specifically annual account of stock taken in any business is called as
   a) Purchase b) Inventory
   c) Control d) None of the above

5) ''Dolore urgent'' its meaning in English is
   a) When pain is severe b) Frequently
   c) When necessary d) All of the above

6) _____ is considered as a specialized unit which supplies sterilized equipments to all department.
   a) Administrative office b) PTC
   c) Hospital formulary d) CSSR

P.T.O.

7) 1 volume of ethyl alcohol is equal to _____ volume of proof spirit.
   a) 1.770 b) 1.753 c) 1.752 d) 1.754

8) Which 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

9) The height of mobile dispensing unit should be
   a) 25 b) 48 c) 60 d) 28

10) Who is the secretary of the Pharmacy and Therapeutics Committee ?
   a) Physician b) Nurse
   c) Pharmacist d) None of these

11) The solution which exert greater pressure are called as
   a) Hypotonic b) Hypertonic
   c) Isotonic d) Paratonic

12) VED analysis stands for
   a) Vital Essential Desirable b) Vital Essential Drug
   c) Vital Economic Drug d) None of the above

13) The quantity of drug which displaces one part of base is called
   a) Displacement value b) Specific gravity
   c) Density d) None of these

14) Which of following reaction is an example of Physical incompatibility ?
   a) Mixture of quinine HCl, sulphuric acid and potassium iodide
   b) Alkaloidal salts with alkaline substances
   c) Menthol, camphor, ammonium chloride and light magnesium carbonate
   d) All of the above

15) Eye preparation must be
   a) Isotonic b) Hypotonic
   c) Hypertonic d) All of these

2. Answer **any five** : **(5×5=25)**

   a) What is Posology ? Give the formula used for calculation of doses of children. Explain the factor affecting on dose.

   b) What is prescription ? Explain the parts and types of prescription.

   c) Explain in detail different method of drug distribution system in hospital.

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

   e) Explain in detail surgical and health accessories.

   f) Write a note on dispensing of sustained release, inhalers and Transdermal drug delivery system with emphasis on patient counselling.

3. Answer **any three** : **(10×3=30)**

   a) Describe the composition and function of Pharmacy and Therapeutic Committee. Write in brief role of Pharmacy and Therapeutic Committee in drug safety.

   b) Explain in brief the Displacement values. Calculate the displacement value for Zinc oxide. (Given : Weight of 6 suppositories containing cocoa butter = 6.3 gm. Weight of 6 medicated suppositories containing 40% Zinc oxide is 9.2 g).

   c) What is incompatibility ? Enumerate the causes of physical incompatibility. Suggest method for overcoming physical incompatibility.

   d) Define Hospital pharmacist. Describe in detail duties and responsibility of Hospital pharmacist.

SLR-C – 8

Seat No.	

B.Pharm. (Semester – II) (CGPA) Examination, 2016
ORGANIC CHEMISTRY – I

Day and Date : Saturday, 30-4-2016 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

1. Multiple choice questions. **(15×1=15)**

1) Which molecular formula indicates 2-Methyl-2-hydroxybutane ?

a) $C_5H_{12}O$ b) $C_5H_{11}O$ c) $C_4H_{12}O$ d) $C_5H_{13}O$

2) The heterolytic fission of C-C bond leads to formation of

a) Free radical b) Carbonium ion

c) Carbene d) None of these

3) If the double bonds are separated by more than one single bond then diene is called as

a) Non conjugated b) Conjugated c) Cumulated d) None of these

4) Which compound reacts most rapidly by SN1 mechanism ?

a) Methyl chloride b) Isopropyl chloride

c) Ethyl chloride d) Ter. Butyl chloride

5) Which of the following reagent can not be used to prepare an alkyl chloride from an alcohol ?

a) $HCl/ZnCl_2$ b) NaCl c) PCl_5 d) $SOCl_2$

6) The high boiling point of alcohol as compared to corresponding alkanes are due to

a) Hydrogen bonding b) Water solubility

c) Heavy oxygen atom d) None of these

7) Ethyl alcohol reacts with conc. H_2SO_4 at 140°C to form

a) Acetone b) Diethyl ether

c) Ethylene d) Acetic acid

8) The reduction of alkynes can be stopped by using

a) Lindlars catalyst b) Pt

c) Ni d) Pd

9) Ethylene is obtained from ethyl bromide by

a) Simple heating b) Hydrolysis

c) Dehydrohalogenation d) Nucleophilic substitution

10) Isopropyl alcohol can be converted to acetone by treatment with

a) $HCl/ZnCl_2$ b) $Na_2Cr_2O_7/H_2SO_4$

c) NaOH d) $LiAlH_4$

11) Ozonolysis of 2-Butyne gives

a) Formic acid b) Prapanoic acid

c) Acetic acid d) Butanoic acid

12) In stable organic compound nitrogen will always form

a) 2 bonds b) 4 bonds

c) 3 bonds d) 5 bonds

13) How many sigma bonds are present in $CH_2=CH–CH=CH_2$?

a) 3 b) 6 c) 9 d) 12

14) Markonikov's addition of HBr is not applicable to

a) 1-Propene b) 1-Butene c) 1-Pentene d) 2-Butene

15) Lucas reagent is

a) $HCl/NaNO_2$ b) $HCl/ZnCl_2$

c) H_2/Pd d) $H_2/Pd/BaSO_4$

2. Answer **any five** of following questions : **(5×5 = 25)**

   1) Write method of preparation and chemical reactions of alkene.

   2) Explain in detail inductive effect, resonance effect and steric effect.

   3) Discuss mechanism of SN1 reaction with suitable example.

   4) Discuss the factors affecting acid base strength.

   5) Explain structure, generation, stability and reaction of carbocation.

   6) Explain the term electrophile, nucleophile and free radical. Add a note on Markonikov's and anti-Markonikov's rule.

3. Answer **any three** of following questions : **(10×3 = 30)**

   1) Give method of preparation and reactions of ether. How will you distinguish between pri., sec., and ter.alcohol ?

   2) What are dienes ? Give its classification. Write method of preparation and reactions of 1,3-butadiene.

   3) Explain different types of organic reaction. Give method of preparation and reactions of alkynes.

   4) Explain in detail E1 and E2 reaction with mechanism.

SLR-C – 9

Seat No.	

B.Pharmacy (Semester – II) Examination, 2016
BIOCHEMISTRY – II (CGPA)

Day and Date : Tuesday, 3-5-2016 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

1. Answer the following questions : **(15×1=15)**

1) Denaturation of proteins results in
   a) Disruption of primary str. b) Breakdown of peptide bonds
   c) Destruction of hydrogen bonds d) Irreversible changes in the molecule

2) Edman's reagent contains
   a) Phenylisothiocyanate b) 1-Fluoro-2, 4-dinitrobenzene
   c) Urea d) Dansyl chloride

3) Irreversible changes in the molecule at a pH below the isoelectric point, an amino acid exists as
   a) cation b) anion c) zwitter ion d) undissociated

4) An aromatic amino acid is
   a) lysine b) arginine c) phenylalanine d) Histidine

5) Histamine is formed from histidine by
   a) deamination b) decarboxylation
   c) transamination d) carboxylation

6) An enzyme which is secreted ready for action is called _____ secretion.
   a) zymase b) zymogen c) endozyme d) exozyme

7) Factors affecting enzymes activity
   a) Temp. b) Conc. c) pH d) All of these

8) The following enzyme of urea cycle is present in cytosol
   a) Argininosuccinic acid synthetase b) Argininosuccinase
   c) Arginase d) All of these

9) In case of urcotelic, ammonia is liberated in the form of
   a) uric acid b) urea c) ammonia d) NH_4

10) An example of hydrogen transferring coenzyme is
   a) ATP b) NADP c) Biotin d) CoA

11) Coenzymes combine with
   a) Apoenzyme b) Holoenzyme c) Proenzyme d) Antienzyme

P.T.O.

12) Competitive inhibitors
   a) Decrease the Km b) Decrease the Vmax
   c) Increase the Km d) Increase the Vmax

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

14) The sugar found in RNA is
   a) Ribose b) Deoxyribose c) Ribulose d) Erythrose

15) The ETC located in
   a) Mitochondria b) Cytoplasm c) Ribosome d) Nucleus

2. Answer **any five** of the following questions : **(5×5=25)**

1) Write in short about types of RNA.

2) Write note on decarboxylation of amino acid.

3) Explain in short Biuret test, Xantoprotic test and Sakaguchi test.

4) Write note on transamination reaction. Give importance of SGPT and SGOT.

5) What is genetic code ? Give its characteristics. Explain the process of translation of mRNA.

6) Give in short about factors affecting enzyme activity.

3. Answer **any three** of the following questions : **(3×10=30)**

1) What are proteins ? Give their classification based on functional nature with e.g. Add note on secondary structure of proteins.

2) Explain urea cycle in detail.

3) Explain in detail oxidative phosphorylation. Write inhibitors of ETC and uncouplers of oxidative phosphorylation.

4) Define enzyme. Explain enzyme action with the help of models. Write in details about inhibitors of enzymatic action.

_____

SLR-C – 10

Seat No.	

B.Pharmacy (Semester – II) Examination, 2016
ANATOMY, PHYSIOLOGY AND HEALTH EDUCATION – II
(CGPA)

Day and Date : Saturday, 7-5-2016 Max. Marks : 70

Time : 10.30 a.m. to 1.30 p.m.

1. Multiple choice questions : **(1×15=15)**

1) The urinary reservoir is called as

A) Kidney B) Ureter C) Bladder D) Urethra

2) Percentage of weight of skeletal muscle in average adult is

A) 10 B) 40 C) 70 D) 100

3) Sensory impulses travelling towards the brain are called _____ impulses.

A) Afferent B) Efferent C) Motor D) Mixed

4) Homeostasis of the internal environment is maintained partly by the ANS and partly by the _____ system.

A) Central nervous B) Cardiovascular

C) Endocrine D) Muscular

5) _____ is not an internal organs of male reproductive system.

A) Two testes B) Pair of vas deference

C) Prostate gland D) Penis

6) _____ is a component of mental health.

A) Anxiety B) Worry C) Tension D) All of above

7) Which of the following contraceptive method is common for male and female ?

A) Sexual abstinence B) Vasectomy

C) Tubectomy D) IUD

8) Which of the following communicable disease is not caused by virus ?

A) Chicken pox B) Rubella

C) Measles D) Tuberculosis

9) _____ is used for the treatment of cancer.

A) Surgery B) Radiotherapy

C) Chemotherapy D) All of above

10) Women can get the pregnancy terminated before _____ weeks of pregnancy under MTP Act, (1971).

A) 6 B) 12 C) 18 D) 24

11) In a healthy adult the GFR is about

A) 100 ml/min B) 125 ml/min C) 150 ml/min D) 175 ml/min

12) The light bands containing only actin filaments are called as _____ bands.

A) F B) G C) H D) I

13) The release of T_3 and T_4 into blood is regulated by TSH from _____ lobe of the pituitary.

A) Anterior B) Middle C) Posterior D) Occipital

14) The synapse between pre and post ganglionic fibre is called as

A) Ganglion B) Neurone effector

C) Synapse D) Organ receptor

15) Testosterone secreted by the male testes has a powerful _____ effect.

A) Metabolic B) Anabolic

C) Catabolic D) Pharmacokinetic

2. Answer **any five** : **(5×5=25)**

   1) Draw a neat labelled diagram of urinary system showing its different parts. Add functions of kidney.

   2) Give physiological properties of skeletal muscles.

   3) Discuss the protective coverings of brain.

   4) Write a note on endocrine pancreas.

   5) Describe the process of spermatogenesis.

   6) Define health. Brief the physical health.

3. Answer **any three** : **(10×3=30)**

   1) Discuss the spread and control of malaria and add note on cancer.

   2) Describe the anatomy of eye.

   3) Write a note on the hormones of pituitary gland with their functions.

   4) Explain the main sensory areas of cerebrum and draw a neat labelled diagram of spinal cord.

———————

SLR-C – 11

Seat No.	

B.Pharmacy (Semester – III) Examination, 2016
PHYSICAL PHARMACY – I
(CGPA Pattern)

Day and Date : Monday, 25-4-2016 Max. Marks : 70

Time : 3.00 p.m. to 6.00 p.m.

1. Multiple choice questions : **(1×15=15)**

1) When water is cooled to ice, its entropy
   a) Increases b) Decreases
   c) Remains the same d) Becomes zero

2) A property which does not depend on the quantity of the matter present in a system is
   a) Intensive property b) Extensive property
   c) Both a) and b) d) None of these

3) The system that undergoes gel-sol-gel transformation is known as
   a) Elastic b) Non-elastic
   c) Shear thickening d) Shear thinning

4) _____ system exhibits negative thixotropy.
   a) Magnesia magma b) HPMC in water
   c) Acacia in water d) None of these

5) Greater the thixotropy _____ is the physical stability of suspension.
   a) Higher b) Lower
   c) Poor d) All of the above

6) Among these, which one is example of plastic system ?
   a) Butter b) Sodium alginate in water
   c) Zinc oxide 30% in water d) None of these

P.T.O.

7) When compound exist in more than one crystalline forms is called as
   a) Crystalinity b) Polymorphism
   c) Pseudomorphism d) Isomorphism

8) Temperature at which a liquid passes into a solid state is referred as
   a) Freezing point b) Melting point
   c) Fusion temperature d) All of the above

9) When a gas is allowed to pass from a high pressure zone to low pressure zone, the gas expands by taking heat from surrounding is
   a) Joule – Thomson's effect b) Gibbs free energy
   c) Graham's law d) None of the above

10) Colligative property depends upon
   a) Number of particles b) Chemical nature of particles
   c) Size of the particles d) Pressure of the solution

11) When a non-volatile solute is added to a solvent, the freezing point of solvent
   a) Increases b) Remains the same
   c) Decreases d) None of these

12) Relative lowering of vapor pressure is given by
   a) Van't Hoff b) Ostwald c) Raoult d) Henry

13) Which one is the colligative property ?
   a) Atmospheric pressure b) Critical pressure
   c) Osmotic pressure d) None of these

14) The semipermeable membrane allows the passage of _____ through it.
   a) Solvent only b) Solute only
   c) Solvent and solute d) Either solvent or solute

15) At constant temperature the solubility of gas in a liquid is proportional to the pressure of the gas above it is called as
   a) Raoult's law b) Henry's law
   c) Graham's law d) None of the above

2. Answer **any five** of the following : **(5×5=25)**

   a) State and derive Raoult's law.

   b) What is polymorphism ? Give its four applications.

   c) State and explain Hess law of constant heat summation with example.

   d) Define and explain Nernst distribution law with applications.

   e) Explain plastic system with rheogram.

   f) What is solubility ? Add a note on solvents.

3. Answer **any three** : **(10×3=30)**

   a) Give construction, working, mathematical equation and applications of cup and bob viscometer. What are its disadvantages ?

   b) Define osmosis. Give the theories of osmosis.

   c) What is critical solution temperature ? Explain solubility of liquids in liquids.

   d) What is liquefaction of gases ? Explain the different methods of liquefaction of gases.

———————

SLR-C – 12

Seat No.	

B. Pharmacy (Sem. III) (CGPA) Examination, 2016
PHARMACEUTICAL ENGINEERING

Day and Date : Wednesday, 27-4-2016 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

1. Multiple Choice Questions : **(15×1=15)**

1) The rate of evaporation is directly proportional to the

a) Temperature b) Surface area

c) Viscosity d) Both (a) and (b)

2) Which distillation is used for the separation of immiscible liquids ?

a) Fractional b) Simple

c) Steam d) None of these

3) Which material is used for the construction of jacket in evaporating pan ?

a) Iron b) Copper

c) Stainless steel d) Aluminum

4) _____ pump is example of reciprocating pump.

a) Centrifugal b) Piston

c) Gear d) Peristaltic

5) A laminar flow is one in which

a) There is mixing of particles b) Fluid particle move in layers

c) One layer sliding over other d) Both (b) and (c)

6) 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

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

8) _____ pumps are used for corrosive and toxic liquids.
   a) Piston
   b) Diaphragm
   c) Plunger
   d) Rotary

9) In which evaporator the preheated feed enters ?
   a) Evaporating pan
   b) Falling film
   c) Rising film
   d) Horizontal tube

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

11) Which conveyor is used for handling of toxic materials ?
   a) Screw
   b) Pneumatic
   c) Belt
   d) Chain

12) Reynold's no. for turbulent flow is
   a) < 2000
   b) > 4000
   c) Lies in between 2000 to 4000
   d) None of these

13) _____ laws express quantitative relationship between concentration and vapour pressure.
   a) Fourier
   b) Dalton's
   c) Raoult's
   d) All of the above

14) Which evaporator is used for thermolabile substance ?
   a) Climbing film
   b) Vertical tube
   c) Horizontal tube
   d) None of these

15) Amount of water that is easy to evaporate from the solid surface is
   a) Equilibrium moisture content
   b) Critical moisture content
   c) Free moisture content
   d) None of these

2. Answer **any five** : **(5×5=25)**

a) Define pharmaceutical engineering. Differentiate between unit operation and unit process.

b) What is manometer ? Explain in brief the simple manometer with application.

c) Enlist the different types of pump used for liquid handling. Write in brief construction and working of plunger pump.

d) Explain in detail principle, construction and working of belt conveyors.

e) Define and classify evaporation with application.

f) Describe the principle, construction and working of flash distillation.

3. Answer **any three** : **(10×3=30)**

a) What is meant by drying ? Give the application of it. Explain the principle, construction and working of Freeze dryer.

b) Describe the principle, construction and working operation procedure of Multiple Effect evaporator with neat labelled diagram.

c) Differentiate between simple distillation and fractional distillation. Explain in detail principle, construction, working and application of fractional distillation.

d) Describe in detail the Bernoulli's theorem and Reynold's experiments.

———————

SLR-C – 13

Seat No.	

B.Pharm. (Semester – III) (CGPA) Examination, 2016
ORGANIC CHEMISTRY – II

Day and Date : Friday, 29-4-2016 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Multiple choice questions : **(1×15=15)**

1. Choose the most appropriate **one** from the following answers :

   1) Nucleophilic substitution of –OR' is possible by
      a) – Cl b) – OC(=O)R' c) – NH_2 d) None

   2) 9–BBN is a selective reducing agent used for reducing
      a) Acids
      b) Ketones
      c) Aldehydes in presence of ketones
      d) None

   3) Most basic amine of the following is
      a) Ar-NH_2 b) Alkylamine
      c) Dialkylamine d) Trialkylamine

   4) Correct name of the compound $CH_3CH(Cl)CH_2C(=O)C_2H_5$ is
      a) Ethyl 2-Cl-propanoate b) 2-Cl-hexanone
      c) 5-Cl-hexanone d) 2-chloropropyl ethyl ether

   5) _____ reaction of aldehydes is influenced by size, electron releasing/ withdrawing ability of the functional groups on the α-carbon.
      a) Nucleophilic substitution b) Electrophilic substitution
      c) Reduction d) Nucleophilic addition

   6) Naphthalene on sulphonation at 80°C yields
      a) 1-sulphonate b) 2-sulphonate
      c) 1, 2-disulphonate d) 4-sulphonate

P.T.O.

7) _____ is prepared by condensing together acetylene and NH_3.
   a) Thiophen b) Pyrrole
   c) Pyridine d) Naphthalene

8) Oxidizing agent used for obtaining aldehydes from alcohol is
   a) H_2SO_4 b) $KMnO_4$
   c) O_3 d) $K_2Cr_2O_7$

9) Product obtained on strong heating of phthalic acid is
   a) Maleimide b) Phthalimide
   c) Phthalic anhydride d) None

10) O-nitrophenols have lower solubility and higher b.p. compared to other isomers due to
   a) Intra molecular H-bonding b) Dipole
   c) Inter molecular H-bonding d) None

11) Diels-Alder addition reaction with maleic anhydride is seen with
   a) Benzene b) Naphthalene
   c) Thiophen d) Pyrrole

12) The formation of β-amino carbonyl compound occurs in _____ reaction.
   a) Mannich b) Cannizzaro
   c) Perkin d) Reformatsky

13) Esters from alcohols and acids in acidic condition are obtained by _____ method.
   a) Fischers b) Shotten-Baumann
   c) Cannizzaro d) Hoffman's

14) O-nitro derivative of benzene can be selectively obtained by modifying
   a) Temperature b) Solvent
   c) Both d) None

15) An oxidation reaction in which aluminum is used as a catalyst is
   a) Jones method b) Swern method
   c) Oppennauer oxidation d)Dess-Martin method

II. Answer **any five** questions of the following : **(5×5=25)**

1) Write about the laboratory methods available for the preparation of amines.
2) What is Nucleophilic Aromatic Substitution (NAS) ? Write four NAS reactions of benzene with examples.
3) How are phenols prepared in the laboratory ? Explain briefly.
4) What is nucleophilic acyl substitution ? Explain with examples the importance of the method.
5) Explain with examples the importance of
   i) Alkyl Lithium in ketone preparation
   ii) Haloform reaction.
6) Write the reactions of anthracene. Explain if needed.

III. Answer **any three** questions of the following : **(10×3=30)**

1) Write the definition, mechanism, conditions of reaction, applications and limitations of :
   a) Aldol condensation
   b) Knoevenagel reaction.
2) Write the methods of preparation and chemical reactions of thiophen.
3) Enlist chemical reactions of benzene. Explain with examples.
4) Write briefly about :
   a) EAS reactions of pyridine
   b) Hoffman degradation of amides.

———————

SLR-C – 14

Seat No.	

B.Pharm. (Semester-III) (CGPA) Examination, 2016
PHARMACEUTICAL ANALYSIS – I

Day and Date : Monday, 2-5-2016 Total Marks : 70

Time : 3.00 p.m. to 6.00 p.m.

1. Multiple Choice questions : **(1×15 =15)**

1) Ascorbic acid powder is assayed by titration with

a) Iodine b) 2, 6 dichloro indophenols solution

c) Cerric ammonium sulphate d) Potassium Permanganate solution

2) In standard solution of sodium thiosulphate, sodium carbonate is added. It is added to

a) Prevent the acid catalysed hydrolysis of sodium thiosulphate

b) Prevent the interaction of oxidizing agent prevent in the water

c) Kill the micro-organism which may cause decomposition

d) None of the above

3) Pka is related to

a) Acid b) Base c) Amphoteric d) Neutral

4) Iodine can be standardized by titration. Identify the reagent used for standardization.

a) Arsenic trioxide b) Sodium thiosulphate

c) Potassium iodide d) Sodium nitrite

5) Methyl Orange has a pH range of

a) 2.2 to 4.0 b) 3.2 to 4.4 c) 4.4 to 5.4 d) 4.2 to 6.2

6) Iosoniazid powder I.P. is assayed by

a) Oxidation-Reduction method b) Non-aqueous titration

c) Precipitation titration d) Colorimetric method

7) Substance which are weakly acidic or basic give sharp end point if titrated with

a) Strong acid b) Strong base

c) Weak base d) Non-aqueous solvent

8) _____ is used as primary standard for standardization of NaOH.

a) Sodium carbonate b) Sodium bicarbonate

c) PHT d) Potassium dichromate

9) Due to incorrect sampling and incomplete reactions involved in determination _____ error arises.

a) Operational b) Method c) Human d) Instrumental

10) Behavior of indicator is explained by _____ theory.

a) Ionic b) Chromophore c) Color d) Resonance

11) Oxidation-Reduction reaction involving the transfer of

a) Electron b) Neutron c) Protons d) None of the above

12) The indicator in Mohr's method is

a) Fluorescein b) Potassium chloride

c) Potassium chromate d) All of above

13) Assay of Potassium chloride is based on

a) Acid-Base b) Precipitation c) Redox d) Aqueous

14) Silver nitrate can be standardized by

a) Sodium chloride b) Sodium carbonate

c) Potassium chloride d) Potassium bromide

15) Potassium permanganate can be standardized by using

a) Cinnamic acid b) Oxalic acid

c) Sodium carbonate d) Sodium hydroxide

2. Answer **any five**. **(5×5 = 25)**

   1) Define Pharmaceutical Analysis and Give the scope of Pharmaceutical analysis.

   2) Enlist different theories of Ph Indicator. Explain Ostwald theory of Ph Indicator.

   3) Describe the classification of Redox titration on the basis of different oxidizing agent used.

   4) How will you prepare and standardize 100 ml of 0.1 M $KMnO_4$ solution. Why HCl is not used in this titration ?

   5) Give the different indicators used for detection of end point in precipitation and write a note on preparation and standardization of 1M $AgNO_3$.

   6) Define Accuracy and Precision and write a note on minimization of error.

3. Answer **any three** of followings. **(10×3 = 30)**

   1) Define Normality, Molality. Briefly explain the different analytical techniques.

   2) Define Precipitation Titration. Explain different methods of determination of end point in this titration.

   3) Define different acid-base theories and write a note on any one Neutralization curve.

   4) Define process of Oxidation and Reduction in detail. Give methods use to determine equivalent weight of oxidizing or reducing agent. Explain Electron balance method.

———————

SLR-C – 15

Seat No.	

B.Pharmacy (Semester – III) (CGPA) Examination, 2016
PATHOPHYSIOLOGY AND CLINICAL BIOCHEMISTRY – I

Day and Date : Friday, 6-5-2016 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Figures to* ***right*** *indicate* ***full*** *marks.*
2) Mention main question and sub-question number ***correctly*** *for* ***each*** *of the answers.*
3) Algorithms/charts may be drawn ***wherever*** *necessary.*

1. Choose the most appropriate alternative for following Multiple Choice Questions. **(1×15=15)**

1) Match the etiologic category (X) with specific causative agent (Y) of cell injury.

X. Etiologic Category	**Y. Specific Causative Agent**
i) Chemical	A) Rickettsiae
ii) Physical	B) Lymphocytes
iii) Immunologic	C) Radiations
iv) Microbial	D) Arsenic

a) i – B, ii – C, iii – A, iv – D
b) i – D, ii – C, iii – B, iv – A
c) i – C, ii – B, iii – A, iv – D
d) i – D, ii – B, iii – A, iv – C

2) Which of the following membrane component acts as an 'eat me' signal for Macrophages in Apoptosis ?
a) Phosphatidyl serine
b) Phosphoinositol
c) Choline
d) Cholesterol

3) Sodium regulators in the body include
   a) Antidiuretic hormone b) ANP
   c) Aldosterone d) All of these

4) Serum bicarbonate above 26 mEq/Lit signifies
   a) Respiratory acidosis b) Metabolic acidosis
   c) Respiratory alkalosis d) Metabolic alkalosis

5) _____ is an example of referred pain ?
   a) Bone pain b) Joint pain c) Anginal pain d) None of these

6) Which of the following statements is false ?
   a) Inflammation is a local protective response initiated by tissue
   b) Inflammation is aimed at eliminating the causative injurious agent
   c) Inflammation is always accompanied by infection
   d) Inflammation is aimed at removing dead cells from the site of injury

7) _____ of the following is the main event in pathogenesis of Osteoarthritis.
   a) Degradation of articular cartilage
   b) Inflammation of synovial membrane
   c) Degradation of subchondral bone
   d) Deposition of crystals in synovial fluid

8) The epithelial damage caused by acid and pepsin in gastric and duodenal mucosa is called
   a) Peptic ulcer b) Zollinger-Ellison syndrome
   c) Gastro-Esophageal Reflux disease d) Gastric carcinoma

9) _____ of the following is a characteristic of Hepatic cirrhosis.
   a) Hepatocellular necrosis b) Loss of lobular architecture of liver
   c) Nodular regeneration d) All of these

10) _____ is a characteristic finding in chronic pancreatitis ?
   a) Steatorrhoea and azotorrhoea b) Hematuria and proteinuria
   c) Hyperuricemia d) Oliguria and Anuria

11) _____ of the following is a primary glomerulonephritis.
   a) Lupus nephritis b) Diabetic nephropathy
   c) Minimal change disease d) Alport's syndrome

12) _____ of the following is a common cause of chronic pyelonephritis.
   a) Vesicoureteric reflux b) Tuberculosis
   c) Pyloroduodenal reflux d) Rheumatoid arthritis

13) _____ is a characteristic feature(s) of cancer cells ?
a) Bleeding b) Atrophy c) Differentiation d) Metastasis

14) Altered DNA base pair sequence at a single locus of a gene is called
a) Point mutation b) Gene translocation
c) Gene deletion d) Gene amplification

15) _____ is an example of a biological carcinogen.
a) Polio myelitis virus b) Rubella virus
c) Human T-cell lymphotrophic virus d) Rabies virus

2. Answer **any five** of the following : **(5×5=25)**

A) What are free radicals ? Brief their role in irreversible cell injury.

B) Define Buffer, Respiratory Acidosis, Respiratory Alkalosis, Metabolic Acidosis and Metabolic Alkalosis.

C) Enlist the differences between Benign and Malignant Tumors in a Systematic way.

D) Define Cholelithiasis. Describe types of Gall stones. Briefly write about the formation of cholesterol Gall stones.

E) Define Acute Renal Failure. Write etiopathogenesis of Acute Renal Failure.

F) Define Pain. Write in brief about types of pain.

3. Answer **any three** of the following : **(10×3=30)**

A) Define cancer. Mention nomenclature and types of cancer. Write causes and pathogenesis of malignant tumors in detail.

B) Define peptic ulcer. Write differentiating features of gastric and duodenal ulcers with respect to their causes, signs and symptoms. Briefly write pathogenesis of peptic ulcers.

C) Define Acute tubular necrosis. Write types, etiopathogenesis and manifestations of acute tubular necrosis.

D) Define inflammation. Write cardinal signs of inflammation. Describe the events occurring in process of acute inflammation in detail.

_____

SLR-C – 17

Seat No.	

S.Y.B.Pharm. (Semester – III) Examination, 2016
(Annual Pattern)
ELEMENTS OF CALCULUS AND BIOSTATISTICS

Day and Date : Monday, 9-5-2016 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *i)* ***All*** *questions are* ***compulsory****.*
ii) Figures to the ***right*** *indicate* ***full*** *marks.*
iii) Answers to the ***two*** *Sections should be written in* ***separate*** *answer books.*
iv) Use of log table, non programmable calculator are ***allowed****.*

1. Select the correct alternative : **16**

1) It f is function such that f(0) = 2 f(1) = 3 and f(x + 2) = 2f(x) – f(x + 1) for every real x then f(5) is _____

a) 7 b) 13 c) 1 d) 3

2) The value of derivative of | x – 1 | + | x – 3 | at x = 2 is _____

a) –2 b) 0 c) 2 d) None of these

3) If y = log | x | then $\frac{dy}{dx}$ = _____

a) $\frac{1}{x}$ b) $-\frac{1}{x}$ c) $\frac{1}{|x|}$ d) None of these

4) Value of $D^n (ax + b)^n$ is _____

a) na^n b) $n!a^n$ c) nab^n d) $n!b^n$

P.T.O.

5) Leibnitz's theorem is used to find the n^{th} differential coefficient of

a) Trignometric functions only

b) Exponential function only

c) Sum and difference of two functions

d) Product of two functions

6) The $(n + 1)^{th}$ term in Maclaurin's series is _____

a) $\frac{x^n}{n} f^n(a)$ b) $\frac{x^n}{n!} f^{(n)}(a)$

c) $\frac{x^n}{n!} f^{(n)}(0)$ d) $f^{(n)}(0)$

7) The 'C' of Roll's theorem for the function $f(x) = \sin x$ in $[0, \pi]$ is _____

a) 0 b) $\frac{1}{6}\pi$

c) $\frac{1}{3}\pi$ d) $\frac{1}{2}\pi$

8) The series expansion of e^x is _____

a) $1 + x + x^2 + x^3 + ... + x^n + ...$ for $x \varepsilon R$

b) $1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + ... + \frac{x^n}{n!} ...$ for $x \varepsilon R$

c) $1 - x + \frac{x^2}{2!} - \frac{x^3}{3!} + ... + (-1)^n \frac{x^n}{n!} + ... x \varepsilon R$

d) None of these

9) Rank of matrix $A = \begin{bmatrix} 1 & 3 & 4 \\ 0 & 1 & 3 \\ 0 & 0 & 0 \end{bmatrix}$ is

a) 0 b) 1 c) 2 d) 3

10) The mode of the following observation is _____

7, 3, 5, 5, 7, 4, 3, 5, 5, 7, 7

a) 5 b) 7 c) 5, 7 d) 11

11) A card is drawn from a well-shuffled pack. The probability that the drawn card face card is _____

a) $\frac{1}{13}$ b) $\frac{3}{13}$

c) $\frac{2}{13}$ d) None of these

12) The ogive curve is useful for finding the value of _____

a) mean b) median

c) mode d) none of these

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

% of marks : 50, 60, 75, 84, 47, 52, 59, 44, 33, 46.

a) 51 b) 4

c) 50 d) None of these

14) Let A and B any two events such that $P(A) = 0.3, P(B) = 0.4, P(A \cap B) = 0.1$ then $P(A \cup B) =$ _____

a) 0.7 b) 0.12 c) 0.8 d) 0.6

15) The mean and standard deviation of humidity of a place during a given period is 70 and 14 respectively then the value of coefficient variation is

a) 50 b) 14 c) 20 d) None of these

16) If var(x) = 16 then var (3 × –5) = _____

a) 14 b) 16 c) 48 d) 144

SECTION – I

2. Attempt **any four** : **(4×4=16)**

a) Evaluate : $\int_0^2 x^2 e^x dx$.

b) Solve $(D^2 - 2D + 4)y = \cos 2x$ where $D = \frac{d}{dx}$.

c) Verify Rolle's theorem for the function
$f(x) = x^2$, $x \in [-1, 1]$.

d) If $u = \log\left(\frac{x^3 + y^3}{x^2 + y^2}\right)$ prove that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 1$.

e) If $y = \cos^{-1} x$ then prove that $(1 - x^2)\, y_{n+2} - (2n + 1)\, xy_{n+1} - n^2 y_n = 0$.

f) Evaluate using trapezoidal rule $\int_4^{10} x^2 dx$, taking n = 6 (equal subintervals).

3. Solve the following : **(8×2=16)**

a) Using Lagrange's formula for unequal intervals, find the value of y when x = 10, from the following table :

x	5	6	9	11
y	12	13	14	16

b) Test for the consistency and hence solve, if they are consistent

$x + y + z = 9$

$2x + 2y + 2z = 52$

$2x + y - z = 0.$

OR

b) Find the inverse of matrix A, if it exists

$$A = \begin{bmatrix} 1 & 3 & 2 \\ -3 & 0 & -5 \\ 2 & 2 & 0 \end{bmatrix}.$$

SECTION – II

4. Attempt **any four** : **(4×4=16)**

a) Find the arithmetic mean for the following data :

X	20 – 40	40 – 60	60 – 80	80 – 100	100 –120
f	6	9	11	14	20

b) Find the median from the following data :

X	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
f	28	32	45	60	56

c) Calculate the standard deviation and coefficient of variation for the following data :

Wages	55 – 65	65 – 75	75 – 85	85 – 95	95 –105
No. of workers	10	12	15	20	14

d) Find the quartile deviation of

X	12	14	16	18	20	22	24	26
f	7	12	8	6	10	8	5	4

e) Fit a second degree parabola to the following :

X	0	1	2	3	4
Y	1	1.8	1.3	2.5	6.3

f) The following data gives returns from two kinds of investment A and B in percentage over a period of 8 yrs. What type of investment A or B gives a more consistent return

A	18	13	9	21	20	12	25	10
B	15	22	27	11	9	21	14	9

5. a) Find Karl Pearson's correlation coefficient for the following data and interpret it. **(8×2=16)**

No. of Pods	10	20	30	40	50	60	70
No. of Plants	1	5	12	22	17	9	4

b) Number of road accidents on a high-way during a month follows a Poisson distribution with mean 5. Find the probability that in a certain month number of accidents on the high-way will be less than 2.

(Given that $e^{-5} = 0.006738$)

OR

b) Probability that a man will be alive 25 years hence is 0.3 and probability that his wife will alive 25 years hence is 0.4. Find the probability that 25 years hence

i) Both will alive

ii) Only man will alive

iii) Only the woman will alive.

SLR-C – 18

Seat No.	

B. Pharmacy (Semester – IV) Examination, 2016
PHYSICAL PHARMACY – II (CGPA) (New)

Day and Date : Tuesday, 26-4-2016 Max. Marks : 70

Time : 3.00 p.m. to 6.00 p.m.

1. Multiple choice questions : **(1×15 = 15)**

1) _____ Particles per second can be counted by coulter counter apparatus.
A) 4000 B) 6000 C) 8000 D) 2000

2) Andreasen apparatus consist of _____
A) Balance B) Pipette C) Electrodes D) Hydrometer

3) _____ % w/w of fines can be included for improvement of flow property.
A) 15 B) 30 C) 45 D) 60

4) What is the HLB of antifoaming agents ?
A) 2 B) 5 C) 6 D) 9

5) Surface tension is _____
A) Tolerance factor B) Capacity factor
C) Extensive property D) Intensive property

6) For ideal suspension sedimentation, sedimentation volume should be
A) equal to one B) less than one
C) more than one D) zero

7) Which one of the dosage form exhibit faster rate of reaction under normal conditions ?
A) emulsion B) ointment C) solution D) suspension

8) Killing of microorganism by heat follow which order of reaction ?
A) zero order B) first order C) second order D) third order

9) If the emulsifier is soluble in water then what type of emulsion is produced ?

A) w/o B) o/w

C) both A) & B) D) none of the above

10) The phenomenon opposite to adsorption is termed as

A) sorption B) desorption C) absorption D) adsorbent

11) The colloid that helps to stabilize other colloid is called as

A) protective colloid B) positive colloid

C) negative colloid D) none of the above

12) An emulsion within emulsion is designated as

A) o/w/w B) w/o/o C) w/o/o/w D) w/o/w

13) What is the purpose of addition of structured vehicles in suspension formulation ?

A) decrease the interfacial tension

B) prevent caking of sediment

C) prevent sedimentation of particles

D) reduce the size by chemical means

14) In emulsion the sedimentation is found to be negative. It means the creaming is

A) absent B) in both direction

C) in downward direction D) in upward direction

15) Which of the following orders have maximum applications in biological processes ?

A) first order B) second order

C) third order D) zero order

2. Answer **any five** : **(5×5 = 25)**

   a) Explain principle, working of Andreasen pipette for determination of particle size.

   b) Explain electrical double layer with neat labeled diagram.

   c) Explain any two methods of purification of colloids.

   d) Briefly explain the causes of instability of emulsion.

   e) Write five applications of complexation.

   f) Give the limitations of accelerated stability study.

3. Answer **any three** : **(10×3 = 30)**

   a) What is specific surface area of particles ? Describe one method to determine it. What are its applications ?

   b) Describe in detail the optical properties of colloids.

   c) Describe in detail the method of accelerated stability study.

   d) Define adsorption isotherm. Draw various types of adsorption isotherms and explain them.

SLR-C – 19

Seat No.	

B.Pharmacy (Semester – IV) Examination, 2016
(New-CGPA Pattern)
MICROBIOLOGY

Day and Date : Thursday, 28-4-2016 Max. Marks : 70

Time : 3.00 p.m. to 6.00 p.m.

1. Choose the correct answer : **(15×1=15)**

1) _____ is pioneer in the study of antitoxin and toxin neutralization.

a) Robort Koch b) Paul Erlich c) Ruska d) Louise Pasteur

2) Cell wall of _____ bacteria shows more amount of teichoic acid.

a) Gram positive b) Gram negative

c) Both d) None

3) The extracellular infectious virus particle is called as

a) Capsid b) Virion c) Parovirus d) Peplomer

4) Most RNA viruses synthesise all their component in cytoplasm except

a) Orthomyxovirus b) Paramyxovirus

c) Retrovirus d) All of above

5) The stationary phase of the bacterial growth is due to _____ in the medium.

a) Exhaustion of nutrients in the medium

b) Constant rate of cell division

c) Presence of autolytic enzymes

d) All of the above

6) Biological indicators recommended by EP (2002) for monitoring ionising radiation is

a) *Bacillus Stearothermophilus* b) *Bacillus substilis*

c) *Bacillus Pumulis* d) All of the above

7) Typical condition employed in the dry heat of sterilization of pharmaceutical and medical products is

a) 160° C for 120 min. b) 170° C for 60 min.

c) 180° C for 30 min. d) All of the above

8) Following is not true about *Staphylococcus Aureus* as they are

a) Gram positive cocci

b) They can develop resistance to penicillin

c) They are spore producing

d) All of the above

9) Following is not true about endotroxin

a) Proteins b) Heat labile

c) Highly antigenic d) None of the above

10) Usual percent of agar used to prepare agar culture medium is

a) 2 b) 4 c) 3 d) 1

11) Which of the following causes TB in humans ?

a) *M. Tuberculosis* b) *M. Bovis*

c) *M. Microti* d) All of the above

12) Drum stick appearance is characteristic of

a) *Cl. Tetani* b) *Cl. Perfringens*

c) *Cl. Bifermentans* d) *Cl. Difficile*

13) Phase contrast microscope is useful in visualising

a) Thin bacteria b) Viruses

c) Rickettsia d) Internal structure in bacteria

14) Inspissation is a method of

a) Sterilization b) Sanitization

c) Vaccination d) a) and b)

15) Choose the correct description for Rickettsia.

a) Gram negative Bacilli b) Having both DNA and RNA

c) Oligate intracellular parasite d) All of the above

2. Answer **any five** from the following : **(5×5=25)**

   1) Give the contributions of Louise Pasteur to Microbiology.

   2) Discuss Humoral Immunity.

   3) Differentiate between exotoxins and endotoxins.

   4) Discuss about evaluation of disinfectant by Rideal Walker test.

   5) Write a note on bacterial transformation.

   6) Describe morphology, biochemical properties and identification tests for *Staph. Aureus*.

3. Answer **any 3** of the following : **(3×10=30)**

   1) Explain in detail lytic and lysogenic cycles in viral replication.

   2) Enlist and describe various biochemical tests, explain in detail (IMVIC reactions) for identification of bacteria.

   3) Define sterilization. Write in details about chemical method of sterilization.

   4) Describe characteristics classification and structure of fungi.

———————

SLR-C – 20

Seat No.	

B.Pharmacy (Semester – IV) (New CGPA) Examination, 2016
ORGANIC CHEMISTRY – III

Day and Date : Saturday, 30-4-2016 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

1. Multiple choice questions. Choose most appropriate answer. **(1×15=15)**

1) Isomerism exhibited due to difference in position acquired by particular group or atom is called _____.
   a) Positional b) Chain c) Functional d) Metamerism

2) The conversion of acyl derivative of hydroxamic acid into amine in presence of base is known as
   a) Neber rearrangement b) Lossen rearrangement
   c) Schmidt rearrangement d) Fries rearrangement

3) The Stereochemical outcome of S_N2 reaction involves _____
   a) Racemic mixture b) Inversion of configuration
   c) Retention of configuration d) All of above

4) Substance that rotates plane polarised light are called as
   a) Optically active b) Optically inactive
   c) Meso d) Dextro

5) Wagner-Meerwein rearrangement is an example of_____ rearrangement.
   a) Free radical b) Electrophilic
   c) Nucleophilic d) Aromatic

6) Formation of a carbocation as a reaction intermediate is observed in _____
   a) S_N1 reaction b) S_N2 reaction
   c) E_1 reaction d) Both a) and c)

7) 2,3-dihydroxy butanoic acid is having _____ chiral carbon atom/s.
   a) 2 b) 4 c) 1 d) 3

8) Acetate esters on heating at 500°C yields _____ by Chugaev elimination (Tschugaeff).
   a) Olefins b) Amines
   c) Enamines d) Cyclohexane

9) _____ reagent is used for hydroxylation of alkene.
   a) $KMnO_4$ b) OsO_4
   c) RCOOOH d) All of the above

10) The thermal decomposition of carboxylic azides to produce an isocyanate.
   a) Whitmore-1,2-shift b) Curtius rearrangement
   c) Dakin oxidation d) Fries rearrangement

11) Optical isomers that are mirror images are called as
   a) Tautomers b) Diastereoisomers
   c) Enantiomers d) Metamers

12) Most stable conformation of n-butane.
   a) Anti b) Gauche
   c) Eclipsed d) Staggered

13) Replacement of aldehyde or ketone group by hydroxy group in presence of alkaline H_2O_2 is called
   a) Dakin b) Lossen c) Curtius d) Wolf

14) Dotted line indicates, group
   a) In the plane b) Above the plane
   c) Behind the plane d) None of these

15) _____ rearrangement reaction proceeds via azirine intermediate.
   a) Willgerodt b) Fries c) Wittig d) Neber

2. Answer **any five** : **(5×5=25)**

   A) Write a note on Willgerodt rearrangement.

   B) Define the term configuration, conformation, enantiomer and geometrical isomerism.

   C) Write in brief on sigmatropic rearrangement reaction.

   D) Write a note on free radical rearrangement reaction.

   E) Define and classify isomerism.

   F) Explain potential energy curve diagram of ethane molecule.

3. Answer **any three** : **(3×10=30)**

   A) Discuss in detail the mechanism of

      1) Baeyer-Villiger oxidation

      2) Neber reaction

      3) Fries rearrangement.

   B) Write a note on pyrolysis of esters. Write about conformation and stabilities of cyclohexane molecule.

   C) Write a note on S_N1 and S_N2 reaction in detail.

   D) Describe with suitable examples R and S nomenclature system for chiral compounds. Add a note on hydroxylation of alkene.

SLR-C – 21

Seat No.	

B.Pharm. (Semester – IV) (CGPA) Examination, 2016
PHARMACEUTICAL ANALYSIS – II

Day and Date : Tuesday, 3-5-2016 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

1. Multiple Choice Questions : **(1×15=15)**

1) Diffusive samplers are used for sampling of
A) Solid B) Liquid C) Gas D) None

2) _____ is used for masking of iron.
A) Ascorbic acid B) Cyanide
C) Triethanolamine D) All of above

3) _____ does not affects precipitation.
A) pH B) Temperature
C) Concentration of solvent D) Common ion effect

4) _____ is aprotic solvent.
A) H_2O B) H_2SO_4 C) CCl_4 D) $HClO_4$

5) No. _____ sieve is used in oxygen flask combustion method.
A) 8 B) 16 C) 36 D) 40

6) Catechol violet is used in the estimation of
A) Thorium B) Bismuth
C) Magnesium D) All of above

7) End point detection can be done in nitrite titrations by
A) Use of no indicators B) Use of external indicators
C) Use of internal indicators D) None

8) Filter papers of no. 40, 41 and 42 are
   A) Single HCl washed
   B) Double acid washed
   C) Single HCl washed + hardened
   D) Double acid washed + hardened

9) Conventional badge is used for sampling of
   A) Solid B) Liquid C) Gas D) None

10) Kjeldahl's method is used for estimation of
   A) Halogen B) Nitrogen C) Hydrogen D) Oxygen

11) 1.86 gm of EDTA in 100 ml gives _____ MEDTA.
   A) 0.1 B) 0.01
   C) 0.001 D) None of the above

12) Ores and minerals can be used for gravimetry by dissolving in
   A) Cold H_2O B) Cold HCl C) Both a and b D) None

13) Excess of EDTA is back titrated with
   A) Zinc chloride B) Magnesium chloride
   C) Both a and b D) Magnesium sulphate

14) For sampling of flowing liquid _____ is used.
   A) Thief B) Static sensors
   C) Multiple sampling tubes D) Handscoop

15) The determination of halogen is done by
   A) Precipitation titration
   B) Oxygen flask combustion method
   C) Gravimetry
   D) All of above

2. Answer **any five** of the following questions : **(5×5=25)**

1) Define : Ligand, masking, demasking, masking agent, demasking agent.

2) Explain in detail assay of Nor-floxacin and Mebendazole.

3) Draw a neat labeled diagram of Karl Fischer Method. Add a note on its instrumentation.

4) Give the preparation and standardization of 0.1 M $NaNO_2$ with its principle behind it.

5) Explain in detail assay of magnesium sulphate and calcium gluconate.

6) Explain in detail ELISA.

3. Answer **any three** of the following questions : **(10×3=30)**

1) Explain in detail sampling of gas.

2) Explain in detail Kjeldahl's method and gasomery.

3) Explain in detail factors affecting precipitation.

4) Write a note on end point detection in complexometric titrations.

———————

SLR-C – 22

Seat No.	

B.Pharm. (Semester – IV) Examination, 2016
PATHOPHYSIOLOGY AND CLINICAL BIOCHEMISTRY – II
(New – CGPA)

Day and Date : Saturday, 7-5-2016 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Figures to* ***right*** *indicate appropriate marks.*
2) Appropriate flow ***charts***, ***algorithms*** *and* ***illustrations*** *shall fetch appropriate marks.*

1. Multiple Choice Questions : **(15×1=15)**

1) The protein deposited in Alzheimer's disease is
   A) Aα amyloid B) Aβ amyloid
   C) Aδ amyloid D) APP

2) Which of the following is a cell mediated hypersensitivity reaction ?
   A) Anaphylaxis
   B) Cytotoxic reaction
   C) Arthus reaction
   D) Delayed hypersensitivity

3) Which of the following type of lipids is protective against Atherosclerosis ?
   A) HDL B) LDL C) VLDL D) Chylomicron

4) The form of shock resulting from inadequate circulating blood volume is
   A) Traumatic shock B) Cardiogenic shock
   C) Hypovolaemic shock D) Septic shock

5) Which of the following is the principal action of Insulin ?
   A) Increased lipolysis
   B) Increased glycogenesis
   C) Increased gluconeogenesis
   D) Decreased protein synthesis

6) Which of the following is involved in pathogenesis of Rheumatoid Arthritis ?
   A) Rheumatoid factor B) Adhesion molecule
   C) Cytokines D) All of the above

P.T.O.

7) The laboratory tests useful in diagnosis of Myasthenia gravis are _____ and _____
   A) Forward Arm Abduction Time and Tensilon Test
   B) X-ray and Endoscopy
   C) Biopsy and EEG
   D) CBC and Urine Culture

8) Determination of serum bilirubin is a
   A) Renal function test
   B) Hepatic function test
   C) Thyroid function test
   D) Pancreatic function test

9) Glomerular filtration rate measurement is a renal function test performed by
   A) Inulin clearance test
   B) Hippuric acid excretion
   C) Rose Bengal test
   D) Urine electrolyte measurement

10) Which of the following does not show angina attack even at rest ?
   A) Classical angina
   B) Variant angina
   C) Unstable angina
   D) All of the above

11) Which molecule on envelope of HIV has selective tropism for CD4+ molecule receptor ?
   A) Gp-120 B) Gp-41 C) CCR D) Gag

12) More than 90% of all lobar pneumonias are caused by
   A) Streptococcus pneumonia
   B) Staphylococcus aureus
   C) Haemophilus influenzae
   D) Legionella pneumonia

13) Which of the following characteristic biochemical abnormalities is seen in primary hyperparathyroidism ?
   A) Hypercalcaemia
   B) Hypophosphataemia
   C) Hypercalciuria
   D) All of the above

14) The receptors degenerated in Myasthenia gravis are
   A) Muscarinic
   B) Dopaminergic
   C) Nicotinic
   D) Hitaminic

15) Involuntary loss of body weight by more than 10% is known as
   A) Anorexia
   B) Wasting syndrome
   C) Cushing's syndrome
   D) AIDS

2. Answer **any five** of the following questions : **(5×5=25)**

   A) Describe the pathogenesis and clinical features of Parkinson's disease.

   B) Describe the types and clinical manifestations of Angina pectoris.

   C) Write a note on types of Seizure.

   D) Describe the etiopathogenesis of Myasthenia gravis.

   E) Enlist thyroid function tests and describe any one.

   F) Describe the etiology and clinical manifestations of chronic obstructive pulmonary disease.

3. Answer **any three** of the following questions : **(3×10=30)**

   A) Write a detailed note on pathophysiology of AIDS including replication of HIV.

   B) Describe the etiology, types, signs, symptoms and clinical complications of diabetes mellitus.

   C) Describe in details-Renal function test.

   D) Write a note on etiology, types and clinical manifestations of congestive heart failure.

———————

SLR-C – 23

Seat No.	

B.Pharm. (Semester – V) Examination, 2016
SOLID DOSAGE FORM

Day and Date : Monday, 25-4-2016 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

I. Select the correct alternative : **(1×16=16)**

1) Ratio of gelatin : glycerin in soft gelatin capsule
   a) 10 : 4 b) 10 : 6 c) 10 : 8 d) 1 : 1

2) Capacity of 000 sized capsule is _____ ml.
   a) 0.5 b) 0.75 c) 1 d) 0.15

3) As per I.P. 70 mg average weight of tablet % deviation allowed is
   a) 5% b) 7.5% c) 10% d) 20%

4) _____ is an enteric coating material.
   a) Sugar b) Starch
   c) Methyl cellulose phthalate d) None of the above

5) Drying process is not necessary in _____ granulation method.
   a) Direct compression b) Dry granulation
   c) Both a) and b) d) None of the above

6) _____ is useful as lubricant in tablet.
   a) Lactose b) Gelatin c) Alginate d) Talc

7) As per Hausner's ratio _____ shows poor flow property.
   a) < 1.25 b) > 1.5 c) > 1 d) All of the above

8) In BB tooling barrel diameter is _____ inches.
   a) 0.5 b) 0.25 c) 1 d) 0.75

9) _____ is official evaluation test for tablet.
   a) Color b) Hardness
   c) Weight variation d) None of the above

10) _____ is resistance to gastric fluid.
   a) HPMC b) PVP
   c) PVAP d) All of the above

11) _____ is mechanical process of microencapsulation.
   a) Polymerization b) Multi-orifice centrifugal
   c) Both a) and b) d) None of the above

12) _____ microencapsulation technique is suitable for coating of liquid and solid.
   a) Air suspension b) Pan coating
   c) Solvent evaporation d) None of the above

13) _____ improves flow property.
   a) Lubricants b) Glidants
   c) Both a) and b) d) None of the above

14) _____ process prevents penetration of moisture in the core tablet.
   a) Seal coating b) Sub coating
   c) Syruping d) Polishing

15) Source of gelatin is
   a) Dry bone b) Calf skin
   c) Pork skin d) All of the above

16) Separation of tablets into several layers is_____
   a) Capping b) Lamination
   c) Picking d) Sticking

SECTION – I

II. Answer **any four** of the following questions : **(4×4=16)**

1) Explain Direct compression method.
2) Give any four problems in tabletting with remedy.
3) Give detailed account on film forms.
4) Explain disintegration test for dispersible tablet.
5) Draw neat labeled diagram of tablet layout design.
6) Give detailed account on FBD.

III. Answer the following questions : **(8×2=16)**

1) Explain weight variation test for tablet.

2) Give detailed account on sugar coating.

OR

2) Describe physics of tablet compression.

SECTION – II

IV. Answer **any four** of the following questions : **(4×4=16)**

1) Explain hard gelatin capsule shell manufacturing process.

2) Explain bloom strength.

3) Give detailed account on solvent evaporation technique.

4) Explain disintegration test for hard gelatin capsule.

5) Give detailed account on selection of capsule size.

6) Give different methods of microencapsulation with applications.

V. Answer the following questions : **(8×2=16)**

1) Explain weight variation test for capsule.

2) Give detailed account on phase separation co-acervation.

OR

2) Highlight soft gelatin capsule manufacturing technique.

SLR-C – 24

Seat No.	

B.Pharm. (Semester – V) Examination, 2016
BIOPHARMACEUTICS

Day and Date : Wednesday, 27-4-2016 Max. Marks : 80

Time : 10.30 a.m. to 1.30 p.m.

1. MCQ/Objective type questions. **(1×16=16)**

1) _____ type of kinetic model is also known as realistic model.

A) Compartment model B) Distribution parameter model

C) Physiological model D) Both B and C

2) _____ organ belongs to central compartment.

A) Lung B) Kidney C) Brain D) All of these

3) The total body water volume can be measured by

A) Evans blue B) I-131 albumin C) Antipyrine D) Cr-51

4) _____factor affecting distribution of drug.

A) Blood perfusion B) Tissue permeation

C) O/W portion coefficient D) All of these

5) _____ dosage form shows increased drug absorption.

A) Suspension B) Tablets C) Powders D) Capsules

6) Body posture factor influence on

A) Metabolism B) Gastric emptying

C) Excretion D) Compartment modeling

P.T.O.

7) _____ drugs are those that are metabolically and chemically unstable thus limiting their bioavailability.

A) Class-I B) Class-IV C) Class-V D) Class-III

8) The beginning of pharmacological response is called as

A) Onset of action B) Peak response
C) Onset of time D) Both A and B

9) Drugs are excreted through _____ in small extent.

A) skin B) salivary C) genital D) all of these

10) _____ of the following is not a pharmacokinetic parameter.

A) AUC B) Therapeutics C) C_{max} D) T_{max}

11) Which marker is used to measure the volume of erythrocytes ?

A) I-131 albumin B) D_2 C) Cr-51 D) Inulin

12) Blood cerebrospinal fluid barrier is formed mainly by

A) choroid plexus B) tight intracellular junction
C) both A and B D) trophoblast

13) _____ parameter considered important in determining bioavailability.

A) C_{max} B) T_{max} C) AUC D) All of these

14) The ratio of MSC and MEC is called as

A) Therapeutic index B) Peak response
C) Onset of time D) Peak response index

15) C_{max} is considered as indicator of

A) extent of metabolism B) extent of absorption
C) extent of excretion D) All of these

16) In _____theory of dissolution formation of eddies are responsible for drug dissolution .

A) Film B) Surface renewal
C) Double barrier D) None of these

SECTION – I

2. Answer **any four**. **(4×4=16)**

1) Define the terms
   A) Toxicokinetics
   B) Population Pharmacokinetics
   C) Clinical pharmacokinetics
   D) C_{max}

2) Write a note on pharmacokinetic parameters.

3) Give three approaches by which polar drugs can be targeted to brain.

4) Explain about volume of distribution.

5) Describe in brief extraction ratio and extra hepatic circulation.

6) What is effective distribution and distribution coefficient ?

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

1) Define dissolution and explain theories of dissolution in brief.

2) What is distribution ? Explain factors affecting it.

OR

2) Explain patient related factors affecting absorption of drugs.

SECTION – II

4. Answer **any four**. **(4×4=16)**

1) Explain about BCS of drugs.

2) How will you justify following.
   A) Disintegration test not considered a guarantee of a drugs bioavailability from its dosage form.
   B) Delayed intestinal transit time is sometime desirable.

3) Enlist different methods to enhance bioavailability and explain any one method.

4) Explain particle size and effective surface area of drug as a factor affecting drug dissolution.

5) Write note on gastric emptying .

6) Explain briefly pulmonary and salivary excretion of drugs.

5. Answer the following : **(8×2=16)**

1) Describe bioequivalence experimental study designs with advantages and disadvantages.

2) Enumerate mechanism of drug absorption. Explain passive diffusion in detail.

OR

2) What is nonlinear pharmacokinetics ? Explain causes of nonlinearity.

SLR-C – 25

Seat No.	

B.Pharm. (Semester – V) Examination, 2016
MEDICINAL CHEMISTRY – I

Day and Date : Friday, 29-4-2016 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1) _____ drug interferes with protein biosynthesis.
   a) Penicillin b) Cephalosporin
   c) Bacitracin d) Tetracyclines

2) In acidic medium Penicillin degrades to
   a) Penillic acid b) Penicilloic acid
   c) Penicillinase d) None of these

3) Bacampacillin is
   a) Active drug b) Prodrug
   c) Active metabolite d) None of these

4) _____ is the third generation cephalosporin.
   a) Cefotaxime b) Cefaclor
   c) Cefoxitin d) None of these

5) _____ is known as high celling diuretics.
   a) Mannitol b) Furosemide
   c) Spirinolactone d) None of these

6) _____ is also known as saluretics.
   a) Hydrochlorothiazide b) Mannitol
   c) Acetazolamide d) Furosemide

7) _____ is also known as antagonists of aldosterone.
   a) Hydrochlorothiazide b) Mannitol
   c) Acetazolamide d) Spirinolactone

8) Metabolism is mainly observed in
   a) Liver b) Heart
   c) Brain d) None of these

9) In small concentration surfactant has ability to increase
   a) Solubility b) Lipophilicity
   c) Both a) and b) d) None of above

10) _____ is the best agent in type-II diabetic patient.
   a) Atorvostatin b) Glipzide
   c) Sulindac d) Furosemide

11) Chloroproapmide is synthesized from
   a) Chlorobenzene b) Benzene
   c) Aniline d) None of these

12) Metronidazole having efficacy due to _____ group, this participates in endogenous reduction process.
   a) Nitro b) Amino
   c) Alkyl d) None of these

13) Benzimidazoles inhibit the enzyme
   a) Peptidase b) Fumaratereductase
   c) Transpeptidase d) Reductase

14) Praziquantel shows MOA by _____ to worms.
   a) Stop ATP production b) Paralysis
   c) Stop egg formation d) None of these

15) _____ is the fourth generation cephalosporins.
   a) Cefaclor b) Cefalexin
   c) Cefepime d) Cefotaxime

16) Streptomycin shows action by inhibition of _____ synthesis.
   a) DNA b) Protein
   c) Carbohydrate d) None of these

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

1) Explain different theories of receptors.
2) Explain different forces involved in drug-receptor interaction.
3) What is metabolism process ? Write short note about phase – II reaction.
4) Classify anti-amoebic agents. Add a note on ipecac alkaloids.
5) Outline synthesis of Tolbutamide and Metronidazole.
6) Explain “bigaunides as oral hypoglycemic agent”.

3. Answer **any two** of the following questions. **(2×8=16)**

   1) What do you meant by ?
      a) Bio-isosterism
      b) Saluretics
      c) Partition Coefficient
      d) Broad Spectrum Antibiotics

   2) What will happen if following operations on tetracycline's ?
      a) Epimerization
      b) Action of strong acid and alkali
      c) Oxidation
      d) Chelation.

   3) Explain in detail MOA and SAR of penicillin's.

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

   1) Classify diuretics. Write structure, MOA and uses of Hydrochlorothiazide.
   2) Explain anthelmintic agent in GIT nematode infection.
   3) Outline synthesis of Mebendazole and Chlorprapamide.
   4) Write MOA and SAR of Tetracyclines.
   5) Write structure and chemical name of Furosemide and Metformin.
   6) Justify "Bacampacillin is a Prodrug".

5. Answer **any two** of the following questions : **(2×8=16)**

   1) Classify diuretics with example. Explain in detail carbonic anhydrase inhibitors agents.
   2) Classify cephalosporin's. Add a note on MOA and SAR of cephalosporin's.
   3) What do you mean by biotransformation ? Explain in detail Phase-I reaction process.

———————

SLR-C – 26

Seat No.	

B.Pharm. (Semester – V) Examination, 2016
PHARMACEUTICAL ANALYSIS – III

Day and Date : Monday, 2-5-2016 Total Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1) Which of the following is not property of EMR ?
   a) Has wave characteristic
   b) Has particle characteristic
   c) Electrical and magnetic component travel in same plane
   d) Require medium for propagation

2) The energy possessed by molecule which rotate about an axis is called as
   a) Transitional b) Vibrational
   c) Rotational d) Electronic

3) Electromagnetic radiation in the wavelength range 400-800 nm belongs to
   a) UV spectrum b) X-ray
   c) I. R. d) Visible

4) Xenon lamp is used as light source in _____
   a) Spectrofluorometer b) Flame photometer
   c) IR Spectrophotometer d) Colorimeter

5) Factor affecting on intensity of fluorescence is
   a) Concentration b) Quantum efficiency
   c) Path length d) All of above

6) When beam of light incident on any substance and it emits visible light even after incident light is cut off then process is called _____
   a) Phosphorescence b) Fluorescence
   c) Luminescence d) None

7) Deviation from Beer's law is observed due to _____ of the sample.
   a) Higher concentration b) Plolymerisation
   c) Dissociation d) All of the above

P.T.O.

8) Which of the following is not a burner in flame photometry ?
   a) Lundergraph's
   b) Mayer's
   c) Total consumption
   d) Merker's

9) UV visible spectroscopy is type of
   a) Atomic emission
   b) Molecular spectroscopy
   c) Atomic absorption
   d) Magnetic

10) Excited triplet state is present in _____ spectroscopy.
   a) UV visible
   b) Fluorescence
   c) Phosphorescence
   d) All of the above

11) The frontal illumination method in fluorescence can be used for
   a) Opaque solutions
   b) Clear liquid solutions
   c) Solids
   d) Both a) and c) of the above

12) Ultraviolet spectroscopy is useful for the detection of
   a) Functional group
   b) Molecular weight
   c) Electronic transitions
   d) All

13) _____ is used as an radiation source in AAS.
   a) Sodium vapour lamp
   b) Electrodeless discharge lamp
   c) Halogen lamp
   d) Mercury lamp

14) Luminescence is term applied to
   a) Absorbtion of radiation
   b) Reemission of previously absorbed radiations
   c) Spontaneous emission of radiations
   d) All of these

15) _____ is not a detector in UV Visible spectroscopy.
   a) Barrier layer cell
   b) Bolometer
   c) PMT
   d) Photocell

16) _____ solvents are transparent above 200 nm
   a) Methanol
   b) Water
   c) Cyclohexane
   d) All of the above

II. Answer **any four** of the following questions : **(4×4=16)**

1) Write note on molecular spectra.
2) Give structural requirements of molecule to show fluorescence.
3) Define fluorescence and phosphorescence. Enlist factors affecting fluorescence and phosphorescence.
4) Give factors which interfere in flame photometry.
5) Explain factor affecting an intensity of fluorescence.

III. Answer **any two** of the following questions : **(2×8=16)**

1) Give principle and instrumentation of flame photometry.
2) Define spectroscopy and add note on EMR in detail.
3) Write in detail about assay of substances in multi component sample.

IV. Answer **any four** of the following questions : **(4×4=16)**

1) Give in detail about filter and grating used in UV spectroscopy.
2) Write note on Photomultiplier Tube.
3) Explain deviations from Beer's law.
4) Give optimum conditions for spectroscopic measurements.
5) Define the terms :
   a) Wave number
   b) Wave length
   c) Frequency
   d) Spectrum.

V. Answer **any two** of the following questions : **(2×8=16)**

1) State and derive Beer-Lambert's law.
2) Give the difference between AAS and FES. Add note on the instrumentation of AAS single beam.
3) Give origin and theory of U.V. Spectra explain in detail a single beam UV spectro photometer.

———————

SLR-C – 27

Seat No.	

B.Pharmacy (Semester – V) Examination, 2016
PHARMACOLOGY – I

Day and Date : Friday, 6-5-2016 Max. Marks : 80

Time : 10.30 a.m. to 1.30 p.m.

Instructions *: 1) Figures to* ***right*** *indicate* ***full*** *marks.*
2) Mention main question and sub-question number correctly for ***each*** *of the answers.*
3) Algorithms/charts may be drawn ***wherever*** *necessary.*

1. Choose the most appropriate alternative for following multiple choice questions : **(1×16=16)**

1) _____ is study of hazardous effects of chemicals on living tissues.
   a) Toxicology b) Therapeutics
   c) Pharmacokinetics d) All of these

2) _____ route should be avoided in shock because of local vasoconstriction and delayed absorption.
   a) Intrathecal b) Intravenous
   c) Subcutaneous d) Oral

3) Which of the following muscle is used while administering drugs via intramuscular route ?
   a) Deltoid b) Triceps
   c) Gluteus maximus d) All of these

4) Use of galvanic currents to deliver the drug through skin into systemic circulation is called _____
   a) Electrophoresis b) Tacophoresis
   c) Iontophoresis d) Immunophoresis

5) Process of passage of drug molecules across membranes through paracellular spaces under the influence of osmotic gradient is called _____
   a) Diffusion b) Filtration c) Osmosis d) Pinocytosis

P.T.O.

6) Drugs with very high Apparent Volume of Distributions are _____
   a) Highly lipophilic b) Bind intracellularly
   c) Difficult to dialyze d) All of these

7) Phase-I intermediate of paracetamol oxidation in liver is highly _____
   a) Nephrotoxic b) Hepatotoxic c) Ototoxic d) Myelotoxic

8) _____ is used to increase plasma concentrations and half life of penicillin.
   a) Uric acid b) Probenecid c) Omeprazole d) None of these

9) Stimulation of Gq type G-protein when an agonist binds at its GPCR, results in _____
   a) Increased Phospholipase C Activity, raised IP_3, DAG and intracellular Ca^{2+} levels
   b) Increased Adenyl Cyclase Activity, raised intracellular cAMP levels
   c) Decreased Adenyl Cyclase Activity, reduced intracellular cAMP levels
   d) Inactivation of Ca^{2+} channels

10) Which of the following can be designated as "Side Effect" ?
   a) Sedation by antiallergic drugs
   b) Peptic ulcer by high does aspirin
   c) Bone marrow depression by anticancer drugs
   d) All of the above

11) A teratogenic action is _____
   a) Toxic action on liver b) Toxic action on fetus
   c) Toxic action on blood system d) Toxic action on kidneys

12) When two concurrently administered drugs produce their effects in same direction and total effect produced is summation of effects of individual drugs, it is termed as _____
   a) Additive Effect b) Synergism
   c) Tachyphylaxis d) Antagonism

13) Which of the following is an insecticide ?
   a) Neostigmine b) Tacrine c) Tabun d) Malathion

14) _____ among the following is a specific side effect of Atropine.
   a) Dryness of Mouth b) Flushing
   c) Paraesthesias d) All of these

15) _____ among the following ganglionic blocker(s) was used historically in treatment of hypertension.
   a) Trimethaphan b) Pentolinium
   c) Decamethonium d) Nicotine

16) _____ of the following is an α-blocker used in the treatment of urine retention associated with Benign Prostate Hyperplasia.
   a) Yohimbine b) Prazosin
   c) Phenoxybenzamine d) Tamsulosin

2. Answer the following (**any four**) : **(4×4=16)**
   A) Enlist different routes of drug administration. Write unique advantages oral and sublingual route.
   B) Write in brief about nature and sources of drugs.
   C) With a labeled diagram, describe structure of biological membranes and mention their functions.
   D) Write a brief note on mechanisms of drug transport across biological membranes.
   E) Classify Ganglionic Stimulants and Ganglionic Blockers with examples.
   F) Define Agonist, Antagonist, Partial Agonist and Inverse Agonist.

3. Answer the following (**any two**) : **(2×8=16)**
   A) Enlist factors affecting drug action. Describe any three in detail.
   B) Write detailed notes on Drug Allergy and Teratogenecity.
   C) Classify antiadrenergic drugs with examples. Add a note on pharmacology of beta blockers.

4. Answer the following (**any four**) : **(4×4=16)**
   A) Classify skeletal muscle relaxants with appropriate examples.
   B) Define Side Effects, Secondary Effects, Toxic Effects and Drugs Intolerance.
   C) Classify cholinergic drugs with examples. Mention uses of cholinergic drugs.

D) What are cardiovascular effects of adrenaline ? Explain Dale's Vasomotor Reversal.

E) What is Plasma Protein Binding of Drugs ? Write significance of plasma protein binding of drugs.

F) Write a note on use of cholinesterase inhibitors is treatment of myesthenia gravis.

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

A) Why drugs are metabolized in the body ? Define the term drug metabolism. Write notes on functionalization and synthetic reactions of drug metabolism with appropriate examples.

B) What are anticholinergic drugs ? Enlist types of anticholinergic drugs with examples. Write pharmacological account of atropine.

C) Define drug absorption. What are the factors which affect absorption of drugs across biological membranes ? Describe each in detail.

———————

SLR-C – 28

Seat No.	

B.Pharm. (Semester – V) Examination, 2016
BIOTECHNOLOGY

Day and Date : Monday, 9-5-2016 Max. Marks : 80

Time : 10.30 a.m. to 1.30 p.m.

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

1) Who developed Rabies vaccine in 1884 ?

A) Wilson B) Calmette C) Rous D) Pasteur

2) Identify the type of RNA that decides sequence of amino acids in protein synthesis.

A) tRNA B) mRNA C) rRNA D) None of the above

3) _____ is regarded as Father of PTC.

A) Pasteur B) Robert Koch

C) Waksman D) Gottlieb Haberlandt

4) _____ is a biotechnological product used in the treatment of pernicious anaemia.

A) Cobalamine B) Dextran C) Penicillin D) Streptomycin

5) The cell wall of the plant cell is removed by the treatment of enzymes except

A) Pectinase B) Zymolase C) Cellulase D) Lipase

6) _____ blotting technique is useful for specific confirmation of RNA.

A) Southern B) Northern C) Eastern D) Widal

7) Human insulin constitute _____ number of amino acids.

A) 109 B) 86 C) 191 D) 51

8) Identify an enzyme useful in thrombo-embolic diseases.

A) Urokinase B) Asparaginase

C) Streptokinase D) Both (A) and (C)

9) _____ is an example of auxin.

A) Indole-3-acetic acid B) Kinetin

C) Zeatin D) Both (B) and (C)

P.T.O.

10) Identify the pyrimidine base.
A) Uracil B) Thymine C) Guanine D) Both (A) and (B)

11) Which of the following is not enzyme immobilization technique ?
A) Chelation B) Encapsulation
C) Adsorption D) Extraction

12) Identify the fibrinolytic activating enzyme.
A) Urokinase B) Bromelein C) Papain D) Serratiopeptidase

13) Identify the device used to monitor the speed control of agitator.
A) Rota meter B) Tachometer C) Flow meter D) Speedometer

14) pUC is the plasmid discovered in
A) University of Chennai B) University of China
C) University of California D) University of Calcutta

15) Cortisol is converted into prednisolone in presence of *Corynebacterium simplex*. Identify the type of bioconversion reaction.
A) Etherification B) Reduction
C) Dehydrogenation D) Epoxidation

16) _____ reagent is used to confirm DNA.
A) Bials B) Diphenylamine
C) Benedicts D) Tommers

2. Answer **any four** of the following questions : **(4×4=16)**
1) Discuss historical background of biotechnology.
2) Write general method of preparation of bacterial vaccine.
3) Give applications of enzyme immobilization with suitable examples.
4) How PTC laboratory is to be designed and constructed ?
5) Write a note on DNA cleavage enzyme with suitable examples.

3. Answer **any two** of the following questions : **(2×8=16)**
1) Enlist different gene transfer techniques. Explain any two techniques in detail.
2) What are protoplasts ? How the plants are regenerated from leaf protoplast ?
3) Write a note on various bioconversion reactions by giving any one suitable example.

4. Answer **any four** of the following questions : **(4×4=16)**
   1) Write applications of germplasm storage.
   2) Discuss production of dextran by fermentation process.
   3) Write in brief agarose gel electrophoresis.
   4) Define enzymes. Write their uses.
   5) Define the terms :
      a) Cryoprotectant b) Fermentor
      c) BOD d) COD

5. Answer **any two** of the following questions : **(2×8=16)**
   1) Write a note on :
      a) Trypsinization b) Callus culture and their applications
   2) Enlist different blotting techniques. Discuss any two blotting techniques with their importance.
   3) Discuss production of somatotropin by r-DNA technology.

———————

SLR-C – 29

Seat No.	

B.Pharmacy (Semester – VI) Examination, 2016
SEMISOLID DOSAGE FORM

Day and Date : Tuesday, 26-4-2016 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

1. MCQ : **(1×16=16)**

1) Pastes are dispersions of high concentration of insoluble powdered substance _____ in a fatty or aqueous base.
   a) 20-50% b) 10-20%
   c) 70-80% d) None of these

2) _____ are usually clear transparent semisolids containing the solubilized active substance.
   a) Gels b) Creams
   c) Lipstick d) Pastes

3) These bases soak up water to form W/O emulsions while retaining their semisolid consistence
   a) Emulsion bases b) Absorption bases
   c) Both a) and b) d) None of these

4) _____ are ointments that contain high proportion of powder.
   a) Cream b) Gels
   c) Paste d) Jellies

5) Creams of W/O type are called _____
   a) Vanishing cream b) Cold cream
   c) Both a) and b) d) None of these

6) Xerogels can be converted to gels by contact with _____
   a) Ethanol b) Ice
   c) Cake d) Water

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) The vanishing cream essentially contains about _____ stearic acid.
   a) 20%
   b) 10%
   c) 30%
   d) 40%

9) Gels exhibit _____ flow.
   a) Dilatants
   b) Plastic
   c) Pseudoplastic
   d) All of these

10) Generally which pH of bases is preferred for ointment ?
   a) Acidic
   b) Neutral
   c) Basic
   d) None

11) Mascara is applied on which part of the eye ?
   a) Eyelids
   b) Eye brow
   c) Eye lashes
   d) All of these

12) Which vegetable oil is mostly useful in lipstick ?
   a) Castor oil
   b) Liquid paraffin
   c) Almond oil
   d) Peanut oil

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

14) Endodermic ointment act as _____
   a) Parasiticide
   b) Protective
   c) Local irritant
   d) All the above

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

16) Many gels shrink naturally upon standing and some of its liquid is pressed out this Phenomenon is known as _____
   a) Reversible
   b) Sole to gel
   c) Syneresis
   d) All of these

SECTION – I

2. Answer **any four** : **(4×4=16)**
   1) Define Paste. Classify it and give detail formulation of unna's paste.
   2) Write a brief note on cosmetics.
   3) Discuss in brief problems arises during manufacturing of lipstick.
   4) Highlight Quality control taste for jellies.
   5) Define Gel and write a note on rheology of gel.
   6) Comment on instability of creams.

3. Answer **any two** : **(8×2=16)**
   1) Define and enlist ingredients of jellies and explain in detail about evaluation test of jellies.
   2) Define ointment; and write in detail about packaging and evalution test of ointments.

      OR

   2) What do you know about lipsticks ? Explain the formulation of lipstick.

SECTION – II

4. Answer **any four** : **(4×4=16)**
   1) Discuss ointment bases in detail.
   2) Define creams and discuss advantages and disadvantages of cream.
   3) Write a short note on structure of skin.
   4) Differentiated between oinment and cream.
   5) Define mascara and give its ideal characteristics.
   6) Comment on eye shadow.

5. Answer **any two** : **(8×2=16)**
   1) What are the characteristic of ideal ointment base ? Discuss various bases that are used in Ointment preparations.
   2) Discuss in a brief factors affecting drug permeability.

      OR

   2) Discuss various evaluation tests for creams and paste.

_____

SLR-C – 30

Seat No.	

B.Pharm. (Semester – VI) Examination, 2016
MEDICINAL CHEMISTRY – II

Day and Date : Thursday 28-4-2016 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1) The long acting sulphonamide is

A) Sulphomethoxazole B) Sulphadiazine
C) Sulphadoxine D) Sulphacetamide

2) Antifungal with bis trizole nucleus is

A) Flucanazole B) Ketocanazole
C) Clotrimazole D) Griseofulvin

3) One of the following is glycopeptide antibiotics

A) Bleomycin B) Actinomycin D
C) Methramycin D) Metomycin

4) One of the following is not a first line drug for treating tuberculosis

A) Isoniazide B) Rifampin
C) Cycloserine D) Pyrazinamide

5) HIV infection can be clinically controlled by

A) Cytarabine B) Acyclovir
C) Zidovudine D) Amantidine

6) Name of the pyrazine containing drug used in treatment of T.B.

A) Pyrizinamide B) Ethionamide
C) Praziquantel D) Ethambutol

7) Primaquine is derivative of

A) 8-aminoquinoline B) 4-aminoquinoline
C) 9-aminoacridine D) Folic acid derivatives

8) Antifungal antibiotic is

A) Ketokanazole B) Nystatin

C) Miconazole D) All of above

9) Co-trimoxazole is an combination of

A) Sulphomethoxazole + trimethoprim

B) Sulphapyridine + trimethoprim

C) Sulphamethoxypyridazine + trimethoprim

D) None of above

10) Plasmodium vivax is an causative agent of

A) Tuberculosis B) Cancer

C) Candidiasis D) Malaria

11) One of the following pyrimidine derivative

A) Flucytosine B) Tolnaftate

C) Amphotericin D) 5-azaguanine

12) INH act by inhibiting the enzyme

A) Transpeptidase B) Mycolase synthatase

C) Folate synthatase D) Protein synthatase

13) Nucleotide containing

A) Nitrogen base, sugar, phosphate B) Sugar, phosphate

C) Nitrogen base, sugar D) All of above

14) Draw back of Doxorubicine

A) Phototoxicity B) Cardiotoxicity

C) Nephrotoxicity D) None of above

15) Mechanism of action of Nevirapine is

A) Uncoating inhibitor B) Adsorption inhibitor

C) R.T. inhibitor D) Protease inhibitor

16) A potent inhibitor of thymidylate synthatase is

A) Naftifine B) 5-Fluocytosine

C) Ciclopirox D) Ketocanazole

2. Answer **any four** of the following questions. **(4×4=16)**
   1) Write structure of MOA and uses of pyrimethamine.
   2) What are the problem faced in cancer chemotherapy ?
   3) Explain anti-ritroviral agents.
   4) Write structure and MOA of Griseofluvin.
   5) Write a note on second line agent as an anti-T.B.
   6) Write structure and chemical name of sulphadoxine and sulphacetamide.
3. Answer **any two** of the following questions. **(2×8=16)**
   1) Write SAR MOA and uses of Sulphonamides.
   2) Draw general structure of Quinoline derivative as an antibacterial agent show minimum pharmacophore needed and its role for exihibiting antibacterial activity.
   3) Discuss various steps involved in viral replication and name the drugs acting at different steps.
4. Answer **any four** of the following questions. **(4×4=16)**
   1) Discuss nucleoside derivative as antiviral agent. Give two e.g. with structure.
   2) Give structure, chemical name and MOA of ciprofloxacin, sparfloxacin.
   3) Write a note on 8-aminoquinoline with e.g.
   4) Write MOA and uses of 5-flurouracil.
   5) Write a note on DOT.
   6) Write synthesis of primaquine.
5. Answer **any two** of the following questions. **(2×8=16)**
   1) Write in detail of life cycle of malaria. Draw the structure, chemical name and synthesis of pyrimethamine.
   2) Classify antineoplastic agent giving suitable eg. Explain MOA of Alkylating agent.
   3) Classify anti-TB drug and explain MOA, SAR, adverse effect and synthesis of INH.

SLR-C – 31

Seat No.	

B.Pharm. (Semester – VI) Examination, 2016
PHARMACEUTICAL ANALYSIS – IV

Day and Date : Saturday, 30-4-2016 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

I. 1) A bolometer consist of **16**
   A) Two metal welded together
   B) Tungsten wire
   C) A thin blackened platinum strip in evacuated vessel
   D) All of these

2) Scissoring is here
   A) Bond angle increase
   B) Bond angle maintained
   C) Bond angle decrease
   D) None of these

3) Characteristic bands observed in IR spectra of alcohol result from
   A) –OH and C-O stretching B) –OH stretching
   C) C-O stretching D) C-H bond

4) The equimolar mixture of dextro and leavo rotation is called as
   A) Optical activity B) Racemic mixture
   C) Optical inactive D) All of these

5) DSC is
   A) Differential scanning calorimetry
   B) Distributed scanning colorimetry
   C) Differential scanning coulimetry
   D) Different scanning colourimetry

6) _____ is used as reference electrode in acid base titrations.
   A) Calomel Electrode
   B) Glass Electrode
   C) Silver Chloride Electrode
   D) Quinhydrone Electrode

7) Angle between refracted ray and the normal dividing surface is called as
   A) Reflection B) Angle of refraction
   C) Angle of incident D) All

P.T.O.

8) Unit of conductance is
A) Ohm B) Ampere C) Mhos D) None of these

9) Sample Cell in IR is made up of
A) KBr B) KCl C) NaBr D) All of these

10) Conductivity cell is made up of
A) Silver rods B) Two parallel sheets of platinum
C) Copper plates D) Aluminium plates

11) Mixture of Hydrochloric acid and acetic acid can be titrated satisfactorily by
A) Potentiometry B) Conductometry
C) Ampherometry D) Both A) and B)

12) Which of the following vibrations require more energy ?
A) Twisting B) Asymmetric stretching
C) Wagging D) Rocking

13) Nujol is
A) Hexachlorobutadiene B) Mineral oil
C) Fluorotube D) Per fluoro kerosene

14) _____ is a type of sample holder in TG.
A) Deep crucible B) Shallow pan
C) Retort cup D) All of these

15) For non linear molecule such as H_2O, the number of vibrations is
A) 0 B) 1 C) 2 D) 3

16) Faradic Current is due to
A) High current B) Traces of impurities
C) Low potential D) DME

II. Answer **any four** of the following questions : **(4×4=16)**

1) Discuss in detail half shade effect.

2) Write principle of refractometry.

3) Write note on sample holder and furnace used in TG.

4) What is DTA explain thermogram of DTA.

5) Write a note on bolometer.

III. Answer **any two** of the following questions : **(2×8=16)**

1) Explain the theory and instrumentation of Abbe's refractometer.
2) Explain various regions of IR radiations. Write a note on fingerprint region, also give applications of IR spectroscopy.
3) Explain in detail TG 750 with diagram.

IV. Answer **any four** of the following questions : **(4×4=16)**

1) Draw neat labelled diagram instrumentation of IR spectroscopy. Enlist applications of IR.
2) Discuss briefly potentiometric titrations.
3) Explain cell constant and discuss conductometric titration of strong acid against strong base.
4) Define the terms ohms law, conductance, specific resistance and equivalent conductance.
5) Explain construction and working of dropping mercury electrode.

V. Answer **any two** of the following questions : **(2×8=16)**

1) What are requirement for vibration to be IR active ? Discuss factors affecting vibrational frequency.
2) Explain the instrumentation of polarimeter and add a note on factor affecting polarization.
3) Describe the applications of conductometry and thermogravimetry.

———————

SLR-C – 32

Seat No.	

B.Pharmacy (Semester – VI) Examination, 2016
PHARMACOLOGY – II

Day and Date : Tuesday, 3-5-2016 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

***Instructions** : 1) Figures to **right** indicate **full** marks.*
*2) Mention main question and sub-question number **correctly** for **each** of the answers.*
*3) Algorithms/charts may be drawn **wherever** necessary.*

1. Choose the most appropriate alternative for following multiple choice questions : **(1×16=16)**

1) Which of the following is a High Ceiling Diuretic ?
   a) Hydrochlorothiazide b) Chlorthalidone
   c) Frusemide d) Indapamide

2) _____ is a common adverse effect of ACE inhibitors in susceptible individuals.
   a) Cough b) Platelet Aggregation
   c) Disorientation d) Gynaecomastia

3) Which of the following statements is False about digitalis ?
   a) Digitalis increases force of contraction of cardiac muscles
   b) Digitalis increases heart rate
   c) Digitalis decreases Atrioventricular conduction
   d) Digitalis shows prompt diuresis in CHF patients

4) Which of the following is a Class-III Antiarrhythmic drug ?
   a) Lidocaine b) Propranolol
   c) Amiodarone d) Propafenone

5) Which of the following potassium channel opener is useful in treatment of Angina ?
   a) Trinitroglycerine
   b) Nicorandil
   c) Amlodipine
   d) Dipyridamole

6) _____ dilates both arterioles as well as veins.
   a) Hydralazine
   b) Minoxidil
   c) Sodium Nitroprusside
   d) Diazoxide

7) Identify rich source of iron from the following.
   a) Milk
   b) Root vegetables
   c) Banana
   d) Liver

8) The active form of Vitamin B_{12} is _____
   a) DAB_{12}
   b) Methyl B_{12}
   c) Both a) and b)
   d) Cystinyl B_{12}

9) _____ of the following is a primary indication for use of Erythropoietin.
   a) Anemia of chronic renal failure
   b) Iron deficiency anemia
   c) Methotrexate toxicity
   d) Liver Cirrhosis

10) All of the following clotting factors are Vitamin K dependent EXCEPT
   a) Factor VII
   b) Factor IX
   c) Factor XIII
   d) Factor X

11) Which of the following anticoagulant is used both in vivo as well as in vitro ?
   a) Phenindione
   b) Warfarin
   c) Sodium oxalate
   d) Heparin

12) Which of the following beta agonist bronchodilators is longest acting ?
   a) Terbutaline
   b) Salbutamol
   c) salmeterol
   d) Levosalbutamol

13) Which of the following antihyperlipidemic drugs reduce cholesterol biosynthesis by blocking Hydroxy Methyl Glutaryl Coenzyme A Reductase enzyme ?
   a) Statins
   b) Nicotinic acid
   c) Cholestyramine
   d) Gugulipids

14) _____ is no longer used in the treatment of peptic ulcer disease because of _____
   a) Cimetidine, CYP450 inhibition
   b) Omeprazole, Gynaecomastia
   c) Sucralfate, Bland taste
   d) Amoxicillin, Diarrhoea

15) A Dopaminergic Agonist acting on CTZ which induces vomiting is _____
   a) Ipecac
   b) Sodium chloride
   c) Apomorphine
   d) Hypertonic glucose solution

16) Identify a chelating agent used in heavy metal poisoning from the following.
   a) Pralidoxime
   b) Sodium citrate
   c) Potassium Ferricyanide
   d) BAL

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

A) 'Diuretics are classified according to their potency'. Justify with examples.

B) Write in brief biosynthesis and physiological role of Prostaglandins.

C) Write uses of Serotonin Antagonists.

D) Classify Antiarrhythmic drugs with examples.

E) What class of drugs does castor oil belong ? Write its mechanism of action and adverse effects.

F) Enlist the drugs used in the treatment of cough with appropriate examples.

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

A) Enumerate antihypertensive drugs with appropriate examples. Add a note on ACE inhibitors as antihypertensives.

B) Classify the drugs used in asthma. Write in brief about use of Adrenergic Bronchodilators in management of asthma.

C) Write detailed classification of anti-hyperlipidemic drugs. Extend with mechanism of action and adverse effects of statins.

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

   A) Classify anti-anginal drugs with examples.

   B) Write a note on erythropoietin.

   C) Write classes of anticoagulants with examples.

   D) Write mechanism of action and uses of streptokinase.

   E) What are antiplatelet drugs ? Mention their types with examples and their uses.

   F) List out various drugs used in the treatment of constipation with examples.

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

   A) Classify antihistaminic drugs with appropriate examples. Write adverse effects and uses of antihistaminic drugs.

   B) Prepare a list of drugs used in the treatment of peptic ulcer in a classified manner. Write a note on proton pump inhibitors in treatment of peptic ulcers.

   C) Define poison. Describe general principles of toxicology. Add a note on treatment of lead poisoning.

———————

SLR-C – 33

Seat No.	

B. Pharmacy (Semester – VI) Examination, 2016
CLINICAL PHARMACOLOGY

Day and Date : Saturday, 7-5-2016 Max. Marks : 80

Time : 10.30 a.m. to 1.30 p.m.

1. MCQ **(1×16=16)**

1) Receptor exposed to agonist for long time result in reduction in no. of if receptor available for activation is called
   a) Down regulation b) Up regulation
   c) Rebound phenomenon d) All of above

2) As defined in Belmont Report, the ethical principle of beneficence related to general rule
   a) Obtain consent from subject
   b) Maximize possible benefit and minimize potential risk
   c) Burden of research should shared equally
   d) Benefit from research should be applied first to those who cannot afford them

3) In therapeutic confirmatory phase no. of subject to be used is
   a) 20–50 b) 100–300 c) 1000–3000 d) None of above

4) The diminished response due to prolong use of drug over period of time is called as
   a) Intolerance b) Tachyphylaxis
   c) Addiction d) Dependence

5) Tetracycline is avoided during pregnancy because
   a) It is carcinogenic
   b) It may affect bone growth of fetus
   c) It may cause abortion
   d) None of above

6) Paracetamol overdose is most likely to cause
   a) Renal damage
   b) Convulsion
   c) Hepatic necrosis
   d) Cardiotoxicity

7) To avoid bias, Investigator and subject cannot be aware of treatment which is given to subject is known as
   a) Randomisation trial
   b) Double blind trial
   c) Dose response trial
   d) Multicenter trial

8) Neonates and infants have _____ amount of total body water and _____ amount of plasma protein and body fat in comparison to adults.
   a) Lower, greater
   b) Greater, lower
   c) Equal, greater
   d) Greater, equal

9) Interaction between ciprofloxacin and aluminium hydroxide is of following type
   a) Pharmacokinetic
   b) Pharmacodynamic
   c) Both of above
   d) None of above

10) Physical dependence is condition in which
   a) Body need the drug to maintain normal physiological function
   b) There is compulsive need of drug
   c) Body often need of drug
   d) None of above

11) Abrupt withdrawal of _____ produce rebound hypertension.
   a) Propranolol
   b) Clonidine
   c) Enalapril
   d) None of above

12) Which of following ADR's involve complement
   a) Cytolytic b) Arthus c) Anaphylactic d) Delayed

13) The study of identification and comparative evaluation of new drug with existing drug is known as
   a) Pharmacoepidemiology
   b) Pharmacometrics
   c) Pharmacogenomics
   d) All of above

14) A person taking nitroglycerin and consume alcohol, the effect is

a) Severe hypotension b) Drowsiness

c) Anticoagulant effect d) Hypertension

15) There are ethical issues involved in clinical trial because

a) There could be risks to the health of human being

b) It is very costly

c) It is ultimately used to support commercial operation

d) None of above

16) To understand the drug receptor interaction is necessary to quantify the relation between

a) Drug and its toxicity b) Drug and its absorption

c) Drug and its biological effect d) Drug and its intermediate product

2. Answer **any four :** **(4×4=16)**

a) Define Photosensitivity, teratogenecity, carcinogenecity, second pharmacological effect with example.

b) Write short note on drug therapy in pediatric.

c) Describe briefly source of allergy.

d) Discuss the case study of Asthma.

e) Discuss drug interaction outside the body.

3. Answer **any two :** **(8×2=16)**

a) Define and classify adverse drug reaction. Explain type A and type B ADR with example.

b) Explain in detail phase of clinical trials.

OR

b) Explain drug therapy in pregnancy and elderly population.

4. Answer **any four :** **(4×4=16)**

   a) Write note on observational cohart studies.

   b) Describe in detail type of trial used in clinical research.

   c) Define and classify drug interaction, discuss enzyme induction phenomenon.

   d) Write note on degree of conviction assisting the attribution of adverse event.

   e) Define clinical pharmacokinetic, give its scope.

5. Answer **any two :** **(8×2=16)**

   a) Explain individualization of drug therapy.

   b) Explain in detail dose adjustment in hepatic and renal failure.

   OR

   b) Explain in detail chronic pharmacology and consequence of withdrawal of drug therapy.

SLR-C – 34

Seat No.	

B.Pharm. (Semester – VI) Examination, 2016
PHARMACOGNOSY – II

Day and Date : Tuesday, 10-5-2016 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1) Identify an example of oleo-gum-resin.
A) Guggul B) Ginger C) Turmeric D) Benzoin

2) _____ is used in perfume industry.
A) Catechu B) Hemp C) Myrobalan D) Kasturi

3) _____ acts as anticancer.
A) Musk B) Podophyllum C) Cassia D) Hemp

4) When Catechu is treated with alcoholic vanillin along with concentrated HCl, then it forms _____ colour.
A) White B) Pink C) Green D) Orange

5) Leaf constants of crude drugs can be determined except
A) Vasaka B) Datura C) Benzoin D) Digitalis

6) _____ belongs to Solanaceae family.
A) *Ricinus communis* B) *Elettaria cardamomum*
C) *Nicotiana tobaccum* D) *Apis mellifera*

7) _____ acts as cathartic property.
A) Ricinus oil B) Sunflower oil C) Cod liver oil D) Shark liver oil

8) _____ belongs to Graminae family.
A) Rice B) Wheat C) Maize D) All of above

9) The agents that relieves itching is known as
A) Antifebrile B) Febrifuge C) Aperient D) Antipruritic

10) Which of the following is not ratio value ?
A) Stomatal number B) Stomatal index
C) Lycopodium spore method D) Palisade ratio

11) Resins may contain all the following components except
A) Alcohol B) Phenol C) Gums D) Ether

12) Identify the crude drug not to be used in the preparation of Triphala churna.
A) Amla B) Behda C) Hirda D) Indian saffron

13) Crude drug that shows positive test for Millions reagent
A) Silk B) Cotton C) Jute D) All of above

14) _____ is having pungent in taste.
A) Eugenol B) Fenchone C) Both A) and B) D) Anethole

15) Aqueous hot solution of Indian gum is
A) Acidic B) Basic C) Neutral D) None of above

16) Fixed oils are insoluble in alcohol except
A) Soybean oil B) Sesame oil C) Cotton seed oil D) Castor oil

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

1) Enlist different ratio values. Define any two ratio value.

2) Write general properties of volatile oils.

3) Write identification tests for acacia.

4) Write a note on Margosa as a natural pesticide.

5) Define carbohydrates. How saccharides are differentiated from polysaccharides ?

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

1) Write biological source, chemical constituents and uses of following with any one example.
a) Used in cancer treatment b) Belongs to Combretaceae family
c) Obtained from leaves part d) Used as a binding agent

2) Discuss pharmacognosy of fennel fruit.

3) Define tannins. Write general chemical tests used for detection of tannins. Explain their industrial applications.

4. Answer **any four** of the following questions : **(4×4=16)**
   1) Draw a neat labeled histological diagram of Aadrak.
   2) Explain the therapeutic uses and cosmetic uses of Turmeric.
   3) Write biological source, chemical constituents and uses of shark liver oil.
   4) Write biological source and uses of :
      a) Amylum b) Cera flava
   5) Draw the structure of :
      a) Curcumin b) Muskone c) Fenchone d) Menthol

5. Answer **any two** of the following questions : **(2×8=16)**
   1) Compare and contrast between pale catechu and black catechu.
   2) Define and classify resins. How siam benzoin is differentiated from Sumatra benzoin ?
   3) Write biological source, active constituent with their structure and uses of :
      a) Mentha b) Cardamom c) Tobacco d) Cod liver oil

———————

SLR-C – 35

Seat No.	

B.Pharmacy (Semester – VII) Examination, 2016
STERILE DOSAGE FORMS

Day and Date : Monday, 25-4-2016 Max. Marks : 80
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 appropriate option. **(1×16=16)**

1) Intra articular injections are given in
   a) dura matter b) fatty tissues c) synovial fluid d) none of these

2) The tolerance limit for filling of sterile solids is _____ than sterile liquids.
   a) more b) equal c) less d) none of these

3) The task of documentation is carried out by
   a) Documentation Cell
   b) Drug Regulatory Affairs Department
   c) Both a) and b)
   d) None of these

4) _____ are the metabolic byproducts of living or dead micro organisms that cause pyrexia upon injection.
   a) Anti-oxidants b) Pyrogens
   c) Anti-microbial agents d) None of these

5) Type – II and Type – III glass contain nearly _____ of Calcium oxide.
   a) 0% b) 8% c) 81% d) 14%

6) The title used on label for sterile injectable suspension of Hydrocortisone is
   a) Sterile Hydrocortisone Suspension
   b) Sterile Hydrocortisone for Suspension
   c) Sterile Hydrocortisone for Injection
   d) Sterile Hydrocortisone

7) _____ buffers are used in parenterals in the pH range of 3-6.
   a) Phosphate b) Citrate
   c) Borate d) None of these

8) _____ is the major disadvantage of preparation of sterile solids by aseptic crystallization.
   a) Batch to batch variability b) Caking
   c) Coagulation of proteins d) All of these

9) Bacteriostatic Water for Injection is packaged in multiple containers not greater than _____ capacity.
   a) 30 ml b) 500 ml c) One liter d) Both a) and b)

10) _____ guidelines provides scientific foundation for scale up and post approval changes required for formulation.
   a) CPCSEA b) SUPAC
   c) Both a) and b) d) None of these

11) Ionization radiations can be used for sterilization of
   a) Solutions b) Bandages
   c) Baby bottle nipples d) All of these

12) The compatibility of drug products with containers can be evaluated by
   a) LC/MS b) GC/MS c) ICP d) All of these

13) Locational analysis for a plant include
   a) Site economics b) Competitive analysis
   c) Trade area analysis d) All of these

14) A multiple dose sterile solution must contain
   a) Suspending agent b) Sweetner
   c) Preservative d) All of these

15) High initial capital investment in special purpose machine is the disadvantage of _____ layout.
   a) Product b) Process c) Location d) All of these

16) In Class-II area _____ particles of size 0.5 μ /sq.ft. are allowed.
   a) NMT 650 b) NMT 65 c) NMT 100 d) NMT 10000

2. Answer **any four** : **(4×4=16)**
   1) Write a note on Small Volume Parenterals.
   2) Explain types of production batches giving their relevant applications.
   3) What are the duties and responsibilities of pilot plant scale-up department ?
   4) Give an overview of reasons for pH adjustment in parenterals.
   5) Write a note on sterilization by filtration.
3. Answer **any four** : **(4×4=16)**
   1) What are the objectives of a plant layout study ?
   2) Write a note on intradermal route of parenteral administration.
   3) Explain in detail how osmotic pressure is important in design of parenteral products ?
   4) Write a note on overages to be added to sterile preparations.
   5) Write in brief about the essential characteristics of an ophthalmic product.
4. Answer **any two** : **(8×2=16)**
   1) Discuss in detail the method of preparation of parenterals by FFS.
   2) Discuss the formulation aspects of ophthalmic products.
   3) Give an elaborative review of Test for Sterility I.P.
5. Answer **any two** : **(8×2=16)**
   1) Describe glass as packaging material for parenterals.
   2) Explain with examples the method of scale-up validation.
   3) How are parenterals prepared by non-aseptic processing ? Explain with example.

SLR-C – 36

Seat No.	

B.Pharmacy (Semester – VII) Examination, 2016
PHARMACEUTICAL JURISPRUDENCE

Day and Date : Wednesday, 27-4-2016 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

MCQ/Objective Type Questions. **(1×16=16)**

I. Choose the correct alternative.

1) License to sell drug specified C and C_1 is given in form number.
   a) 19 b) 18 c) 21 d) 24

2) Biological are tested at
   a) Mumbai b) Kolkata c) Chennai d) Kasauli

3) Drug inspector is appointed by central or state government under section.
   a) 19 b) 20 c) 21 d) 22

4) The committee that advises the DTAB and various govt. is
   a) DCC b) DEC c) CCUM d) PCI

5) Which of the following schedule related to life periods of drug ?
   a) M b) S c) E d) P

6) Which schedule is related to standard for cosmetics ?
   a) O b) U c) S d) T

7) The Pharmacy Council of India is also known as
   a) State Pharmacy Council
   b) Joint Pharmacy Council
   c) Central Council of Pharmacy
   d) None of the above

8) If a drug is not labeled in prescribed manner then it is known as
   a) Spurious drug
   b) Adulterated drug
   c) Misbranded drug
   d) None of the above

9) Left hand top corner of the label of Schedule X drugs contains symbol
   a) XR_X b) R_x c) RMP d) TDS

10) Central register of pharmacists is maintained by
   a) Health Ministry
   b) PCI
   c) State Pharmacy Council
   d) None of the above

11) Pharmacy Council of India is reconstituted every
   a) 6 yrs b) 2 yrs c) 3 yrs d) 5 yrs

12) Import of drugs for personal use contains average doses in mg up to
   a) 200 b) 150 c) 100 d) 50

13) One of the Ex-officio members of state Pharmacy Council is
   a) Chief Pharmacist of Government hospital
   b) Chief administrative medical officer of the state
   c) Registered Pharmacist
   d) Assistant drug controller

14) Digitalis belongs to Schedule
   a) E b) X c) G d) H

15) Penalty for use of Government analyst report for advertisement is
   a) Rs. 5,000/- b) Rs. 2,500/- c) Rs. 1,000/- d) Rs. 500/-

16) Ganja as per the Narcotic drugs and Psychotropic Substances Act means
   a) Flowering and fruiting tops of Cannabis sativa
   b) Flowering and fruiting tops, leaves and seeds of Cannabis sativa
   c) Roots of Cannabis sativa
   d) All parts of Cannabis sativa

II. Answer **any four**. **(4×4=16)**

1) Write the constitution and functions of Pharmacy council of India as per pharmacy act.

2) Explain how the First Register is formed. What are the qualifications prescribed for entry in the first and subsequent registers ?

3) Describe the labeling conditions specified in the Drugs and Cosmetics Rules.

4) What classes of advertisements are prohibited as per the drugs and magic remedies act ?

5) Explain the duties of public analyst and food inspector as per the prevention of food adulteration act.

III. Answer **any four.** **(4×4=16)**

1) Discuss briefly the objectives of the Narcotic Drugs and Psychotropic Substances Act 1985 and how it is achieved.

2) Define advertisement and magic remedies as per Drug and Magic remedies act.

3) Write the formula for calculating retail price of a formulation as per DPCO.

4) Write the constitution and function of DTAB as per D and C Act.

5) Write a note on registration of pharmacists.

IV. Answer **any two.** **(8×2=16)**

1) Write the qualification, duties and power of drug inspector. Explain in brief inspection procedure.

2) Give an account of import of different classes of drugs.

3) Define the term manufacture as per D and C act and mention the different types of licences available for the manufacture of drugs.

V. Answer **any two.** **(8×2=16)**

1) Give a brief account of the manufacture, possession and sale of narcotic and psychotropic Drugs.

2) What are the conditions imposed in the manufacture of Ayurvedic, Siddha and Unani Medicines by the licensing authority.

3) Define the following as per the Drug and Cosmetics Act :

   a) Drug

   b) New drug

   c) Qualified person

   d) Cosmetics.

———————

SLR-C – 37

Seat No.	

B.Pharmacy (Sem. – VII) Examination, 2016
MEDICINAL CHEMISTRY – III

Day and Date : Friday, 29-4-2016 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

1. Multiple choice question : **(16×1=16)**

1) Which one of the following is aminoalkyl ether class of antihistaminics ?

a) Pheniramine maleate b) Diphenhydramine HCl

c) Triprolidine HCl d) Promethazine HCl

2) In the general formula Ar-X-(CH_2)n -NRR' where, X-nitrogen, oxygen, carbon Ar, R and R' - different group, this formula represents

a) Antitussive b) Analgesics

c) Antipyretics d) Antihistamines

3) When N-methyl group of morphine is replaced with an allyl group, the compound formed

a) Naloxone-morphine antagonist b) Naltrexone-morphine agonist

c) Nalorphine-morphine antagonist d) Nalorphine-morphine agonist

4) Prazepam, oxazepam, clonazepam are structurally similar and are having which of the following ring system ?

a) 5H - dibenz (b, f) azepine b) Benzodiazepine

c) 1, 2, 4 - benzothiadiazine d) Phenothiazine

5) _____ is used in the treatment of gout disease.

a) acetaminophen b) rofecoxib

c) allopurinol d) none of above

6) Haloperidol is a major tranquilizer; it belongs to the class of

a) carbamates b) butyrophenone

c) propanediol d) phenothiazine

P.T.O.

7) One of the following statement is characterized for natural estrogen.
   a) estrange ring with one aromatic ring with one phenolic OH group
   b) pregnane ring with one aromatic ring with an phenolic OH group
   c) estrange ring with one unsaturated ring with alcoholic OH group
   d) cholestane ring system one aromatic ring with an phenolic OH group

8) Which of the following are used in peptic ulcer except ?
   a) omeprazole b) cimetidine
   c) ranitidine d) antazoline

9) _____ drug is a long acting barbiturate.
   a) secobarbitone b) phenobarbitone
   c) pentobarbitone d) none of above

10) Estrogen, progestin and testosterone contain _____ carbon in steroidal nucleus.
   a) 18, 19, 21 b) 21, 19, 18 c) 18, 21, 19 d) 19, 21, 18

11) Phenytoin can be synthesis from _____ as a starting material.
   a) benzophenone b) benzene c) benzil d) none

12) Proton pump inhibitor contains _____ ring system.
   a) pyrimidine b) benzthiazole c) benzimidazole d) furan

13) Which of the following drug is least effective as an anti-inflammatory agent ?
   a) phenylbutazone b) aspirin
   c) acetaminophen d) indomethacin

14) Which of the following are anticonvulsants except ?
   a) phenobarbitol b) trimethadone
   c) phenytoin d) imipramine

15) Which one of the following chemical constituent is not present in opium ?
   a) cycloserine b) thebaine
   c) codeine d) papaverine

16) Cholestane ring contains _____ carbons.
   a) 20 b) 27
   c) 25 d) 28

2. Answer **any four** of the following questions : **(4×4=16)**
   1) Explain SAR of female sex hormones with examples.
   2) Give structure, chemical name and uses of long acting barbiturates.
   3) Classify NSAID drugs with examples.
   4) Explain SAR of p-aminophenol derivative of NSAID's.
   5) Define and classify antihistaminic drugs.

3. Answer **any four** of the following questions : **(4×4=16)**
   1) Write in short on adrenocorticoids.
   2) Explain the drugs used in gout disease.
   3) Explain SAR of central sympathomimetic agents as CNS stimulants.
   4) Write the synthesis of a) aspirin b) chlorpromazine.
   5) Classify hypnotic and sedative drug with examples.

4. Answer **any two** of the following questions : **(2×8=16)**
   1) Explain in detail on MOA of morphine and write on early morphine nucleus modification.
   2) Write a note on oral contraceptive in detail with mechanism.
   3) Explain in detail MOA and SAR of proton pump inhibitor.

5. Answer **any two** of the following questions : **(2×8=16)**
   1) Explain how acid is secreted in body ? Explain the development of cimetidine as H_2 antagonist drug.
   2) Write in detail on TCA.
   3) Define and classify anticonvulsant drug. Discuss SAR of hydantoin. Write synthesis of phenytoin.

———————

SLR-C – 38

Seat No.	

B. Pharm. (Semester – VII) Examination, 2016
PHARMACEUTICAL ANALYSIS – V

Day and Date : Monday, 2-5-2016 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

1) _____ is the volume of mobile phase required to elute one half of the compound from column as indicated by the peak maximum.
   A) Retention time B) Retention volume
   C) Adjusted retention time D) Adjusted retention volume

2) In descending paper chromatography the mobile phase will move from _____ to _____
   A) Top to bottom B) Radially C) Horizontally D) Bottom to top

3) The efficiency of chromatographic column increases as the plate count becomes greater and as the plate height becomes _____
   A) Greater B) Smaller C) Moderate D) None of these

4) Which of the following coefficients are used in the Van Deemter equation ?
   A) Coefficient A B) Coefficient D
   C) Coefficient C D) Both A) and C)

5) _____ % W/W calcium sulphate is mixed with silica gel as binder.
   A) 10% B) 5% C) 15-20% D) 25%

6) Ion exchange resin type is based on _____ on the counter ion.
   A) Charge B) Electrons
   C) Bonding electrons D) Both B) and C)

7) Which of the following nature of sample mixture cannot be separated by HPLC ?
   A) Non-volatile and thermolabile B) Volatile
   C) Non-volatile D) All of the above

8) _____ elution where varying composition of M.P. is used.
   A) Gradient B) Displacement
   C) Isocratic D) Both A) and B)

P.T.O.

9) Which of the following is used as S.P. in ion exchange chromatography ?
   A) Amberlite B) Alumina
   C) Zeolite D) Both A) and C)

10) Sephadex is used as S.P. in _____ chromatography.
   A) Gel B) Ion exchange
   C) Adsorption column D) All of these

11) _____ is not a development technique of TLC.
   A) Ascending B) Radial
   C) Ascending-descending D) Both B) and C)

12) Which of the following detector is destructive of the sample ?
   A) AED B) FID
   C) Both A) and B) D) TCD

13) _____ are the common liquid S.P. used in GLC.
   A) Polydimethyl siloxane B) PEG
   C) Polytrifluoromethyl siloxane D) Both A) and B)

14) Which of the following chromatography where automatic sample application by Linomat applicator is used ?
   A) TLC B) Paper C) HPTLC D) HPLC

15) _____ S.P. and _____ M.P. is used in GLC.
   A) Solid, liquid B) Liquid, liquid
   C) Gas, liquid D) Liquid, gas

16) _____ is a column packing technique used in adsorption column chromatography.
   A) Wet method B) Dry method
   C) Both A) and B) D) Semi-dry method

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

1) Write on different development techniques of paper in paper chromatography.
2) Explain van deemter equation.
3) Write on capacity factor and retention time.
4) What is Gel chromatography ? Give its principle.
5) Write difference between HPTLC and TLC.

3. Answer **any four** of the following questions : **(4×4=16)**
   1) Draw a neat labeled diagram of HPLC. Explain solvent reservoir system of HPLC.
   2) Write on columns used in GLC.
   3) Write on S.P. used in ion exchange chromatography.
   4) Enlist pumps used in HPLC. Explain any one.
   5) Define and classify chromatography.

4. Answer **any two** of the following questions : **(2×8=16)**
   1) Write on S.P. used in adsorption column chromatography. Give applications of adsorption column chromatography.
   2) Explain with suitable diagram any three detectors used in GC.
   3) Write on various papers used in paper chromatography. Give its applications.

5. Answer **any two** of the following questions : **(2×8=16)**
   1) Give principle of HPLC. Explain with suitable diagram any two detectors used in HPLC.
   2) Draw a neat labeled diagram of GC. Explain carrier gas and sample injection system of GC.
   3) Write applications of ion exchange chromatography and HPLC.

———————

SLR-C – 39

Seat No.	

B.Pharmacy (Semester – VII) Examination, 2016
PHARMACOLOGY – III

Day and Date : Friday, 6-5-2016 Total Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

1. Multiple Choice questions : **(1×16 = 16)**

1) Following is a _____ component of methanol poisoning.
   A) Narcotic action B) Uncompensated metabolic acidosis
   C) Ocular & CNS Necrosis D) All of above

2) Salicylism characterized by _____.
   A) Head ache
   B) Nausea
   C) Both A & B
   D) Other than A & B

3) Delirium is observed at _____ stage of an aesthesia.
   A) Stage 1 B) Stage 2 C) Stage 3 D) Stage 4

4) _____ is not a part of Neuroses.
   A) Anxiety B) Hysteria
   C) Depressive reactions D) Affective psychosis

5) Following _____ is major complication in diabetes.
   A) Nephropathy B) Retinopathy C) Only B D) Both A & B

6) Ethanol is contraindicated in _____.
   A) Peptic ulcer B) Hyper acidity
   C) Liver disease D) All of above

7) The use of chloral hydrate is limited due to _____.
   A) Gastric irritation B) Unpalatable taste
   C) Both A & B D) Only A

8) Morphine is used in _____.

A) Severe visceral pain B) Head injury

C) Asthma D) Renal failure

9) _____ gas is not used as anesthetic due to toxicity.

A) Nitrous oxide B) Chloroform C) Halothane D) Ethyl chloride

10) Respiratory centre depression can be caused by all EXCEPT

A) Opium B) Strychnine C) Barbiturates D) Gelsemium

11) Antipsychotic drug induced parkinsonism is treated by _____.

A) Anti-cholinergics B) Carbamazepine

C) Lamotrigine D) Phenytoin

12) Therapeutic level of Phenytoin is _____.

A) 0 – 9 mg/ml B) 10 – 19 mg/ml

C) 20 – 29 mg/ml D) 30 – 39 mg/ml

13) General anesthetic that causes suppression of adrenal steroids. Is _____

A) Etomidate B) Ketamine C) Propofol D) Halothane

14) Which of the following disease is accompanied by loss of cholinergic neurons ?

A) Parkinson's disease B) Alzheimer's disease

C) Psychosis D) Depression

15) All of the following are limitations of typical tricyclic antidepressants EXCEPT

A) Narrow safety margin B) Low oral bioavailability

C) Frequent side effects D) Long latent period of response

16) Which of the following drug is both effective and safe to use in a pregnant patient suffering from Bipolar disorder ?

A) Carbamazepine B) Lithium

C) Olanzapine D) Valproic acid

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

   1) Write the mechanism of action of Disulfiram.

   2) Classify sedatives and hypnotics.

   3) Enlist the adverse effects and uses of morphine.

   4) Write a note on Vaccines as Immunostimulants.

   5) Enlist adverse effects of Insulin.

3. Answer **any four** from the following. **(4×4 = 16)**

   1) Define and classify antidepressants with suitable examples.

   2) What is pain ? Classify Opoids with suitable examples.

   3) Classify Anti fertility Drugs. Briefly explain progesterone as an Anti fertility agent.

   4) Briefly explain the importance of pre-anesthetic medication.

   5) Explain the mechanism of action of ethanol.

4. Answer **any two** from the following. **(8×2 = 16)**

   1) Define Immuno-suppressants. Classify them. Explain the pharmacology of Tacrolimus.

   2) Classify anti-epileptics with suitable examples. Describe mechanism of action, adverse effects, interactions, contraindications and uses of Phenobarbitone.

   3) Define Psychosis. Classify with examples. Discuss in detail the pharmacology of Chlorpromazine.

5. Answer **any two** from the following. **(8×2 = 16)**

   1) Define and classify anti-parkinsonism drugs. Describe in detail the pharmacology of levodopa.

   2) Classify NSAIDs in detail with suitable examples. Discuss the pharmacology of Dicofinac.

   3) Classify oral hypoglycemics with examples. Add a note on Acarbose and Pioglitazone.

———————

SLR-C – 40

Seat No.	

B. Pharmacy (Semester – VII) Examination, 2016
PHARMACOGNOSY – III

Day and Date : Monday, 9-5-2016 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

***Note** : Figures to **right** indicate marks.*

1. Multiple Choice Questions (MCQ)/Objective type questions : **(1×16=16)**

1) Opium alkaloids are the salts of
   a) Quinic acid b) Oleic acid
   c) Meconic acid d) Oxalic acid

2) Saponin glycoside shows one of the following properties
   a) Luxative b) Anticonvulsant
   c) Foaming d) Astringent

3) *'Pseudoplexuraporosa'* is the botanical source of
   a) Ara - C b) Crssin acetate
   c) Bryostatin d) Asperidol

4) Wagner's test is used for detection of
   a) Alkaloid b) Tannin c) Glycoside d) Mucilages

5) Papain shows proteolytic activity between pH
   a) 4 – 5 b) 5 – 6 c) 6 – 7 d) 7 – 8

6) Glycyrrhizinic acid on hydrolysis gives
   a) Glycyrrhyzin b) Liquiritin
   c) Isoliquiritin d) Glycyrrhetic acid

7) Bromelin is used in the treatment of
   a) Meat tenderizer b) Anti-inflammatory of soft tissue
   c) Thrombotic disorder d) Burns

8) Alkaloids of Cinchona bark are detected by
   a) Iodine test b) Vitali - Morin test
   c) Thalleoquin test d) None of the above

9) Lactone ring of Cardiac glycoside is attached at position _____ to the steroidal nucleus.
   a) Carbon - 14 b) Carbon - 15
   c) Carbon - 16 d) Carbon - 17

10) Which one of the following anticancer marine drug obtained from the Sea hare ?
   a) Dolastatin b) Aplidine
   c) Xenia d) Napthea

11) Digitalis leaves should be dried at temperature below
   a) 20°C b) 60°C
   c) 30°C d) 40°C

12) Powdered Ergot when treated with sodium hydroxide solution develops
   a) A strong odour of ammonia b) A strong odour of trimethylamine
   c) A strong odour of indole d) A strong odour of urea

13) Killer Kiliani test is positive for
   a) Gitoxose b) Digitoxose
   c) Digitoxigenin d) Gitoxigenin

14) 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

15) Ephedrine is useful in the treatment of
   a) Asthma b) Cough
   c) Cataract d) Inflammation

16) Bitter almond shows sedative effect due to
   a) Presence of hydrocynic acid b) Absence of hydrocynic acid
   c) Presence of amygdaline d) Absence of amygdaline

2. Answer **any four** : **(4×4=16)**

a) What are isothiocyanate glycosides ? Give source and uses of Black Mustard.

b) Explain chemistry of Cardiac glycoside.

c) Explain any two cytotoxic compounds from marine source.

d) Give the method of preparation and uses of Bromelin.

e) Explain following chemical tests :
   i) Van Urk's test
   ii) Modified Borntrager's test

3. Answer **any four** : **(4×4=16)**

   a) Give biological source, family, chemical constituents and uses of Ginkgo.

   b) Define glycoside. Classify with example.

   c) Write the biological source, method of preparation and uses of opium.

   d) Draw the structure of following constituents :
      i) Quinine
      ii) Scillaren - A

   e) Give the source and uses of :
      i) Soya bean
      ii) Citrus peel

4. Answer **any two** : **(8×2=16)**

   a) What are Tropanes ? Write their biosynthetic pathway along with uses.

   b) Discuss Foxglove leaves under Pharmacognostical scheme.

   c) Write detailed note on Bioflavonoids.

5. Answer **any two** : **(8×2=16)**

   a) Explain Rauwolfia under the Pharmacognostical scheme.

   b) Write a note on cardiovascular compounds from marine origin.

   c) Discuss Pharmacognosy of Senna.

———————

SLR-C – 41

Seat No.	

Final Year B.Pharmacy (Annual Pattern) Examination, 2016
PHARMACOGNOSY AND PHYTOCHEMISTRY – II

Day and Date : Wednesday, 11-5-2016 Total Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

***Note** : Figures to **right indicate** marks.*

1. Multiple choice questions (MCQ)/Objective type questions : **(1×16=16)**

1) Ergot alkaloids are identified by

a) Murexide b) Thalleoquin c) Van – Urk's d) Borntrager's

2) 'Black catechu' is prepared from

a) Leaves b) Shoots c) Wood d) Root

3) 1 – α – D – arabinofuronosylcystosine is chemical name of

a) Aplysistatin b) Ara – C

c) Napthea d) Crassin acetate

4) Bahera fruits belongs to _____ family.

a) Berberaceae b) Combretaceae

c) Burseraceae d) Cucurbitaceae

5) Name the drug which belongs to the family Theaceae.

a) Bitter Almond b) Ginkgo leaves

c) Green tea d) Rauwolfia root

6) Alkaloidal amines are present in

a) Ergot b) Catharanthus

c) Ephedra d) Cinchona

7) Pyrethrin acts as insecticide by

a) Contact b) Irritant

c) Stimulant d) None of the above

8) Following are the anticancer marine drugs except

a) Ara – C b) Crassin acetate

c) Xenia d) Manolide

9) Myrabolon contains non-nitrogenous constituent which is

a) Gallic acid b) Fixed oil

c) Oleorisin d) Pectin

10) Bees wax of natural one is obtained from

a) Liliaceae b) Leguminoseae

c) Erythroxylaceae d) Apidae

11) Datura leaf belongs to the chemical class of alkaloid

a) Quinoline b) Tropane

c) Isoquinoline d) Indole

12) Young stems of Ma-Haung is used as source of

a) Emetine b) Ephedrine

c) Eugenol d) Emodin

13) Jatamansi Rhizomes contain sesquiterpenes of

a) Valeronone b) Carvone

c) Hedychinone d) Cymene

14) Rhizomes of Calamus are obtained from

a) Valerianaceae b) Araceae

c) Acanthaceae d) Cucurbitaceae

15) Which one of the following is identified by Vitali's Test ?

a) Atropine b) Quinine

c) Morphine d) Nicotine

16) Medicinal Castor oil is obtained by

a) Cold Solvent Extraction b) Cold Expression

c) Cold Extraction d) Cold Percolation

2. Answer **any four** : **(4×4=16)**

a) Write the advantages of Phytochemical screening.

b) Explain the morphology of Umbeliferous fruits.

c) Give the source and pharmacological activity of newer Anti-inflammatory agents from Marine origin.

d) Name the adulterants of clove along with their features.

e) Give biological source and uses of :

i) Lobelia

ii) Catharanthus.

3. Answer **any four** : **(4×4=16)**

a) Give the classification of Plant growth regulators.

b) What are biological amines ? Give example.

c) Explain the histology of Fennel.

d) Give two examples of Marine crude drug along with uses.

e) Define and classify Volatile oils.

4. Answer **any two** : **(8×2=16)**

   a) Explain the following Ayurvedic drugs :

      i) Shankpushpi

      ii) Brahmi.

   b) What are lipids and waxes ? Explain Caster oil.

   c) Name the drug containing Ergot alkaloid and describe its Pharmacognosy.

5. Answer **any two** : **(8×2=16)**

   a) What are steroidal alkaloids ? Write biological source, family, chemical constituents and uses of Withania.

   b) Write the pharmacognosy of Cardamom fruit.

   c) Write a short note on :

      i) Ipecac

      ii) Natural pesticides.

SLR-C – 42

Seat No.	

B.Pharmacy (Semester – VIII) Examination, 2016
NOVEL DRUG DELIVERY SYSTEMS

Day and Date : Tuesday, 26-4-2016 Total Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

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

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

1) In stabilized foam aerosol system peopellent is present in
   a) Internal phase b) External phase c) At the interface d) None of these

2) Insoluble polymer membranes follow _____ principle for drug release.
   a) Dissolution b) Diffusion
   c) Diffusion and Dissolution d) None of above

3) For describing drug release kinetics from a tablet where there is change in surface area and diameter which model fitting is suitable ?
   a) Zero order b) First order
   c) Higuchi model d) Hixon-Crowel model

4) Drug absorption under the influence of sound waves is called as
   a) Tonophoresis b) Iontophoresis c) Chlorophoresis d) Sonophoresis

5) Mucoadhesive polymers bind to
   a) Pectin b) Mucin c) Pepsin d) Renin

6) The loading dose in an oral CRDDS depends upon
   a) Bioavailability b) Volume of distribution
   c) Plasma concentration d) All of these

7) Wicking agent is responsible for
   a) Repelling water molecules
   b) Attracting water molecules
   c) Repelling drug molecules
   d) Attracting drug molecules

8) Stratum corneum is hard to penetrate because of
   a) High concentration of keratin
   b) High concentration of melanin
   c) Presence of hair follicles
   d) Presence of sweat glands

9) Lupron implant is an example of
   a) Erodible Implant b) Implant pump c) Both a) and b) d) None of these

10) BCS class-II 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) The metered dose aerosol does not contain
   a) dip tube
   b) metering chamber
   c) actuator stem
   d) none of these

12) _____ is an example of parenteral controlled drug delivery.
   a) Iontophoresis b) Sonophoresis c) IUD d) None of these

13) _____ part of GIT is a host of numerous bacterias.
   a) Stomach b) Small intestine c) Colon d) Oesophagus

14) When _____ are used in aerosols, there is no propellant reservoir in the container.
   a) compressed gases
   b) hydrocarbons
   c) chloroflorocarbons
   d) hydrofloroalkanes

15) Ideally the specific gravity of hydro dynamically balanced DDs should be in between
   a) 1.300 -1.401 b) 1.425 -1.535 c) 1.004 -1.010 d) 1.125 -1.365

16) The numerical designation 22 has chemical formula
   a) CCl_3F b) CCl_2F c) CCl_2F_2 d) $CHClF_2$

II. Answer **any four** : **(4×4=16)**

1) Enlist advantages of modified release drug delivery systems.

2) Describe container materials used for pharmaceutical aerosols.

3) Enlist the problems associated with colonic drug delivery systems.

4) How RBC's can be utilized as a drug delivery system ?

5) Explain the drug selection criteria in oral CR formulations.

III. Answer **any four**. **(4×4=16)**

1) What is the rational of using low density materials in gastroretentive systems ?

2) Elaborate how liposomes are capable for entrapment of both hydrophilic and lipophilic drugs. Give its advantages.

3) Explain the concept of loading and maintenance dose. Give its importance.

4) Describe the barrier type of aerosol systems.

5) Write a note on size based modified drug delivery systems.

IV. Answer **any two** : **(8×2=16)**

1) Provide the detail classification of NDDS. Give examples of the same.

2) Give the approaches to design colon specific drug delivery systems.

3) Discuss the official and unofficial evaluation tests to pharmaceutical aerosols.

V. Answer **any two** : **(8×2=16)**

1) Describe the dissolution test for immediate release dosage forms as per U.S.P.

2) Explain the principle and design of oral osmotic drug delivery system.

3) Describe different types of propellants used in pharmaceutical aerosols.

SLR-C – 43

Seat No.	

B.Pharmacy (Semester – VIII) Examination, 2016
PHARMACEUTICAL BUSINESS MANAGEMENT

Day and Date : Thursday, 28-4-2016 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

MCQ/Objective Type Questions

I. Choose the correct alternative : **(1×16=16)**

1) A partnership business the number of partners should not exceed more than
   a) 19 b) 20 c) 21 d) 24

2) In retail pharmacy business _____ business organization is best suited.
   a) Sole proprietorship b) The Hindu Undivided Family
   c) Partnership d) Company

3) Mail order business is
   a) Wholesale trade b) Direct selling trade
   c) Retail trade d) Retail trade by post

4) A wholesaler deals with items manufactured by single firm or company is called
   a) Stockist b) Distributor
   c) Retailer d) All of these

5) A legally protected brand name is called
   a) Trademark b) Copyright
   c) Both a) and b) d) None of these

6) _____ is a process by which the actual performance of the employees is guided towards common goals of the enterprise.
   a) Organizing b) Staffing
   c) Directing d) None of these

7) Marketing mix involved grouped of ingredients into the four categories
   a) Product b) Price
   c) Place d) All of these

8) Second stage in the life cycle of product is
   a) Introduction b) Growth c) Decline d) Maturity

9) When at least 51% shares of a business organization are in the hands of governments, it is called
   a) Government company b) Public corporation
   c) Public company d) None of these

10) A Retailer deals in pharmaceutical trade is known as
   a) Pharmacy retailer b) Chemist
   c) Pharmacist d) Both b) and c)

11) The maximum number of persons required to form a private company is
   a) 2 b) 5 c) 4 d) 8

12) The documents containing the agreement in partnership business is called
   a) Letter b) Documents
   c) Partnership deed d) Partner agreements

13) Training is an organized activity by which people learn and acquire a
   a) New skill b) Knowledge
   c) Both a) and b) d) None of these

14) Sales are the _____ of business.
   a) Life blood b) Training
   c) Performance d) None of these

15) A business organization run in partnership is called
   a) Company b) Firm
   c) Co-operative society d) All of these

16) The Joint Hindu Family business is in the hands of
   a) Male person b) Female person
   c) Both a) and b) d) All of these

II. Answer **any four** : **(4×4=16)**

1) Explain delegation of authority in detail.
2) Discuss market consideration in product development.
3) Explain the selection and training of professional sales representatives.
4) Discuss market research in detail.
5) Explain the marketing of generic drugs.

III. Answer **any four** : **(4×4=16)**

1) What are the personal qualities of good professional sales representative ?
2) Define the term marketing mix and explain its variables.
3) Describe the distribution channels of pharmaceuticals.
4) Explain the importance of leadership in an organization.
5) Write a note on pharmaceutical industry in India.

IV. Answer **any two** : **(8×2=16)**

1) What is consumer behaviour ? Who is consumer and who is customer in pharmaceutical marketing ?
2) Discuss the various reasons for branding of pharmaceuticals.
3) Draw the product life cycle and explain its various phases.

V. Answer **any two** : **(8×2=16)**

1) Explain the term business and discuss the main features of various forms of business organizations.
2) Describe the various functions of management in brief.
3) Explain the term wholesalers. Mention the main functions that are generally performed by the wholesalers.

———————

SLR-C – 44

Seat No.	

B.Pharm. (Semester – VIII) Examination, 2016
MEDICINAL CHEMISTRY – IV

Day and Date : Saturday, 30-4-2016 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

1) Orphenadrine is a _____ class of antiparkinsonian agent.
   A) Aminoalcohol B) Aminoalcohol ether
   C) Aminoamide D) Miscellaneous

2) _____ is a bioprecursor prodrug.
   A) Nabumetone B) Chloramphenicol palmitate
   C) Sulindac D) All of these

3) Echothiophate is a _____ choline esterase inhibitor.
   A) Irreversible B) Retro
   C) Reversible D) Both A) and C)

4) _____ is a metabolite of isosorbide dinitrate.
   A) Isosorbide-4-mononitrate B) Isosorbide-5-mononitrate
   C) Isosorbide-3-mononitrate D) Isosorbide-4-dinitrate

5) _____ is a 1,4-dihydrophyridine class of calcium antagonist.
   A) Nifedipine B) Amlodipine C) Felodipine D) All of these

6) Prodrug is a pharmacologically inactive compound that is transformed by the mammalian system into an active substance by _____ or metabolic means.
   A) Catalytic B) Chemical C) Amination D) None of these

7) HMG-CoA reductase enzyme is responsible for the conversion of HMG-CoA to _____
   A) Cholesterol B) Stilbesterol C) Mevalonate D) Both A) and C)

8) Sugar configuration in cardiac glycoside is _____
   A) Alpha B) Beta C) Cis-trans D) None of these

P.T.O.

9) _____ is a dicarboxylate containing ACE inhibitor.
   A) Enalapril B) Captopril
   C) Atorvastatin D) Both A) and B)

10) Ethyl 2-(p-chlorophenoxy)-2-methylpropionate is a IUPAC nomenclature for _____ drug.
   A) Captopril B) Clofibrate
   C) Gemfibrozil D) Atorvastatin

11) _____ elicit their effects through inhibition of the Na^+/K^+-ATPase pump.
   A) Alkaloids B) Cardiac glycoside
   C) Digoxin D) Both B) and C)

12) IUPAC nomenclature of procainamide drug is _____
   A) 4-amino-N-[2-diethylamino)ethyl]benzamide
   B) 3-amino-N-[diethylamino)methyl]benzamide
   C) 4-amino-N-[2-diethylamino)salicylamide
   D) 3-amino-N-[2-diethylamino)ethyl]benzamide

13) Which of the following is used as skeletal muscle relaxants ?
   A) Succinylcholine chloride B) Nicotine
   C) Papaverine D) All of above

14) _____ is having imidazole ring containing angiotensin-II blocker.
   A) Losartan B) Irbesartan C) Telmisartan D) Valsartan

15) _____ is a selective alpha-1 receptor antagonists.
   A) Yohimbine B) Prazosin
   C) Phenoxybenzamine D) Tolazoline

16) Benzofuran ring is present in _____ antiarrhythmic agent.
   A) Bretylium B) Moricizine C) Amiodarone D) Propranolol

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

1) Write a note on HMF-CoA reductase inhibitors with suitable examples.
2) Write in short on antianginal agents with suitable examples.
3) Write on aminoalcohol ether class of anticholinergics.
4) Write in short on Hansch analysis.
5) Write on mutual prodrugs with suitable examples.

3. Answer **any two** of the following questions : **(2×8=16)**
   1) Draw the structures, MOA and uses of clonidine and propranolol.
   2) Explain with suitable examples sympathomimetics.
   3) Give biosynthesis and metabolism of the catecholamines dopamine, epinephrine and norepinephrine.

4. Answer **any four** of the following questions : **(4×4=16)**
   1) Write on potassium channel agonists.
   2) Draw the structure and uses of Nifedipine.
   3) What are positive inotropic agents. Give examples.
   4) Write on drugs affecting catecholamine storage and release.
   5) Write in short on free Wilson analysis.

5. Answer **any two** of the following questions : **(2×8=16)**
   1) Define and classify antihypertensive agents. Explain with examples angiotensin-II blockers.
   2) Draw the structures, synthesis and uses of methyldopa and procainamide.
   3) Write in detail on cholinesterase inhibitors.

SLR-C – 45

Seat No.	

B.Pharm. (Semester – VIII) Examination, 2016
PHARMACEUTICAL ANALYSIS – VI

Day and Date : Tuesday, 3-5-2016 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

I. Multiple choice questions : **16**

1) The NMR spectroscopy _____ is used as a solvent
   a) D_2O b) $CDCl_3$
   c) High purity Cycohexane d) Both a and b

2) Standard deviation is measure of _____ of the data.
   a) Central tendency b) Scattering
   c) Range d) Both a and c

3) Reproducibility and Repeatability are measures of _____
   a) Accuracy b) Precision
   c) Both accuracy and precision d) Sensitivity

4) Guassian distribution means _____
   a) Normal distribution b) Frequency distribution
   c) Variance distribution d) None of these

5) _____ ionization method may result in disappearance of molecular ion peak.
   a) Chemical b) Electron impact
   c) MALDI d) Electrospray

6) Grammage test for paper indicates _____ of the paper.
   a) mass/area b) area/mass
   c) weight of one ream of paper d) mass/length

P.T.O.

7) Bursting strength is generally used for _____ packaging material.
   a) Plastic b) Glass
   c) Aluminium Foil d) Paper

8) In mass spectrometry FAB uses _____ for ionization of sample.
   a) Methane b) Propane c) Carbondioxide d) Argon

9) Tropylium ion contains a characteristic _____ membered ring.
   a) Five b) Six c) Eight d) Seven

10) In mass spectrometry Mc Lafferty rearrangement takes place in compounds containing.
   a) An abstractable gamma hydrogen b) An abstractable alpha hydrogen
   c) Suitably placed C = O group d) Both a and c

11) The ability of a method to remain unaffected by small but deliberate variations is called
   a) Repeatability b) Reproducibility
   c) Robustness d) Intermediate precision

12) Which of the following relation is true for Detection Limit (DL) ?
   a) $DL = \frac{3.5 \times \text{Std. deviation}}{\text{Slope of cal.curve}}$ b) $DL = \frac{3.0 \times \text{Std. deviation}}{\text{Slope of cal.curve}}$
   c) $DL = \frac{3.3 \times \text{Std. deviation}}{\text{Slope of cal.curve}}$ d) $DL = \frac{6.3 \times \text{Std. deviation}}{\text{Slope of cal.curve}}$

13) Folding endurance test is not applicable for which of the following ?
   a) Paper b) Cork c) Glass d) Both b and c

14) _____ is the most intense peak in NMR.
   a) Negative ion peak b) Base peak
   c) Parent ion peak d) Molecular ion peak

15) M + 2 peak is observed for compounds with _____ isotope.
   a) Chlorine b) Bromine c) C^{13} d) Both a and b

16) No. of signal in proton NMR spectra of ethyl bromide is
   a) 5 b) 2 c) 3 d) 1

II. Answer **any four** of the following questions : **(4×4=16)**

1) Explain the methodology and formula for grammage test.
2) Define the terms :
   i) Standard deviation
   ii) Mean
   iii) Median
   iv) Mode.
3) Explain the folding endurance test for paper as packaging material.
4) Enlist ionisation methods used in mass spectrometry. Explain electrospray ionization.
5) How is linearity and range for an analytical method determined ?

III. Answer **any four** of the following questions : **(4×4=16)**

1) Explain Chemical ionisation in mass spectrometry.
2) Write a short note on quality management system.
3) Write in detail T test.
4) Explain in detail the test for determination of moisture vapour transmission rate of packaging material.
5) Write a short note on quality control.

IV. Answer **any two** of the following questions : **(2×8=16)**

1) Draw a neat labeled diagram of a double focusing mass spectrometer. Explain in detail about various ions in mass spectrometry.
2) Explain spin-spin coupling in NMR. Add a note on applications of NMR.
3) Elaborate on quality control tests for glass as a packaging material.

V. Answer **any two** of the following questions : **(2×8=16)**

1) Explain instrumentation involved in NMR spectroscopy with a neat labeled diagram.
2) Give general rules for fragmentation pattern in EI mass spectrometry. Give applications of mass spectrometry.
3) Define all validation parameters of an analytical method as per ICH guidelines.

———————

SLR-C – 46

Seat No.	

B.Pharm. (Semester – VIII) Examination, 2016
PHARMACOLOGY – IV

Day and Date : Saturday, 7-5-2016 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

N.B. : *Solve* ***all*** *questions.*

1. Multiple Choice Questions :

Select **one** most appropriate out of four : **(16×1=16)**

1) Disulfiram acts by inhibition of the enzyme
   a) Dipeptidyl peptidase
   b) Aldehyde dehydrogenase
   c) Phosphodiesterase
   d) Mono-amine oxidase A

2) Picrotoxin is
   a) $GABA_A$ antagonist
   b) Dopamine D_2 antagonist
   c) Barbiturate antagonist
   d) Benzodiazepine antagonist

3) Entacapone is
   a) MAO – B inhibitor
   b) COMT inhibitor
   c) MAO – A inhibitor
   d) None of these

4) DNA gyrase mediated +ve supercoiling is inhibited by
   a) Ciprafloxacin
   b) Methanamine
   c) Nitrofurantoin
   d) None of these

5) Malignant Tertian (MT) malaria is caused by
   a) Plasmodium ovale
   b) Plasmodium vivax
   c) Plasmodium falciparum
   d) Plasmodium malariae

6) Antimalarial drug used in the prophylaxis of Plasmodium falciparum
   a) Pyrimethamine
   b) Proguanil
   c) Primaquine
   d) Mefloquine

7) The drug is used as 1st drug of choice to treat infection due to schistosomes
   a) Metrifonate
   b) Praziquantal
   c) Niclosamide
   d) None of these

8) Skin lesions are with nodules, plaque with thick symmetrical patches
   a) Borderline lepromatous and lepromatous leprosy
   b) Tuberculoid and Borderline leprosy
   c) Midborderline and borderline leprosy
   d) Indeterminate type of leprosy

9) Drug used to treat asymptomatic intestinal amoebiasis
   a) Metronidazole
   b) Diloaxanide furoate
   c) Tinidazole
   d) Tetracycline

10) Drug used to treat life threatening HSV infection
   a) Acyclovir
   b) Foscarnet
   c) Vidarabine
   d) Iodoxuridine

11) The most common adverse effect of Rifampin
   a) Skin rashes
   b) Hypersensitivity reaction
   c) Jaundice
   d) Flu like syndrome

12) "Ivermectin" is used as a drug of choice to treat
   a) Schistosomiasis
   b) Filariasis
   c) Onchocerciasis
   d) Taeniasis

13) Drug is used in 1st line therapy to treat tuberculosis besides Isoniazid and Rifampin
   a) Ethambutal
   b) P-aminosalicylic acid
   c) Streptomyces
   d) Pyrazinamide

14) Antineoplastic drug acts specifically in S phase of cell cycle
   a) Vinblastine
   b) Bluomycin
   c) Methotrexate
   d) Etoposide

15) The antibacterial action of "Macrolide antibiotics"
   a) By binding reversibly to 30 S ribosomal RNA subunits, block amino acyl t-RNA to the acceptor site on mRNA – ribosome complex
   b) By binding to 50 S ribosomal subunit near the peptidyltransferase, prevent transpeptidation reaction
   c) By binding reversibly to 50 S ribosomal RNA subunit, inhibit peptide bond formation
   d) By binding covalently to the active site of specific binding protein, inhibits transpeptidation reaction.

16) Cephalosporin used effectively to treat severe infection due to –ve enterobacteriaceae
   a) Cefadroxil
   b) Cefepine
   c) Cefaclor
   d) Cefixime

2. Answer **any four** : **(4×4=16)**

   a) Write mechanism of action, adverse effects and therapeutic uses of "Chloramphenicol".

   b) Write on photochemotherapy and Vitamin D analog used in the treatment of "Psoriasis".

   c) Describe various factors influencing antimicrobial resistance.

   d) Write mechanism of action of Ciprofloxacin and Metronidazole.

   e) Classify antimicrobial agents with examples.

3. Answer **any four** : **(4×4=16)**

   a) What is glaucoma ? Describe drug therapy used to treat glaucoma.

   b) What are the applications of bioassay ? Explain why tetracycline is avoided in pregnancy ?

   c) Write on pharmacotherapy of "Acne vulgaris".

   d) Write mechanism of action, adverse effects and therapeutic uses of "Cyclophosphamide".

   e) Explain why combination therapy is preferred in the treatment of "tuberculosis" ? Write mechanism of action and adverse effects of "Isoniazid".

4. Answer **any two** : **(8×2=16)**

   a) Classify antimalarial agents with examples and add a note on "Artemissinins".

   b) Write various types of bioassays and describe bioassay of "d-tubocurarine".

   c) Classify antiviral agents with examples and write a note on NRTI.

5. Answer **any two** : **(8×2=16)**

   a) Write on various principles of chemotherapy and add a note on "Macrolide antibiotics".

   b) Write on various types of "Chemoprophylaxis". Add a note on various misuses of antimicrobial agents.

   c) Write mechanism of action and therapeutic uses of "Ivermectin" and "Allbendazole" and add a note on Principles of Bioassay.

———————

SLR-C – 47

Seat No.	

B.Pharmacy (Semester – VIII) Examination, 2016
HERBAL TECHNOLOGY

Day and Date : Tuesday, 10-5-2016 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

1. Multiple choice questions (MCQ)/Objective type questions : **(1×16=16)**

1) Bullet shaped pellets of powered herbs in a cocoa butter base designed for rectal absorption are known as
   a) Suppositories b) Liniments
   c) Salves d) Fomentations

2) Semi-solid preparations of drugs prepared by addition of sugar, jaggery or sugar candy and boiled with prescribed drug juice or decoction are called
   a) Arka b) Arista
   c) Avaleha d) Asava

3) The status of a drug that is determined by identity, purity, content and other chemical, physical or biological properties is defined as
   a) Quality b) Safety
   c) Efficacy d) None

4) Which of the following tools are used for testing the efficacy of drug ?
   a) randomized clinical trials b) case reports
   c) case series d) all the above

5) Total sugar and reducing sugar determinations are the parameters in the quality control of
   a) Vati b) Avaleh
   c) Bhasma d) Taila

6) Cosmetic preparations used for removal of facial make up, surface grime, oil, water and oil soluble soil efficiently from the face and throat are known as
   a) Cleansing creams b) Vanishing creams
   c) Night creams d) Foundation creams

7) In the process of Bhasma preparation the toxic raw metals or minerals are converted into safe and absorbable forms by
   a) Shodhana
   b) Both a) and c)
   c) Marana
   d) None
8) Asava and Arista are belongs to _____ type of preparation.
   a) Ayurvedic
   b) Homopathic
   c) Sidda
   d) Unani
9) Which is not the desired property of Hair dye ?
   a) change the natural color of hair
   b) color the grey hair
   c) change the color of hair temporarily for particular reasons
   d) not change the natural color of hair
10) Herbal medicines that are used for a long time and are documented with their special theories and concepts and accepted by the countries are categorized as
   a) Indigenous herbal medicines
   b) Herbal medicines in systems
   c) Modified herbal medicines
   d) Imported products with a herbal medicine base
11) Monoherbal preparations produce
   a) Uni-directional action and No synergistic action
   b) Multi-directional action and synergistic action
   c) Both a) and b)
   d) None
12) Herbal medicines historically used in a local community or region and very well known through long usage by the local population in terms of its composition, treatment and dosage are categorized as
   a) Indigenous herbal medicines
   b) Herbal medicines in systems
   c) Modified herbal medicines
   d) Imported products with a herbal medicine base

13) Water based infusion designed to achieve herbal therapy through immersion/ osmosis are called as

a) Herbal Baths b) Poultice

c) Liniments d) Salves

14) Viscosity, Iodine value, Saponification value, Acid value etc. are the parameters in Quality control of

a) Hair colorants b) Hair conditioners

c) Hair oils d) None

15) Which is not an ideal property of Hair colorants ?

a) Should give desirable color

b) It should be non-injurious to the hair shaft

c) It should possess no systemic toxic effect or irritation when applied to the hair

d) It should have no affinity for hair keratin

16) Liquid preparation obtained by distillation of certain liquids or crude – drugs soaked in water are called

a) Arka b) Avaleha

c) Arista d) Asava

2. Answer **any four** : **(4×4=16)**

1) Write short note on Processing Methods for Herbal drugs.

2) Describe the classification of Ayurvedic formulations.

3) Define and classify Herbal formulations with examples.

4) Define the following with suitable examples :

Nutraceuticals

Health foods

5) What are Hair conditioners, name 4 herbal drugs used as conditioners ?

3. Answer **any four** : **(4×4=16)**

1) Define the following :

a) Herbal Medicines

b) Phytopharmaceuticals.

2) Write various parameters of standardization of Herbal medicine.
3) Write a short note on Importance of Herbal Medicine.
4) Write a note on Quality control of cosmetics.
5) Define any 4 liquid herbal dosage forms and their use.

4. Answer **any two** : **(8×2=16)**
   1) List out the methods/Parameters in Quality assessment of Herbal drugs as per guidelines recommended by WHO and describe Physical and Chemical evaluation parameters.
   2) Describe the method of preparation and standardization of Asava.
   3) Write note on :
      a) Polyherbal formulations
      b) Import and export of Herbal Drugs.

5. Answer **any two** : **(8×2=16)**
   1) Describe the method of preparation of Avaleha with suitable example and how do you standardize the same ?
   2) Classify herbal skin care cosmetics and describe the methods for quality control of herbal creams.
   3) Write note on :
      a) Packaging and storage of Herbal Drugs
      b) Safety considerations for Herbal Drugs.

———————