SLR-I – 1

Seat No.	

B.Pharmacy (Semester – I) Examination, 2015
PHARMACEUTICS – I (CGPA)

Day and Date : Monday, 7-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1) Third edition of IP was reconstituted under the chairmanship of
   a) B.N. Ghosh b) B. Mukharji
   c) R.N. Chopra d) Nityanand

2) One pound (Lb) = _____ ounces in Apothecaries system.
   a) 16 b) 12 c) 8 d) 20

3) The first edition of National Formulary of United States was published in _____ by American Pharmaceutical Association.
   a) 1975 b) 1868 c) 1820 d) 1858

4) The first edition of Martindale's Extra pharmacopoeia was published in
   a) 1860 b) 1883
   c) 1820 d) None of the above

5) Homoeopathy was proposed by physician
   a) Samuel Hahnemann b) Hippocrates
   c) Dioscorides d) None of these

6) _____ serve as a guide for research on indigenous drugs.
   a) IPC b) BPC c) NF d) USP

7) Following method used for formulation of emulsion
   a) Bottle method b) Wet gum method
   c) Dry gum method d) All of above

8) 'Principle of single remedy', is basic principle of _____ medicines.
   a) Siddha b) Homoeopathy
   c) Unani d) None of above

9) The principles and Doctrines of _____ system have a close similarity to Ayurveda.
   a) Siddha b) Homoeopathy
   c) Unani d) None of above

10) Glycerites contains not less than _____ % weight of glycerine.
   a) 50 b) 60 c) 70 d) 80

11) Astanga Hridaya written by
   a) Acharya Charak b) Acharya sushruta
   c) Acharya Vagabhatta d) Hippocrates

12) _____ is branch of Ayurveda deals with treatment and diagnosis of poisoning.
   a) Vijikaran Tantra b) Kaumarabhritya
   c) Agad Tantra d) Salya

13) _____ is example of semisolid dosage form in Ayurveda.
   a) Lepa b) Pills c) Gutika d) Asava

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

15) One tea spoonful _____ ml.
   a) 4 b) 8 c) 15 d) 30

2. Answer **any five**. **(5×5=25)**

1) Define and classify syrup and write uses of syrups.

2) Discuss unani system of medicine.

3) Give classification, advantages, disadvantages of solution.

4) Give merits and demerits of injectables.

5) What is Batch manufacturing record as per GMP ?

6) Discuss briefly United State Pharmacopoeia.

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

1) Discuss development of Pharmaceutical industries in India.

2) Define and classify dosage form and add short note on need of dosage form.

3) Enlist all parameters of preformulation and explain any four.

4) Add short note on career in pharmacy.

SLR-I – 2

Seat No.	

B.Pharm. (Semester – I) Examination, 2015
PHARMACEUTICAL INORGANIC CHEMISTRY (CGPA)

Day and Date : Wednesday, 9-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1) According to the I.P. sparingly should be _____ volume (ml) per gram of solvent.
A) 100 to 1,000 B) 1 to 10 C) 30 to 100 D) 1,000 to 10,000

2) Synonym of $CuSO_4$ is
A) Cupric sulphate B) Cuprous sulphate
C) Cupric sulphide D) Cupric sulphur

3) The chemical name as sanctioned and employed by _____ is given.
A) IUPAC B) IUPCA C) IUCAP D) IPC

4) The shoulder of cylinder of O_2 is painted with
A) Orange B) Gray C) White D) Black

5) Epsom salt is synonym of
A) $MgSO_4$ B) Na_2CO_3 C) NaCl D) $NaHCO_3$

6) Potassium chloride is assayed by _____ titration.
A) Argentometric titration B) Redox titration
C) Precipitation D) None of above

7) Talc is purified natural
A) Magnesium silicate B) TiO_2
C) Precipited chalk D) None

8) The colour of $CuSO_4$ is
A) Pink B) Yellow C) Blue D) Gray

9) French chalk is
A) Precipited chalk B) Purified talc
C) Baking soda D) Sodium sulphate

10) Lead acetate absorbs
A) Hydrogen sulphide B) Oxygen
C) Hydrogen D) Ozone

11) The indicator used in silver nitrate assay is
A) Phenolphthalein B) Methyl orange
C) Methyl red D) Ferric ammonium sulphate

P.T.O.

12) The formula for potassium permagnate is
A) K_2MnO_4 B) $KMnO_4$
C) K_2SO_4 D) $MnSO_4$

13) The use of zinc sulphate is
A) Astrigent B) Emetic C) Laxative D) None

14) Sun burn and sun tan are caused by
A) Visible region light B) Infrared light
C) Ultra violet light D) Far infrared light

15) _____ is used as saline cathartics.
A) Magnesium sulphate B) Carbon dioxide
C) Calcium gluconate D) None of above

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

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

2) Write a note on electrolyte used in combination therapy.

3) What are antacids ? Explain in detail of sodium containing antacid.

4) Explain copper sulphate as emetics.

5) Which different aspects of drugs covered in as official monograph ?

6) Write a note on carbon dioxide used as official gas.

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

1) Write the principle and reaction involved limit test for arsenic and draw a neat labeled diagram of Guitzeit apparatus with specifications.

2) Write assay of :
1) $Al(OH)_2$ 2) $KMnO_4$ 3) KCl

3) Write properties and reaction
1) Sodium nitrite 2) Ammonium chloride

4) Discuss in detail about cyanide poisoning, how will you treat cyanide poisoning ? Explain with example.

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SLR-I – 3

Seat No.	

B.Pharm. (Semester – I) (CGPA) Examination, 2015
BIOCHEMISTRY – I

Day and Date : Friday, 11-12-2015 Total Marks : 70

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

1. 1) Which of the following enzyme in glycolysis catalyses an irreversible reaction _____ **(1×15=15)**

a) glucokinase b) phosphofructokinase

c) pyruvatekinase d) all of above

2) The simultaneous transport of two different molecules in the opposite direction is called as _____

a) uniport b) symport c) antiport d) cotransport

3) The no. of ATP produced when 2 molecule of acetyl - CoA is oxidized through TCA cycle _____

a) 12 b) 24 c) 32 d) 36

4) _____ transport occurs against a concentration gradient.

a) active b) passive c) facilitated d) osmotic

5) Internal chamber of mitochondria is known as _____

a) matrix b) cytosol c) mitosol d) a and b

6) The glycosaminoglycan that serves as an anticoagulant _____

a) heparin b) hyluronic acid

c) chondroitin sulphate d) dermatan sulphate

7) A sugar alcohol is _____

a) mannitol b) trehalose c) xylulose d) arabinose

8) A positive seliwinoff test is obtained with _____

a) glucose b) lactose c) fructose d) maltose

9) Rancidity of fat is prevented by addition of _____

a) Vitamin E b) Vitamin A c) Copper d) None of the above

10) Solid alcohol from bile is called as _____

a) Cholesterol b) Ergosterol c) Steroids d) Sterol

11) Oxidation of fatty acid takes place at _____ carbon.

a) α b) β c) γ d) δ

12) Special Carnitine transport system is required for _____

a) transport of fatty acid b) activation of fatty acid

c) proper oxidation d) none of the above

13) The transport for which ATP (metabolic energy) is required _____

a) active b) passive c) facilitated d) osmotic

14) The HMP shunt produces _____

a) FMN b) NADPH c) GDP d) FAD

15) Synthesis of glycogen from glucose called _____

a) glycogenesis b) glycogenolysis

c) glycolysis d) gluconeogenesis

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

1) What are compound lipids ? Write down structure and function of phospholipid.

2) Explain the structure and functions of starch.

3) Write short note on fluid mosaic model of cell membrane. Write about transport systems.

4) Explain the terms Acid value, Iodine value, Saponification value.

5) Draw a neat lebelled diagram of eukaryotic cell. Explain structure and function of power house of cell and lysosomes.

6) Explain the significance of phenyl hydrazine test and Fehling's test.

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

1) Explain in detail synthesis of cholesterol, structure and write its significance.

2) Describe the structure and functions of mucopolysaccharides.

3) Explain in detail glycogenesis and glycogenolysis. Add note on its significance.

4) Explain mechanism of β-oxidation of fatty acid. Give energetics.

SLR-I – 4

Seat No.	

B.Pharmacy (Semester – I) (CGPA) Examination, 2015
ANATOMY, PHYSIOLOGY AND HEALTH EDUCATION – I

Day and Date : Monday, 14-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

1. Tick mark the correct answer. **(1×15=15)**

1) Mature RBC survives for _____ day in the circulation.
   a) 2 to 4 days b) 120 days
   c) 11 to 14 days d) 8 to 10 days

2) Duration of ventricular systole is
   a) 0.8 second b) 0.1 second c) 0.3 second d) 0.4 second

3) Expired air contain
   a) less oxygen b) more co_2 c) water vapour d) all of the above

4) Temporary storage of food at
   a) mouth b) oesophagus c) stomach d) intestine

5) Stroke volume × Heart rate = ?
   a) Cardiac output b) Stroke volume
   c) Cardiac reserve d) Total blood volume

6) About _____ Litre of Saliva produced daily.
   a) 1 Litre b) 1.5 Litre c) 2 Litre d) 2.5 Litre

7) Platelets measures _____ size.
   a) 2 to 4 μ b) 12 to 15 μ c) 10 to 12 μ d) 20 to 22 μ

8) _____ is the first part of small intestine.
   a) Duodenum b) Jejunum c) Ileum d) Caecum

9) Blood is a _____ connective tissue.
   a) hardest b) fibrous c) loose d) liquid

10) Special collections of lymphoid tissue constitute the
   a) Spleen b) Tonsils
   c) Payer's patches d) All of the above

11) The ECG originates from _____ and is called as 'sinus rhythm'.
   a) S.A. Node b) A.V. Node
   c) Bundle of His d) Perkinjefibres

12) Lymph node having only _____ efferent lymph vessel.
   a) four to five b) six to seven
   c) seven to eight d) only one

13) _____ one in each lung.
   a) Bronchi b) Bronchioles
   c) Alveoli d) Other than a, b & c

14) The normal pulse rate is about
   a) 60 beats/minute b) 72 beats/minute
   c) 80 beats/minute d) 110 beats/minute

15) Stomach starts from
   a) cardiac orifice b) fundus
   c) lesser curvature d) pyloric orifice

2. Answer **any five**. **(5×5=25)**

A) Give composition and functions of saliva.

B) Explain the anatomy of spleen.

C) Describe erythrocytes with their functions.

D) Define Ingestion, Digestion, Absorption, Defecation and Gastritis.

E) Write a note on different valves in heart.

F) Describe anatomy and physiology of liver.

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

A) Write a note on blood grouping system. Describe erythroblastosis foetalis.

B) Explain lymph node. Add a note on lymphatic circulation.

C) Describe cardiac cycle and correlate it with a normal ECG.

D) Draw a neat labeled diagram of respiratory system. Add a note on larynx as a sound box.

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SLR-I – 5

Seat No.	

B.Pharm. (Semester – I) Examination, 2015
PHARMACOGNOSY – I (CGPA)

Day and Date : Wednesday, 16-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1) Who coined the term pharmacognosy ?
   A) Galen B) Seydler
   C) Theophrastus D) Aristotle

2) Identify the edaphic factor useful for the cultivation of medicinal plants.
   A) Soil B) Soil fertility
   C) Fertilizers D) All of above

3) *Allium sativum* belongs to family _____
   A) Liliaceae B) Lauraceae
   C) Labiatae D) Rutaceae

4) Datura contains _____ type of stomata.
   A) Anomocytic B) Anisocytic
   C) Dicytic D) Paracytic

5) Which of the following is not extraction technique ?
   A) Maceration
   B) Percolation
   C) Decoction
   D) Authentification

6) Identify the crude drug used in textile industry.
   A) Cinnamon B) Cotton
   C) Amla D) Aloe

7) Eugenol is present in _____
   A) Tulsi B) Clove
   C) Both A) and B) D) Cinchona

8) The process of removal of sand, dirt, foreign organic part from original crude drug is called _____

A) Beating B) Harvesting

C) Garbling D) None of above

9) Which of the following parameter is not the physical method of evaluation ?

A) Ash value B) Extractive value

C) Anti-fertility activity D) FOM

10) _____ is packed in goat skin.

A) Aloe B) Squill

C) Asafoetida D) Cod-liver oil

11) _____ belongs to Acanthaceae family.

A) *Plantago ovate* B) *Ocimum sanctum*

C) *Emblica officinale* D) *Adhatoda vasica*

12) _____ is used as cardio tonic.

A) Digitalis B) Cinnamon

C) Podophyllum D) Senna

13) Identify the non-insect pests.

A) Larvae B) Spider

C) Deer D) Mites

14) Which of the following instrument is used for the determination of Ash value of Crude drugs ?

A) Camera lucida

B) Hot air oven

C) Muffle Furnace

D) None of above

15) Stomatal number is an average number of stomata _____ of epidermis of the leaf.

A) Per centimeter

B) Per meter

C) Per micrometer

D) Per square mm

2. Answer **any five** of the following questions : **(5×5=25)**
   1) Explain Siddha system of medicine in detail.
   2) Enlist different methods of cultivation. Write a note on sexual method of propagation.
   3) Write biological source, active constituent and uses of :
      a) Linseed
      b) Sandalwood
   4) Describe general characteristics of bark with suitable examples.
   5) Write a note on organoleptic method of evaluation.
   6) Write a note on different sources of drugs of natural origin.

3. Answer **any three** of the following questions : **(3×10=30)**
   1) Discuss the exogenous factors and endogenous factors affecting cultivation of medicinal plants.
   2) Describe drug adulteration in detail.
   3) Explain different simple permanent tissues present in the plants.
   4) Describe Chinese and Unani systems of medicine in detail.

SLR-I – 6

Seat No.	

B. Pharmacy (Semester – II) (CGPA) Examination, 2015
PHARMACEUTICS – II

Day and Date : Tuesday, 8-12-2015 Total Marks : 70

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

I. Multiple choice question : **(15×1=15)**

1) Convective mixing is a mechanism of _____ mixing.

a) Solid b) Liquid

c) Semisolid d) None of above

2) For mixing of dry particals _____ mixer is used.

a) Triple roller mixer b) Agitator mixer

c) Both a) and b) d) Tumbler mixer

3) Rate of filtration with respect to time is expressed by _____ law.

a) Flux law b) Dorcys law

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

4) _____ is not useful if the solid content of slurry is high or more then 5%.

a) Nutsch filter b) Filter leaf

c) Cartridge filter d) None of above

5) _____ is a wet granulator.

a) Shear granulator b) Fluidized bed granulator

c) High speed mixer granulator d) All of above

6) _____ powder is normally dispensed in glass or metal container with a perforated lid.

a) Dusting powder b) Ear powder

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

P.T.O.

7) Comminution is also called as _____

a) Size separation b) Size reduction

c) Granulation d) None of above

8) Based on impact and attrition _____ mill works.

a) Ball mill b) Fluid energy mill

c) Pin mill d) All of above

9) Levigation is also called as _____

a) Dry grinding b) Wet grinding

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

10) _____ is added to get deep blue color of glass.

a) Cobalt oxide b) Iron oxide

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

11) To improve flow properties, softness and flexibility _____ is added in plastics.

a) Talc b) Cresol

c) Phthalate ester d) None of above

12) _____ is an example of medicated fibres.

a) Silk b) Absorbent cotton

c) Capsicum wool d) None of above

13) _____ can be used as binder.

a) Starch b) Acacia

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

14) Surfactant having HLB value 7-9 used for

a) Emulsifying agent b) Wetting agent

c) Foaming agent d) Suspending agent

15) _____ is used as sweetener in tooth powder.

a) Saccharine b) Peppermint c) Menthol d) Vanillin

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

1) Define term size reduction write its mechanisms and objective.
2) Describe in brief formulation of tooth powder.
3) Write a note on selection of packaging material.
4) Write construction and working of cartridge filter.
5) Discuss surfactant as pharmaceutical additives.
6) Describe the wet granulation process for preparation of granules.

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

1) With neat labeled diagram explain construction and working of fluid energy mill.
2) Discuss mechanism of fluid mixing. Draw a neat labeled diagram of sigma blade mixer and double cone blender.
3) Explain method of manufacturing of cat gut and explain method of sterilization of it.
4) Explain in detail about additives used in cosmetics. Add a note on sensitivity and irritation test for cosmetics.

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SLR-I – 7

Seat No.	

B. Pharmacy (Semester – II) (CGPA) Examination, 2015
MODERN DISPENSING AND HOSPITAL PHARMACY

Day and Date : Thursday 10-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

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

2) _____ includes directions to the pharmacist for preparing the prescription
   a) Subscription b) Superscription
   c) Inscription d) None of these

3) Which of the following formula is used to calculate the dose for children based on weight ?
   a) Young's Formula b) Fried's Formula
   c) Cowling's Formula d) Clark's Formula

4) Meaning of term "Si Opus Sit" means
   a) When required b) Before meals
   c) At night d) None of the above

5) 1 fluid ounce is equal to
   a) 60 b) 120 c) 30 d) None of these

6) Central sterile service involved in _____
   a) Supply of sterile products b) Maintaining sanitation
   c) Fixing dose of patient d) All of these

7) To convert deionised water into isotonic solution sodium chloride is required to be added in the concentration _____
   a) 0.1% w/v b) 1% w/v c) 9% w/v d) 0.9% w/v

8) Carbon dioxide is used as
   a) Isotonicity adjuster b) Respiratory stimulant
   c) Antidiarrhoeal d) Painkiller

9) The term used to describe a person confined to hospital bed is _____
   a) In patient b) Ambulatory patient
   c) Outpatient d) None of these

10) PTC stands for _____
   a) Pharmacy training centre
   b) Pharmacy and therapeutic committee
   c) Physiotherapy centre
   d) None of these

11) Radiopharmaceuticals are used in treatment of _____
   a) Cold and cough b) Cancer
   c) Hair fall d) Fever

12) The solution which are not having same osmotic pressure are known as _____
   a) Hypotonic b) Hypertonic
   c) Isotonic d) Paratonic

13) The colour code for Cyclopropane cylinder is
   a) Grey b) Brown c) Orange d) Blue

14) The minimum number pharmacists are required for small hospital is
   a) 3 b) 5 c) 1 d) 2

15) Who is the secretary of the pharmacy and therapeutics committee ?
   a) Physican b) Nurse
   c) Pharmacist d) None of these

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

a) What is radio pharmaceutical ? Explain the clinical application of radiopharmaceutical in pharmacy.

b) Discuss in detail responsibility of hospital pharmacist in Inpatient pharmacy department.

c) Explain the objective and content of hospital formulary.

d) Define Posology. Write the factor affecting on dose.

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

f) Explain the organizational structure of hospital.

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

a) Define and classify incompatibility. Describe the therapeutic incompatibility with examples.

b) What is prescription ? Write a note on pricing and handling of prescription.

c) Discuss in detail the role of pharmacy and therapeutic committee in drug safety and adverse drug reaction.

d) Explain the Hospital instruments and health accessories used in hospital.

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SLR-I – 8

Seat No.	

B.Pharmacy (Semester – II) (CGPA) Examination, 2015
ORGANIC CHEMISTRY – I

Day and Date : Saturday, 12-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1) The _____ effect refers to the polarity produced in a multiple bonded compound and it is approached by a reagent.
   a) Inductive b) Mesomeric
   c) Electromeric d) Hyperconjugation

2) _____ attacks region of high electron density in the substrate molecule.
   a) Nucleophile b) Electrophile
   c) Carbocation d) Free radical

3) In inductive effect _____ group having greater positive inductive effect.
   a) Tertiary alkyl b) Secondary alkyl
   c) Primary alkyl group d) None of the above

4) Acid that can accept an electron pair and base that can donate electron pair according to _____ concept.
   a) Lewis b) Bronsted-Lowry
   c) Arrhenius d) None of the above

5) Alkyl halide undergoes _____
   a) Electrophilic substitution reaction
   b) Electrophilic addition reaction
   c) Nucleophilic substitution reaction
   d) Electrophilic addition reaction

6) The rate of SN^2 reaction depend upon _____
   a) Concentration of substrate b) Concentration of nucleophile
   c) Temperature d) Both a) and b)

7) In Victor Meyer test secondary alcohol produce _____ colour.
   a) Blue colour
   b) Red blood colour
   c) Green colour
   d) Colourless

8) The hydrogen or positive end of reagent becomes attacked to the double bond bearing carbon atom with higher number of Hydrogen according to _____
   a) Morkovnikov rule
   b) Antimorkovnikov rule
   c) Saytzeff rule
   d) Hoffmann rule

9) In dienes undergoes addition of HBr gives 1, 4 addition product at _____
   a) Low temperature
   b) High temperature
   c) Moderate temperature
   d) Cold temperature

10) The hyperconjugation effect takes place through the interaction between _____ electron.
   a) Sigma and pi
   b) Sigma and sigma
   c) pi and pi
   d) Sigma and n

11) When carboxylic acid is reacted with alcohol in the presence of sulphuric acid to form _____
   a) Ether
   b) Ester
   c) Sulphate salt
   d) Acetaldehyde

12) The following reaction involve the formation of alkene except
   a) Dehydration of alcohol
   b) Dehydrohalogenation of alkyl halide
   c) Pyrolysis of alkans
   d) Reduction of carbonyl compound

13) When _____ is used for dehydrohalogenation the difficulty is overcome and this reagent cause the migration of triple bond towards the end of carbon chain.
   a) NH_3
   b) $NaNH_2$
   c) $NaNO_2$
   d) $NaNO_3$

14) What is the IUPAC name for given structure $CH_2 = CH – CHO$?

a) 1-propanal b) 2-propanal

c) 2-propanol d) 1-propanoic acid

15) Addition of water molecule is called as _____

a) Hydrogenation b) Hydration

c) Dehydration d) Hydroboration

2. Answer **any five** : **(5×5=25)**

1) Define polarity of bond, molecular orbital and electronegativity.
2) Write structure, generation, stability and reaction of carbanions.
3) Explain electromeric effect and hyperconjugation effect.
4) Explain Markovnikov rule with example.
5) Define diene classify with example.
6) Write method of preparation and reaction of alkynes.

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

1) Explain E1 and E2 reaction mechanism.
2) Explain the theories of acids and bases and define ionization constant.
3) Write method of preparation and reaction of alcohol.
4) Explain SN1 and SN2 reaction mechanism.

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SLR-I – 9

Seat No.	

B. Pharm. (Semester – II) (CGPA) Examination, 2015
BIOCHEMISTRY – II

Day and Date : Tuesday 15-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

1. Write the appropriate answer from following multiple choice questions : **(1×15=15)**

1) The enzyme which is catalyzing synthase reaction is called as
   a) Ligases b) Isomerase c) Hydrolases d) None of these

2) A good example of Suicide inhibition is
   a) Allopurinol b) Xanthate c) Both of these d) None of these

3) _____ drug is used in alcoholism.
   a) Disulfiram b) Phenol c) Methotrexate d) None of above

4) Lock and key model theory was proposed by
   a) Fischer b) Markson c) Hamilton d) None of these

5) _____ is used is diagnostic marker in alcoholism.
   a) CMP b) GGT c) AMP d) cGMP

6) _____ is present in epidermal tissues.
   a) Alpha-keratin b) Collagen c) Ellastin d) None of these

7) Estimation of Nitrogen in Laboratory is almost done by _____ method.
   a) K.Jeldahs b) Karlson c) Helixon d) None of these

8) _____ is sulpher containing amino acid.
   a) Valline b) Cystine c) Alanine d) None of these

9) _____ reaction is effectively used for the quantitative determination of amino acid and protein.
   a) Ninhydrin b) Elimination c) Wagner d) None of these

10) _____ is 200 times sweeter than sucrose.
a) Glucose b) Aspartame c) Mannose d) None of these

11) _____ essential amino acid have to be provided through diet.
a) 5 b) 10 c) 100 d) None of above

12) The enzyme _____ catalyses formation of peptide bond.
a) Peptidyltransferase
b) Peptidylisomerase
c) Protein-kinase
d) None of these

13) The complimentary base pairing in DNA helix proves _____ rule.
a) Whatson & Krick b) Chargaff's
c) Sequence d) None of these

14) A loss of DNA double helical structure is known as
a) Denaturation b) Aligation
c) Combination d) None of these

15) An example of aromatic amino acid is
a) Histidine b) Phenylalanine
c) Lysined d) Glycine.

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

1) Write in brief about types of RNA.

2) Write classification and biological function of proteins.

3) Give details in brief about biosynthesis of protein.

4) Explain in short Ninhydrin test, Biuret test and Sakaguchi test.

5) Explain the term enzyme induction.

6) Give details of oxidative phosphorylation.

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

   1) Explain in detail biological oxidation.

   2) What is protein metabolism ? Explain in detail decarboxylation of amino acid.

   3) Explain in detail process of replication.

   4) Explain factors affecting on enzymes. Add note on mechanism of enzyme action.

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SLR-I – 10

Seat No.	

B. Pharm. (Semester – II) (CGPA) Examination, 2015
ANATOMY, PHYSIOLOGY AND HEALTH EDUCATION – II

Day and Date : Thursday, 17-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1) Secretion of Renin is stimulated by _____ cells in glomerulus.
   A) Sertoli B) Macula lutea
   C) Macula densa D) Ciliated epithelium

2) Facial nerve is designated as Nerve
   A) VI B) VII C) VIII D) IX

3) Which of the following infectious disease is known as Lockjaws ?
   A) Tuberculosis B) Paralysis
   C) Tetanus D) Measles

4) Which of the following structure in internal ear is responsible for auditory sensation ?
   A) Cochlea B) Semi lunar duct
   C) Urticle D) Saccule

5) Which of the following hormone is secreted by neurohypophysis ?
   A) Melanocyte stimulating hormone
   B) Oxytocin
   C) Prolactin
   D) Luteinizing hormone

6) Midbrain is also known as
   A) Diencephalon B) Mesencephalon
   C) Prosencephalon D) Rhombencephalon

7) In normal adult, Glomerular filtration rate is

A) 30 ml/min B) 75 ml/min

C) 125 ml/min D) 5000 ml/min

8) Filariasis is caused by

A) *Leishmania donovani*

B) *Corynebacterium diphtheria*

C) *Clostridium tetani*

D) *Wuchereria bancrofti*

9) The part of sperm which helps in penetration of sperm in secondary oocyte is

A) Flagellum B) Mitochondria

C) Nucleus D) Acrosome

10) Which of the following is chemical sensation ?

A) Gustatory B) Optic C) Auditory D) Touch

11) Conversion of Angiotensin I to Angiotensin II is carried out in

A) Liver B) Kidney C) Lungs D) Adrenal cortex

12) The method in which vas deference is cut and tied for birth control is

A) Vasectomy B) Tubectomy

C) Coitus interruptus D) Rhythm method

13) pH of semen is

A) 4.3-5.1 B) 7.2-7.7 C) 9.3-9.9 D) 10.6-11.2

14) In the sliding filament theory, Calcium ion binds with

A) Tropomyosin B) Troponin

C) Actin D) Calcitonin

15) Glucagon is secreted by _____ cells of pancreas.

A) Alpha B) Beta C) Delta D) F

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

   1) Describe any one example of control of hormonal secretion by negative feedback mechanism.
   2) Describe the physiology of vision.
   3) Write a note on types, causes, symptoms and precautions in diabetes mellitus.
   4) Describe the structure of spinal cord with the help of a neat labeled diagram.
   5) Describe the principal actions of insulin and glucagon.
   6) Write a note on microscopic anatomy of skeletal muscle.

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

   1) Write a detailed note on functions of sympathetic and parasympathetic nervous system.
   2) Discuss the physiology of Menstruation.
   3) Describe the anatomy of Renal system.
   4) Write a note on causative organism, mode of transmission, symptoms and prevention of typhoid and tuberculosis.

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SLR-I – 11

Seat No.	

B.Pharmacy (Semester – III) Examination, 2015
PHYSICAL PHARMACY – I
(New) (CGPA)

Day and Date : Monday, 7-12-2015 Max. Marks : 70

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

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

1) The osmotic pressure of solution at given temperature is depend on
   A) Volume of solution B) Internal energy
   C) Concentration of solute D) Atmospheric pressure

2) The fluidity of liquids _____ with increase in temperature.
   A) Decreases B) Remains the same
   C) Increases D) None of these

3) The compressibility factor, z for an ideal gas is
   A) Zero B) Less than one
   C) Greater than one D) Equal to one

4) The thermochemical equation may be
   A) substracted B) added C) multiplied D) all of these

5) Viscous oils generally exhibit
   A) Newtonian flow B) Pseudoplastic flow
   C) Plastic flow D) Dilatants flow

6) According to Raoult's law, if solution showing positive deviation indicates
   A) increase in solubility B) decreases in solubility
   C) solubility remains constant D) none of these

7) Solubility of gas _____ with decrease in pressure.
   A) increases B) decreases C) remains same D) none of these

8) Amorphous form of drug dissolves _____ than the crystalline form.
   A) faster B) slower
   C) equal to D) does not dissolve

9) The change of state from a solid directly to a gas is called as
   A) evaporation B) fusion C) sublimation D) boiling

10) Liquids with high intermolecular forces have _____ viscosity.
A) high B) intermediate C) low D) none of these

11) Heat of combustion is always
A) positive B) negative C) zero D) none of these

12) How many parts of solvent needed to dissolve soluble solute ?
A) 10 to 30 parts B) 1 to 10 parts
C) 20 to 100 parts D) 100 to 1000 parts

13) On dissolving common salt in water it is observed that
A) vapor pressure is increased
B) freezing point is raised
C) boiling point of solution is decreased
D) boiling point of solution is increased

14) A spontaneous change is accompanied by _____ of internal energy.
A) decreases B) increase
C) neither increase nor decreases D) none of these

15) For the study of distribution law the two solvents should be
A) volatile B) reacting with each other
C) not miscible D) miscible

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

a) State and explain Raoult's law for vapor pressure lowering. Prove that depression of freezing point is a colligative property.

b) Define viscosity. Explain multipoint viscometers.

c) What is polymorphism ? Add note on Bragg's method of crystal analysis.

d) Explain why efficiency of a heat engine can never be 100 percent.

e) Explain partition coefficient.

f) Add a note on enthalpy and entropy.

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

a) Classify rheological systems with examples. Explain thixotropy in detail.

b) Describe various methods for liquefaction of gases.

c) Discuss phase rule. Explain phase diagram for one component system.

d) Define osmotic pressure. Explain in detail determination methods of osmotic pressure.

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SLR-I – 12

Seat No.	

B.Pharmacy (Semester – III) (New CGPA Pattern) Examination, 2015
PHARMACEUTICAL ENGINEERING

Day and Date : Wednesday, 9-12-2015 Total Marks : 70

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

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

1) Following is example of static bed dryer
   A) Fluidised bed dryer B) Spray dryer
   C) Drum dryer D) None of the above

2) Flash distillation process also referred as
   A) Rectification B) Equilibrium distillation
   C) Azeotropic distillation D) Differential distillation

3) In hydraulics pressure energy is measured in terms of _____ Unit.
   A) Meter B) Joule C) Kilo Joule D) N/m^2

4) In which evaporator heat transfer takes place through the tube and liquid is present outside of the tube ?
   A) Horizontal tube evaporator B) Vertical evaporator
   C) Climbing tube evaporator D) Falling film evaporator

5) Thermolabile substances such as insulin, liver extracts and vitamins are concentrated by
   A) Falling film evaporator B) Climbing film evaporator
   C) Vertical tube evaporator D) Fluidised bed dryer

6) Excellent solid-gas contact and uniform drying is achieved by which dryer ?
   A) Spray dryer B) FBD C) Freeze dryer D) Tray dryer

7) Following factor influences rate of evaporation
   A) Temperature B) Surface area
   C) Film and deposits D) All of the above

8) Attrition of particles and formation of fines is disadvantage of
   A) Spray dryer B) Fluidised bed dryer
   C) Tray dryer D) Freeze dryer

9) _____ is also called as insertion meter.
   A) Orifice meter B) Venturi meter C) Pitot tube D) Manometer

10) Equation for Reynolds number (Re) is
   A) Dup/η B) η/Dup
   C) Inertial forces/Viscous forces D) A and C

11) If a system showing boiling point of a mixture is always intermediate between those of pure components then the mixture is called as
   A) Azeotropic mixture B) Zeotropic mixture
   C) Type II solution D) None of the above

12) _____ is a mechanical device used to increase pressure energy of a liquid.
   A) Deck valve B) Pot valve C) Pump D) All of the above

13) Following is example of centrifugal pump
   A) Volute pump B) Gear pump C) Plunger pump D) Piston pump

14) Which conveyor is used in manufacturing of lozenges ?
   A) Screw B) Belt C) Pneumatic D) Chain

15) Gear pumps are extensively used
   A) Transporting liquids containing solids
   B) Aqueous film coating
   C) HPLC
   D) None of the above

2. Answer **any five** of the following. **(5×5=25)**
   1) Describe the construction, working and uses of diaphragm pump with suitable diagram.
   2) What is Pressure Head ? How it is calculated ?
   3) Write important steps in construction of boiling point composition curves.
   4) Define drying and give its importance in formulation of dosage form.
   5) Describe construction and pharmaceutical applications of belt conveyor.
   6) Explain the term energy balance and give its applications.

3. Answer **any three** of the following : **(3×10=30)**
   1) Derive Bernoulli's equation stating its assumptions.
   2) Explain construction and working of Rising Film Evaporator with diagram. Give its advantages and disadvantages.
   3) Define fractional distillation. Explain in detail sequence of boiling point-composition diagram in fractional distillation.
   4) Give principle, construction and working of freeze dryer with suitable diagram.

SLR-I – 13

Seat No.	

B.Pharmacy (Semester – III) Examination, 2015
ORGANIC CHEMISTRY – II (New – CGPA)

Day and Date : Friday, 11-12-2015 Total Marks : 70

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

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

1) In Indophenin reaction Thiophene gives _____ color when it is added to a solution of Isatin in sulphuric acid.

a) Violet b) Brown c) Blue-Green d) Red

2) Name the reaction in which Benzyne reacts with 1,3 Butadiene _____ reaction.

a) Substitution b) Diel's-alder c) Elimination d) None of these

3) 3-Hydroxyl butanal is final compound obtained in _____

a) Aldol Condensation b) Reformatsky reaction

c) Cannizzaro's reaction d) Knoevenagel reaction

4) Gabriel phthalamide method is used for synthesis of _____

a) Tertiary amines b) Secondary amines

c) Primary amines d) None of these

5) Pyrimidine undergoes nucleophilic reaction with $NaNH_2$ at 100° C to form _____

a) 2-amino pyridine b) 3-amino pyridine

c) 4-amino pyridine d) both a) and c)

6) Anthracene upon oxidation with O_2/N_2O_5 at 500° C gives _____

a) Benzoic acid b) Anthraquinone

c) Pthalic acid d) Benzophenone

7) Benzene reacts with chlorine in the presence of $FeCl_3$ catalyst to form _____

a) Hexchlorobenzene b) Chlorobenzene

c) Hexochlorocyclohexane d) Benzyl chloride

8) When ketone reacted with α -bromo ester in the presence of _____ results in formation of β-hydroxy ester.

a) Aq. NaOH b) Zn/ether, H_2O c) Pipridine d) CH_3COOH

9) When Formaldehyde is treated with 50% NaOH solution it undergoes _____

a) Cannizzaro's reaction b) Wurtz reaction

c) Aldol Condensation d) Hydrolysis

10) Acetic anhydride is obtained by the reaction of _____

a) Acetic acid and Sodium b) Acetic acid and Water

c) Acetic acid and Diethyl ether d) Acetic acid and P_2O_5

11) In Koch reaction, Alkene is heated with CO in presence of H_3PO_4 at 400° C final product is

a) Anhydride b) Alcohol c) Carboxylic acid d) Ester

12) Phenol is used as _____

a) In alcoholic beverages b) Anesthetic

c) Antiseptic d) Moth repellent

13) 2-Formyl pyrrole can be prepared from pyrrole in presence of

a) $CHCl_3$/KOH b) $(CH_3CO)_2O/SnCl_2$

c) H_2O_2 d) HCOOH

14) When phenol is treated with neutral $FeCl_3$ solution it develops _____

a) Violet b) Green c) Yellow d) Nothing happen

15) Preparation of diazonium salt from a primary aromatic amines is known as

a) Coupling reaction b) Sandmeyer reaction

c) Diazotization d) Corey-House synthesis

2. Answer **any five**. **(5×5=25)**

A) Write reactions of quinoline and isoquinoline.

B) Explain the Huckel's rule with suitable examples.

C) Write reactions of carboxylic acids.

D) What are phenols ? Give any four reactions of phenols.

E) Write general methods of preparations of aldehydes and ketones.

F) Write preparation of esters and amides.

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

A) Discuss in detail mechanism of

1) Knoevenagel reaction

2) Perkin reaction

3) Aldol condensation.

B) Write in detail about methods of preparations and structural elucidation of naphthalene. Write reactions of Anthracene.

C) Write in detail mechanism of electrophilic aromatic substitution reaction in benzene with suitable example.

D) Give the methods of preparations and reactions of Pyrrole and Pyridine.

SLR-I – 14

Seat No.	

B.Pharm. (Semester – III) Examination, 2015
PHARMACEUTICAL ANALYSIS – I (New-CGPA)

Day and Date : Monday, 14-12-2015 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

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

1) The color change for methyl orange is _____
   A) Red – Yellow
   B) Yellow – Red
   C) Yellow – Blue
   D) Colorless – Red

2) For strong acid-strong base pH at equivalence point is _____
   A) 7< B) 7> C) 7 D) none

3) Zeros at the end of the no. and to the left side of the assumed decimal point (are) _____
   A) Significant
   B) Not significant
   C) May or may not significant
   D) None

4) Assay of aspirin is based on _____ type of titration.
   A) Back B) Blank
   C) Both A) and B) D) None

5) 40 gm NaOH in 100 ml gives _____ M solution.
   A) 0.05 B) 0.5 C) 1 D) 2

6) Assay of KCl powder is based on _____ method.
   A) Mohr's B) Volhard's
   C) Fajan's D) Gay-Lussac

P.T.O.

7) Conductometry is _____ method.
   A) Qualitative
   B) Chromatographic
   C) Classical
   D) Electro-chemical

8) Lack of knowledge introduces _____ error.
   A) Operational B) Instrumental
   C) Personal D) Method

9) _____ is not an oxidizing agent.
   A) $KMnO_4$ B) $K_2Cr_2O_7$
   C) $KBrO_3$ D) None

10) Difference between true value and observed value with regard to sign is known as _____
   A) Error B) Absolute error
   C) Relative error D) Precision

11) Combination of two ionic species to form insoluble product is _____
   A) Solubilisation B) Precipitation
   C) Oxidation D) Reduction

12) Benzoic acid can be used as _____
   A) Titrate
   B) Titrant
   C) Primary standard
   D) Both A) and C)

13) Each ml of 0.1 M potassium bromate $\approx$ _____ gm of $C_6H_7N_3O$.
   A) 0.004346 B) 0.003429
   C) 0.005687 D) 0.001229

14) In standardization of iodine for dissolution of arsenic trioxide _____ is used.
   A) NaOH B) HCl
   C) H_2SO_4 D) $Na_2S_2O_3$

15) Volhard's method is based on _____ type of titration.
   A) Back B) Blank
   C) Both A) and B) D) Direct

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

   1) Define acid and base according to different theories.

   2) Write a note on turbidity method.

   3) Explain in detail principle behind assay of potassium chloride and aspirin.

   4) How will you prepare 500 ml of 0.5 M NaOH ? Give its standardization with its principle.

   5) Explain in detail Henderson-Hasselbatch equation.

   6) Explain in detail end point detection in redox titrations.

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

   1) Explain neutralization curve for titration of weak acid-weak base.

   2) Define error. Explain the all possible errors in volumetric analysis. Add a note for their minimization.

   3) Explain in detail cerriometry.

   4) Explain in detail Fajan's and Volhard's method.

SLR-I – 15

Seat No.	

B.Pharmacy (Semester – III) Examination, 2015
(New CGPA)
PATHOPHYSIOLOGY AND CLINICAL BIOCHEMISTRY – I

Day and Date : Wednesday, 16-12-2015 Total 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) Which of the following statement is a TRUE statement ?

a) Ischemia injures the tissues faster than hypoxia

b) Hypoxia injures the tissues faster than ischaemia

c) Ischemia leads to irreversible cell injury and hypoxia leads to reversible cell injury

d) Ischemia and Hypoxia have same meaning and significance

2) Important event(s) in irreversible cell injury is/are _____

a) Mitochondrial Dysfunction b) Membrane Damage

c) Cellular swelling d) Both a and b

3) Body water balance is regulated chiefly by _____

a) Aldosterone and Antidiuretic Hormone

b) Renin and Angiotensin

c) Atrial Natriuretic peptide and Renin

d) Vasopressin and Angiotensin

4) Match A with B and choose most appropriate alternative from a, b, c and d.

A. Body Fluid Electrolytes	B. Plasma Concentration
i) Sodium	w) 22 – 26 mEq/Lit
ii) Potassium	x) 95 – 105 mEq/Lit
iii) Bicarbonate	y) 136 – 142 mEq/Lit
iv) Chloride	z) 3.5 – 5.0 mEq/Lit

a) i-y, ii-x, iii-z, iv-w b) i-y, ii-z, iii-w, iv-x

c) i-w, ii-x, iii-y, iv-z d) i-z, ii-w, iii-x, iv-y

5) Which of the following is NOT a phagocytic cell involved in process of inflammation ?

a) Blood Monocytes b) PMN Neutrophils

c) Macrophages d) Lymphocytes

6) _____ is a characteristic feature of Osteoarthritis visible in X-ray.

a) Joint Space Narrowing b) Osteophyte Development

c) Both a and b d) All of these

7) _____ of the following is the most common cause for both Gastric and Duodenal Ulcers.

a) Helicobacter pylori b) Hypersecretion

c) Bile reflux d) Cancer

8) Identify FALSE statement from the following.

a) Crohn's Disease is a form of IBD characterized by transmural inflammation

b) Crohn's Disease commonly affects distal 1/3rd ileum and colon

c) Crohn's Disease is a continuous inflammation on mucosal surface without skip areas

d) Stricture and Fistula formation are local complications of Crohn's Disease

9) _____ among the following is Hepatotrophic Virus with a DNA genome.

a) HAV b) HBV c) HCV d) HDV

10) _____ of the following is a common pathogen associated with Acute Pyelonephritis.

a) *Proteus mirablis* b) *Pseudomonas aeruginosa*

c) *Staphylococcus aureus* d) *Escherichia coli*

11) Ischemic ATN is also called _____

a) Tubulolytic ATN reflux b) Tubulorrhectic ATN

c) Interstitial Nephrosis d) Nephrosclerosis

12) Match X with Y and choose most appropriate alternative from options a, b, c and d

X	Y
1) Acute GN	M) Ischemia
2) Acute pyelonephritis	N) Streptococcal infection of throat
3) ATN	O) E. coli

a) 1-P, 2-O, 3-N b) 1-N, 2-O, 3-M

c) 1-O, 2-M, 3-N d) 1-M, 2-N, 3-O

13) Development of blood vessels which supply oxygen and nutrients to cancer cells is called _____

a) Mutagenesis b) Carcinogenesis

c) Angiogenesis d) Metastasis

14) _____ is an example of Inducer carcinogen.

a) Benzpyrene in cigarette smoke b) Beta propiolactone

c) Phenols d) Drugs

15) 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

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

A) Write causes of cell injury in detail.

B) Write etiopathogenesis of Dehydration and Overhydration.

C) Define Gout. Write etiology, pathogenesis and manifestations of Gout.

D) Differentiate between Corhn's Disease and Ulcerative Colitis.

E) Define Glomerulonephritis. Write its types.

F) Define Cancer. Write causes and steps involved in pathogenesis of Malignant Tumors.

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

A) Describe different buffer systems involved in regulation of acid-base balance of body fluids. Illustrate how Bicarbonate-Carbonic Acid buffer system maintains pH of blood with the help of Henderson Hasselbach Equation.

B) Write detailed account of Alcoholic Hepatic Cirrhosis including risk factors, pathogenesis, manifestations and complications.

C) Define Chronic Renal Failure. Write etiopathogenesis and manifestations of Chronic Renal Failure.

D) Define Degenerative joint Diseases. Write etiology, pathogenesis and manifestations of Osteoarthritis.

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SLR-I – 17

Seat No.	

S.Y.B.Pharm. Examination, 2015
(Annual Pattern)
ELEMENTS OF CALCULUS AND BIO-STATISTICS

Day and Date : Tuesday, 22-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

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

1) $\int_0^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}}\, dx =$

a) $\frac{\pi}{2}$ b) $\frac{\pi}{4}$

c) 0 d) None of these

2) Series expansion of cosx is

a) $x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \ldots.$ b) $1 - x + \frac{x^2}{2!} - \frac{x^3}{3!} + \ldots.$

c) $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \ldots.$ d) None of these

3) Rank of matrix $A = \begin{bmatrix} 4 & 5 \\ 3 & 0 \\ 2 & 1 \end{bmatrix}$ is

a) 1 b) 2 c) 3 d) None of these

4) If $y = \frac{1}{ax + b}$ where a and b are constants, then the n^{th} order derivative y_n is

a) $\frac{n\,!\,a^n}{(ax + b)^{n+1}}$

b) $\frac{(-1)^n\, n\,!\,a^n}{(ax + b)^{n+1}}$

c) $\frac{n\,!\,a^n}{(ax + b)^{n-1}}$

d) None of these

5) The partial fractions of the function $f(x) = \frac{x^2 + 2}{(x - 1)(x + 2)(x + 3)}$ dx is of the type

a) $\frac{A}{x - 1} + \frac{B}{x + 2} + \frac{C}{x + 3}$

b) $\frac{Ax + B}{x - 1} + \frac{B}{x + 2} + \frac{C}{x + 3}$

c) $\frac{A}{x - 1} + \frac{Bx + C}{x + 2} + \frac{C}{x + 3}$

d) $\frac{A}{x - 1} + \frac{B}{x + 2} + \frac{Cx}{x + 3}$

6) $f(x) = 2x^2 - 7x + 10$ over (2, 5) according to Lagrange's MVT, the value of C =

a) $\frac{5}{2}$ b) $\frac{7}{2}$

c) 7 d) 4

7) The solution of differential equation $\frac{d^2y}{dx^2} - y = 0$ is

a) $y = A\cos x + B\sin x$

b) $y = Ae^x + Be^{-x}$

c) $y = Ae^x + B\sin x$

d) $y = A\cos^{-1}x + B\sin^{-1}x$

8) The continuous theoretical distribution is

a) Poisson

b) Binomial

c) Normal

d) None

9) If the mean, mode and S.D. of intraocular pressure (mm/Hg) of a group of patients is 16.83, 51.67 and 14.80 respectively, then the value of coefficient of skewness is

a) –0.327 b) –0.35

c) 0.032 d) None

10) If the correlation coefficient between two variables x and y is 0.4 then the correlation coefficient between –2x and –2y is

a) 0.4 b) –0.4

c) –0.8 d) 0.8

11) Let X be a binomial random variable with parameter n and p if n = 10 and mean E(X) = 6 then P =

a) $\frac{2}{5}$ b) $\frac{3}{5}$

c) $\frac{13}{5}$ d) $\frac{6}{5}$

12) Any two events A and B on sample space S are said to be mutually exclusive if

a) $A \cap B = S$

b) $A \cap B = \phi$

c) $A \cup B = S$

d) None

13) The mode of the following distribution is

Fine (Rs.)	25	25	45	55	65
No. of students	14	23	27	21	15

a) 65 b) 27

c) 45 d) None

14) The mean and standard deviation of 50 observation is 40 and 10 respectively. If each observation is increased by 5 then the new mean and standard deviation is _____ and _____ resp.

a) 45, 15

b) 40, 15

c) 45, 10

d) None

15) The best measure of dispersion is

a) Mean deviation

b) Quartile deviation

c) Standard deviation

d) None

16) The blood glucose level (mg/dl) of same age is 108, 109, 104, 102, 106, 121 then the value of median is

a) 107

b) 106

c) 18

d) 103

SECTION – I

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

a) Verify Lagrange's mean value theorem for the function
$f(x) = (x - 1)(x - 2)(x - 3)$, for $x \in [0, 4]$.

b) Evaluate : $\int_0^{\pi/2} x^2 \sin 2x \, dx$.

c) Solve : $(D - 2)(D - 3) = e^{4x}$.

d) If $u = \log r$, $r^2 = x^2 + y^2$. Prove that $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$.

e) If $A = \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -1 \\ 1 & 3 \end{bmatrix}$. Is AB = BA ?

f) Find n^{th} derivative of $y = \tan^{-1} \frac{1+x}{1-x}$.

3. a) Using Lagrange's interpolation formula. Find the value of y when x = 3 from

x	1	2	5	7
f(x)	3	5	8	12

. **(8×2=16)**

b) Solve the following equations by matrix method :

$2x - y + 3z = 9$

$x + y + z = 6$

$x - y + z = 2$

OR

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

$$A = \begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}.$$

SECTION – II

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

a) Calculate the first and third quartile from the following data :

X	15 – 25	25 – 35	35 – 45	45 – 55	55 – 65	65 – 75
f	33	58	46	27	30	24

b) Fit a straight line to the following data :

X	0	1	2	3	4	5
Y	1	2	3	4.5	6	7.5

c) Calculate the regression equation of Y on X and estimate the value of Y when X = 70 from the following data :

X	78	56	98	55	75	82	90	62
Y	84	61	91	60	68	62	85	58

d) Calculate the standard deviation and coefficient of variation :

X	30 – 50	50 – 70	70 – 90	90 – 110	above 110
Y	14	62	69	48	27

e) Find the coefficient of correlation of the data given below :

$n = 20,\ \sum x = 80,\ \sum x^2 = 1680,\ \sum y = 40,\ \sum y^2 = 320,\ \sum xy = 480$

Comment on your result.

f) A problem in probability is given to two students A and B, the probability of solving then are $\frac{1}{3}$ and $\frac{1}{4}$. Find the probability that all will solve problem.

5. Solve the following : **(8×2=16)**

a) The number of seeds per plant is given below. Calculate coefficient of skewness using mean and mode.

No. of seeds/fruits	0 – 2	2 – 4	4 – 6	6 – 8	8 – 10	10 – 12	12 – 14
No. of plants	2	4	9	4	3	2	2

b) Twenty balls are serially numbered and placed in a bag. One ball is selected and placed in a bag. Ball is selected at random. Find the probability that a number on ball drawn is multiple of 3 or 5.

OR

b) Five men in company of 20 are having defect in eye-sight. If 3 men are picked out of the 20 at random what is the probability that

a) They all are suffering from defect in eye-sight

b) No one is suffering from defect in eye-sight.

SLR-I – 18

Seat No.	

B.Pharm. (Semester – IV) Examination, 2015
PHYSICAL PHARMACY – II

Day and Date : Tuesday, 8-12-2015 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

1) Cleansing action of soap is due to
   a) Hydrolysis of salt present in soap b) Ionization of salt present in soap
   c) High molecular mass of soap d) Emulsification properties of soap

2) Printing ink made by which of the following method ?
   a) Mechanical dispersion b) Bredig's arc
   c) Peptization d) Aggregation

3) Which of the following is positively charged sol ?
   a) Starch b) Arsenic sulphide
   c) Haemoglobin d) Clays

4) In lyophobic sols, dispersed phase has no _____ for medium or solvent.
   a) Repulsion b) Attraction c) Solvation d) Hydration

5) Stability of colloids explained by which theory ?
   a) DLVO b) Lyotropic series
   c) Donan membrane d) Hardy Schulze rule

6) Potential between the surface of the tightly bound layer and the electroneutral region of the solution called as
   a) Nernst potential b) Electrodynamic potential
   c) Zeta potential d) None of these

7) Adsorption of oxygen gas on charcoal, is which type of adsorption isotherm ?
   a) Type – I b) Type – III c) Type – II d) Type – IV

8) Which of the following is lipophilic surfactant ?
   a) Tweens b) Spans c) SLS d) All

9) HLB range for lipophilic surfactants is
   a) 2-9 b) 9-16 c) 16-20 d) Above 20

10) Formula for porosity of powder is
   a) Bulk volume/Void volume b) Void volume/Bulk volume
   c) Void volume/True volume d) True volume/Bulk volume

11) Optical microscopy directly gives
   a) Weight distribution b) Number distribution
   c) Length distribution d) Width distribution

12) In conductivity method, particle size is expressed as _____ diameter.
   a) Projected b) Volume c) Surface d) Stokes

13) Which of the following is a fundamental property of powder ?
   a) Volume b) Density c) Porosity d) Size

14) Clathrates are which type of complexes ?
   a) Inclusion b) Organic molecular
   c) Metal d) None

15) Acid hydrolysis of ester followed which type order of reaction ?
   a) Pseudo b) Second c) First d) None

16) On commercial scale, emulsions are prepared by
   a) Centrifugation b) Dialysis
   c) Freezing d) Homogenization

2. Answer **any four** : **(4×4=16)**

1) What is sieve diameter ? Give merits and demerits of sieving method.
2) Describe the process of detergency.
3) Define angle of repose. Suggest two methods to improve flow properties of granules.
4) State and explain Langmuir adsorption isotherm.

5) Describe any two method to determine HLB value of surfactant.

6) Draw and explain Du-Nouy tensiometer.

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

1) How data analysis is done for particle size distribution ? Discuss in detail.

2) What are complexes ? Classify and describe its analysis.

3) Define and classify sol. Explain optical properties of sol.

4. Answer **any four** : **(4×4=16)**

1) Comment on Bredig's arc method for lyophobic sol.

2) Explain in short mode of degradation of drug and drug product.

3) Write in brief theory of Brownian movement.

4) Discuss in brief about electro-osmosis.

5) Give the applications of complexes.

6) Write a note on accelerated physical stability testing of emulsions.

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

1) Give the type of emulsion. Write in detail about physical instability of emulsion.

2) What is chemical kinetics ? Describe in detail various factors which govern the rate of chemical reaction.

3) What is adsorption isotherm ? Discuss various types of isotherms explaining their behavior.

SLR-I – 19

Seat No.	

B.Pharmacy (Semester – IV) Examination, 2015
MICROBIOLOGY

Day and Date : Thursday, 10-12-2015 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. Multiple choice questions : **(1×16=16)**

1) In a confocal microscopy source of illumination is
   a) Sunlight b) UV light
   c) Laser beam d) Electric bulb

2) The stationary phase of the bacterial growth is due to
   a) Exhaustation of nutrients in the medium
   b) Presence of autolytic enzymes in the medium
   c) Constant rate of cell division
   d) All of above

3) Select the microorganism which gives catalase test
   a) *E. coli* b) *clostridium*
   c) *shigella dysentriae* d) *streptococcus*

4) Which of the following is the most common cause of hospital acquired UTI ?
   a) *Staph. Aureus* b) *Staph. Saprophyticus*
   c) *Staph. Epidermidis* d) *Streptococcus*

5) Which of the following microorganism is responsible for food poisoning ?
   a) *Cl. Perfringens* b) *Cl. Tetani*
   c) *Cl. Botulinum* d) *Cl. difficile*

6) Dipicolinic acid (DPA) is found in
   a) Cell wall b) Spores
   c) Flagella d) Cell membrane

7) Transfer of free DNA from one bacterium to another is known as
   a) Transduction b) Transformation
   c) Mutation d) Conjugation

8) Microorganism that do not obeys Koch's postulates
   a) *M. Leprae* b) *Streptococcus*
   c) *M. Tuberculosis* d) *Salmonella*

9) Which of the following is DNA virus ?
   a) Vaccinia virus b) Cytomegalo virus
   c) Adenovirus d) All the three

10) What is the symmetry of pox virus ?
   a) Complex b) Helical
   c) Icosahedral d) None of three

11) Which of the following produces aflatoxin ?
   a) *Pnemocystis Carinii*
   b) *Candida albicans*
   c) *Aspergilus Flavs*
   d) All the three

12) Following is a confirmatory test for HIV infection
   a) ELISA b) Western Blot
   c) DOT d) Methyl Red

13) Spores of *Cl. Tetani* are used as biological indicator in _____ sterilization heat control.
   a) Dry Heat b) Moist Heat
   c) Gaseous d) Radiation

14) Voges Proskauer test VP depends on
   a) Production of acid during fermentation of glucose
   b) Production of acetyl methyl carbinol from pyruvic acid
   c) Production of Indole from tryptophan
   d) Production of pyruvic acid from acetyl methyl carbinol

15) Lysosomal enzyme is useful in viral
   a) Penetration b) Biosynthesis
   c) Uncoating d) Adsorption

16) Determination of efficacy of moist heat sterilization carried out by spores of
   a) *Bacillus stearothermophilus*
   b) *Clostridium Tetani*
   c) *Bacillus anthracis*
   d) *More lipid and more Teichoic acid*

2. Attempt **any four** questions : **(4×4=16)**
   1) Write a note on internal structure of flagella.
   2) Differentiate between endotoxin and exotoxin.
   3) Write contribution of Louis Pasteur to Microbiology.
   4) Write chemical properties of viruses.
   5) Write clinical significance of Ricketssia.
   6) Describe the characteristics of *Mycobacterium* genus.

3. Attempt **any two** of the following : **(2×8=16)**
   1) What is sterilization ? Classify and discuss various methods of sterilization along with their applications known to you.
   2) Explain in detail viral symmetry.
   3) Explain in detail bacterial anatomy.

4. Attempt **any four** questions : **(4×4=16)**
   1) What are D value and Z value ?
   2) Write a note on Humoral Immunity.
   3) What are the characteristics of *Saccharomyces Cervisiae* ? Give different applications of Fungi.
   4) Differentiate between Gram positive and Gram negative bacteria.
   5) Enlist different techniques in Electron microscopy. Describe any two.
   6) Add a note on bacterial growth curve.

5. Answer **any two** of the following : **(2×8=16)**
   1) Give an exhaustive account of various bacterial culture media.
   2) Define sterilization, sanitization and disinfection. Enlist methods used for evaluation of disinfectants. Explain R. W. coefficient in detail.
   3) Draw a well labeled diagram of bacteria. Write composition of cell wall. Discuss functions of its organelles.

SLR-I – 20

Seat No.	

B. Pharm. (Semester – IV) Examination, 2015
ORGANIC CHEMISTRY – III

Day and Date : Saturday, 12-12-2015 Total Marks : 80

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

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

1) _____ is an example of nucleophilic rearrangement reaction.

A) Favourskii B) Wittig C) Fries D) Wolf

2) Decomposition of acyl azides in an inert solvent by gentle heat gives _____

A) Lactone B) Ketene

C) Isocyanates D) Primary amine

3) Lossen rearrangement is an example of _____

A) Nucleophilic rearrangement B) Electrophilic rearrangement

C) Aromatic rearrangement D) Free radical rearrangement

4) Stereoisomers which are not mirror images are called _____

A) Diastereomers B) Meso compounds

C) Enantiomers D) Epimers

5) _____ isomers are the structural isomers which exhibit due to different positions occupied by particular group or atom.

A) Chain B) Functional

C) Metamerism D) Positional

6) Stereochemistry of S_N1 reaction involves _____

A) Inversion of configuration B) Retention of configuration

C) Racemisation D) None of the above

P.T.O.

7) Hydroxylation of alkene by dil. $KMNO_4$ gives _____ diol.
   A) Trans B) Cis
   C) Both cis and trans D) None of these

8) When amine oxides are heated at 100°C gives alkene product, the reaction is called _____
   A) Pyrolysis of ester reaction B) Chugaeve reaction
   C) Cope elimination reaction D) None of these

9) Two diastereomers differ in the configuration of a single chiral centre is called _____
   A) Epimer B) Enantiomer
   C) Erythro form D) Threo form

10) Pinacol rearrangement reaction involves conversion of vicinal diols to _____
   A) Aldehyde B) Ketone C) Ester D) A) and B)

11) Favourskii rearrangement proceeds via _____intermediate.
   A) Cyclopropanone B) Enamine C) Azirine D) Isocyanate

12) _____ rearrangement reaction proceeds via carbene intermediate.
   A) Pinacol B) Hoffman C) Neber D) Wolf

13) Chiral molecules are represented by _____ formula.
   A) Fischer projection B) Sawhorse
   C) Newman projection D) All of these

14) _____ is a starting material used in Favourskii rearrangement reaction.
   A) Ortho hydroxy benzaldehyde B) Diphenyl ketone
   C) Alpha halo ketone D) Ketoxime

15) _____ rearrangement reaction proceeds via azirine intermediate.
   A) Dakin oxidation B) Neber C) Curtius D) Wolf

16) _____ reagent is used in dakin oxidation.
   A) Acidic hydrogen peroxide B) Alkaline hydrogen peroxide
   C) Neutral H_2O_2 D) All of these

2. Answer **any four** of the following questions : **(4×4=16)**
   1) Explain with suitable examples D and L nomenclature system for chiral molecule.
   2) Write on conformations of n-butane.
   3) Explain Wagner-Meerwein rearrangement reaction.
   4) Explain Lossen rearrangement reaction.
   5) Write in short on electrocyclic reaction.

3. Answer **any four** of the following questions : **(4×4=16)**
   1) Write a note on S_Ni reaction.
   2) Write in short on conformations of cyclohexane.
   3) Write a note on Willgerodt reaction.
   4) Explain with suitable example on pyrolysis of esters.
   5) Explain any two methods of resolution of racemic mixture.

4. Answer **any two** of the following questions : **(2×8=16)**
   1) Explain in detail on E1 and E2 reaction.
   2) Write on stereospecificity. Explain hydroxylation of alkene.
   3) Explain chemical methods for determining the configuration of geometrical isomers.

5. Answer **any two** of the following questions : **(2×8=16)**
   1) Write in detail on any two nucleophilic rearrangement reactions.
   2) Write on Fries and Wittig rearrangement reaction.
   3) Write in short on conformations of 1, 2-dimethyl cyclohexane. Explain Neber reaction.

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SLR-I – 21

Seat No.	

B.Pharm. (Semester – IV) Examination, 2015
PHARMACEUTICAL ANALYSIS – II

Day and Date : Tuesday, 15-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

1. MCQ : **(16×1=16)**

1) Ascorbic acid is a masking agent for _____
   a) Iron b) Aluminium
   c) Mercury d) Arsenic

2) _____ is protogenic solvent.
   a) H_2SO_4 b) Acetic acid
   c) Pyridine d) Water

3) Mordant black II shows _____ color at pH 10.
   a) Pink b) Red c) Blue d) Yellow

4) Kjeldahl's method is used for estimation of _____
   a) Oxygen b) Nitrogen
   c) Halogen d) Hydrogen

5) _____ is most versatile metallochrome indicator.
   a) Calcon
   b) Catechol violet
   c) Eriochrome black-T
   d) Murexide

6) The purity of precipitate depends upon _____
   a) Addition of precipitating agent
   b) Substances present in a solution
   c) Rate of precipitation
   d) None

7) Triethanolamine is used to mask _____
   a) k b) Na c) Al d) Mg

8) In Kjeldahl's method _____ is not used.
   a) Potassium sulphate b) Copper sulphate
   c) Sodium sulphate d) None
9) For bromine, absorbing liquid is
   a) NaOH b) H_2O_2 + IN H_2SO_4
   c) NaCl d) $Na_2S_2O_3$
10) Assay of calcium gluconate is based on _____ type of titrations.
   a) Acid-base b) Precipitation
   c) Redox d) Complexometric
11) ELISA is not used for testing of _____ contamination.
   a) HIV
   b) Pneumonia
   c) Sexually transmitted disease
   d) None
12) For Ca^{++} _____ indicator is used.
   a) Murexide
   b) Eriochrome black-T
   c) Calcon
   d) Both a) and b)
13) For curdy precipitate _____ step is vomited in gravimetry.
   a) Drying b) Filtration
   c) Digestion d) Ignition
14) _____ is not an amphiprotic solvent.
   a) Water b) Alcohol
   c) Acetic acid d) None
15) Split tube thief is used for sampling of _____
   a) solid b) liquid
   c) gas d) all
16) Excess of EDTA is back titrated with _____
   a) $ZnCl_2$ b) $MgCl_2$
   c) Both a) and b) d) None

2. Write **any four** : **(4×4=16)**
   1) Define :
      Sampling unit, sample, random sampling, non-random sampling.
   2) Write a note on gasometry.
   3) Explain in detail non-aqueous titrants.
   4) What is masking and demasking ? Explain with examples.
   5) Define sodium nitrite titrations. Explain end point detection.
   6) Write a note on RIA.

3. 1) Give the advantages of gravimetry. Enlist the steps involved. Explain assay of zinc sulphate by gravimetry. **(8×2=16)**
   2) Explain in detail Karl-Fischer method.

   OR

   2) Give the RMA of paracetamol.

4. Write **any four** : **(4×4=16)**
   1) How will you prepare and standardize 0.05 m disodium EDTA ?
   2) Give the procedure and principle behind assay of sulpha drugs.
   3) Write a note on ignition, incineration and calculation in gravimetry.
   4) Write a note on Kjeldahl's method.
   5) Explain theory behind sampling.
   6) Give the difference between masking and demasking.

5. 1) Explain in detail oxygen flask combustion method. **(8×2=16)**
   2) Give an complete account of sampling of solid.

   OR

   2) Explain in detail sampling of liquid.

SLR-I – 22

Seat No.	

B.Pharmacy (Semester – IV) Examination, 2015
PATHOPHYSIOLOGY AND CLINICAL BIOCHEMISTRY – II

Day and Date : Thursday, 17-12-2015 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

1. Answers the following :(MCQ) **(1×16=16)**

1) Septic shock is characterized by _____
   a) Severe bacterial infections or septicaemia
   b) Acute circulatory failure with sudden fall in cardiac output
   c) It is reduction in blood volume to heart
   d) Progressive fibrofatty replacement of the left atrium myocardium

2) COPD caused in inborn deficiency of _____ protein.
   a) Alpha 1 antitrypsin b) Alpha 2 antitrypsin
   c) Alpha 1a antitrypsin d) Alpha 1c antitrypsin

3) Cell-mediated immunity is _____
   a) Activation of phagocytosis
   b) Antigen-specific cytotoxic T-lymphocytes
   c) Release of various cytokines in response to an antigen
   d) All of these

4) Alkaline phosphatase levels are increased in _____
   a) Hyperparathyroidism b) Hypothyroidism
   c) Hypoxia d) Hypertension

5) Right heart failure is predominantly characterized by following
   a) Chronic venous congestion of liver
   b) Chronic venous congestion of spleen
   c) Chronic venous congestion of kidney
   d) All of these

6) Type I hypersensitive reaction is mediated through following type of antibody
   a) IgG b) IgE
   c) IgM d) None of these

7) The most common cause of dementia is _____
   a) Parkinsonism disease b) Alzheimer disease
   c) Multiple sclerosis d) Perivenous encephalomyelitis
8) Seizers are characterized by _____
   a) Decreased level of glutamate
   b) Decreased level of GABA
   c) Increased the level of ach
   d) Decreased level of dopamine
9) Insulin _____
   a) Is secreted in pancreatic β-cell
   b) Released in response to hypoglycemia
   c) Enhances glycogen breakdown
   d) Enhances gluconeogenesis
10) Psychosis is result from an over activity of _____
   a) Dopamine b) Glutamate
   c) Noradrenaline d) Ach
11) Hyperthyroidism is caused by all of the following except.
   a) Decreased the HDL level b) Increased the thyroid gland secretion
   c) Grave's disease d) Elevated serum levels of T3, T4
12) Diffuse Interstitial lung disease is _____
   a) Group of lung diseases b) Obstructive lung disease
   c) Vascular lung disease d) Restrictive disease
13) Conventional value of serum HDL is _____
   a) 38-195 mg/dl b) 115-135 mg/dl
   c) 35-135 mg/dl d) 135-235 mg/dl
14) Retinopathy, neuropathy and nephropathy are the complications of _____
   a) Hypertension b) Hypothyroidism
   c) Obstructive lung disease d) Diabetes
15) CD4 cells count is recommended laboratory test in
   a) Vascular lung disease b) Grave's disease
   c) HIV infection d) Alzheimer disease
16) Continuous signal seizures episode lasting from more than 2 minutes occurs in
   a) Temporal lobe epilepsy b) Cortical focal epilepsy
   c) Miner epilepsy d) Akinetic epilepsy

SECTION – 1

2. Answer **any four** of the following : **(4×4=16)**
   1) Describe seizures, convulsions, epilepsy and write short note on temporal lobe epilepsy.
   2) Define psychosis. What are the symptoms of psychosis and its treatment ?
   3) Define pneumonia and give its classifications.
   4) Explain causes and pathogenesis of bronchial asthma.
   5) Discuss Pathophysiology of AIDS.
   6) Explain in detail pathogenesis of rheumatoid arthritis.

3. Answer the following : **(2×8=16)**
   1) Describe in detail acute respiratory failure and pulmonary embolism.
   2) Discuss causes, symptoms, treatment, pathophysiology and hypertension.

   OR

   2) What is meant by CHF ? Write in detail etiology and Pathophysiology of CHF.

SECTION – 2

4. Answer **any four** of the following: **(4×4=16)**
   1) Discuss in detail Myasthenia gravis.
   2) What is Alzheimer disease ? Enumerate its symptoms and treatment.
   3) Discuss types and pathophysiology of angina pectoris.
   4) Give analytical, diagnostic and therapeutic uses of enzyme.
   5) Write a note on Hypo and Hyperthyroidism.
   6) Define Diabetes Mellitus. Give its types and pathophysiology.

5. Answer the following : **(2×8=16)**
   1) Describe in detail renal function test.
   2) Enlist different types of hypersensitivity reactions. Write in brief cytotoxic hypersensitivity reaction.

   OR

   2) Describe in detail liver function test.

SLR-I – 23

Seat No.	

B.Pharm. (Semester – V) Examination, 2015
SOLID DOSAGE FORM

Day and Date : Monday, 7-12-2015 Total Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1) Size 5 capsule has a fill volume of _____ ml.
   a) 0.13 b) 0.20
   c) 0.67 d) 1.36

2) Type A gelatin shows an isoelectric point in the range of pH
   a) 9 b) 4.7
   c) 4.8 d) 8.5

3) _____ fills powdered dry solid into soft gelatin capsule.
   a) Rotosort b) Accogel
   c) Erweka d) Vericap

4) _____ must be sterile and should be packed individually in sterile condition.
   a) Implantation tablet b) Chewable table
   c) Vaginal tablet d) Buccal tablet

5) _____ microencapsulation techniques is suitable for coating of only solids.
   a) Air suspension b) Pan coating
   c) Solvent evaporation d) Both a) and b)

6) Mottling is referred to deformity in
   a) color b) shape
   c) thickness d) flavour

7) _____ used as lubricants in tablet formulation.
   a) Stearic acid b) Sodium lauryl sulphate
   c) Mineral oil d) All of the above

P.T.O.

8) Enteric coated tablet should not disintegrate at the end of 2 hours in _____ as per I.P.
   a) 0.1 NHcl b) Phosphate buffer
   c) Water d) None of the above

9) disintegration time for soft gelatin capsule is _____ min.
   a) 30 min. b) 60 min.
   c) 15 min. d) 2 hour

10) _____ is trade name of croscarmellose sodium which is used as superdisintegrant.
   a) Ac-di-sol b) Primogel
   c) Polyplasdone d) Explotab

11) _____ is automatic capsule filling machine.
   a) Zanasi b) Macofar
   c) Hofliger and Karg d) All of the above

12) _____ is a high speed capsule weighing machine.
   a) Rotofil b) Rotosort
   c) Rotoweigh d) None of the above

13) _____ can be used as diluents in chewable tablet.
   a) Celutab b) Lactose
   c) Emdex d) Both a) and c)

14) Lozenges are also known as
   a) Pastilles b) Buccal tablets
   c) Troches d) Pessaries

15) Millard's reaction is related to
   a) Lactose b) Calcium carbonate
   c) Sorbitol d) Mannitol

16) Which of following is enteric coating polymer ?
   a) Ethyl cellulose b) Hydroxyl propyl cellulose
   c) Eudragit S d) None of the above

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

1) Discuss different methods used to evaluate flowability of granules.

2) Explain different reasons for microencapsulation with suitable examples.

3) Define capsule. Give advantages and disadvantages of capsule.

4) Draw neat labeled diagram of tablet layout.

5) Discuss in short defects in film coated tablet.

6) Write a note on compression machine tooling.

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

1) Discuss in detail manufacturing process of gelatin.

OR

1) Write in short about equipments used in dry and wet granulation process.

2) Discuss in short QC test for tablet and explain friability test in detail.

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

1) Explain different capsule filling principles.

2) Describe the various types of excipients used in filling of hard gelatin capsules.

3) Enlist the steps involved in sugar coating and explain in detail subcoating.

4) Comment on plasticizers and film formers used in film coating.

5) Write advantages and application of soft gelatin capsule.

6) Enlist different techniques of microencapsulation.

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

1) Give detail account on additives affecting compressional characteristics of tablet.

OR

1) Comment on stability of capsules and discuss stability tests for capsules.

2) Discuss in detail different methods used in production of soft gelatin capsule.

SLR-I – 24

Seat No.	

B.Pharm. (Semester – V) Examination, 2015
BIOPHARMACEUTICS

Day and Date : Wednesday, 9-12-2015 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1) The movement of drug between one compartment to other is referred as _____
   A) Drug absorption B) Drug distribution
   C) Both A) and B) D) None of these

2) Pharmacokinetic process involves _____
   A) Absorption B) Disposition
   C) Drug excretion D) All of these

3) _____ phase is concerned with the translation of pharmacological effect into clinical benefit.
   A) Pharmacokinetic B) Pharmaceutical
   C) Therapeutic D) Pharmacodynamic

4) Absorption is not found in _____ route of administration.
   A) Intravenous B) Oral
   C) Intramuscular D) Subcutaneous

5) The distribution of drugs into the CNS (brain) usually depends on _____
   A) aqueous diffusion B) lipid diffusion
   C) active transport D) All of these

6) _____ is highly perfused organ.
   A) Lung B) Brain
   C) Skin D) Both A) and B)

7) _____ is also known as non-ionic diffusion.
   A) Ion pair diffusion B) Passive diffusion
   C) Both A) and B) D) Endocytosis

P.T.O.

8) In absorption of BCS class-I drug _____ is the rate limiting step.

A) Permeability B) Gastric emptying

C) Dissolution D) Solubility

9) _____ parameter considered important for determination of bioavailability.

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

10) _____ is non-per os route bypass presystemic elimination.

A) Ocular B) Nasal C) Rectal D) All of these

11) Endocytosis is also called as _____

A) Corpuscular B) Vesicular transport

C) Ion transport D) Both A) and B)

12) The study of variation in drug response as influenced by circadian rhythm is known as _____

A) Oncology B) Pharmacokinetics

C) Chronopharmacology D) Therapeutics

13) Cause of non-linearity is _____

A) Drug absorption B) Drug Metabolism

C) Both A) and B) D) None of these

14) In pore transport driving force is constituted by the _____

A) Hydrostatic pressure B) Osmotic pressure

C) Concentration gradient D) Both A) and B)

15) In _____ absorption mechanism requires energy.

A) Passive diffusion B) Facilitated diffusion

C) Active transport D) Ion-pair transport

16) Central compartment consist of _____

A) Poor perfused B) Highly perfused

C) Low vascular D) Both A) and B)

SECTION – I

2. Answer **any four** : **(4×4=16)**

1) Define the terms Absorption, bioavailability, bioequivalence and pharmacokinetics.

2) Describe in brief ICH guidelines.

3) Define elimination. Explain concept of clearance.

4) Write an account on pharmacokinetic parameters.

5) Define the term gastric emptying. Explain factors affecting it.

6) Describe briefly volume of distribution.

3. Answer **any two** : **(8×2=16)**

1) What is drug distribution ? Explain physiological barriers in drug distribution.

2) Explain briefly various theories of drug dissolution.

OR

2) Describe about dosage form related factors affecting drug absorption.

SECTION – II

4. Answer **any four** : **(4×4=16)**

1) Why drug distribution in the body is not uniform ? Explain factor affecting drug distribution.

2) Discuss in detail pharmacodynamic parameters.

3) Explain methods for measurement of bioavailability

4) What is compartment modeling ? Explain one compartment model.

5) Write a note on pH-partition hypothesis.

6) Define enzyme induction and inhibition. Explain their effect on half-life and C_{max} of drug.

5. Answer **any two** : **(8×2=16)**

1) Define non-linear pharmacokinetics. Explain Michaelis Menten equation.

2) Describe in detail urinary excretion of drug.

OR

2) Explain in brief non-oral extravascular routes of drug absorption.

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SLR-I – 25

Seat No.	

B.Pharmacy (Semester – V) Examination, 2015
MEDICINAL CHEMISTRY – I

Day and Date : Friday, 11-12-2015 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

1. Objective type questions : **(1×16=16)**

1) The parameters changes in bio-isosteric replacement is
   a) Molecular size b) Steric shape
   c) Bond angle d) All of above

2) Oxidation at Allylic carbon atoms belongs to
   a) Phase-I reaction b) Phase-II reaction
   c) Methylation d) All of above

3) One of the following belongs to Biguanides class
   a) Phenformin b) Tolbutamide
   c) Acarbose d) Glibenclamide

4) One of following drug is belongs to Carbonic Anhydrase Inhibitors class
   a) Spironolactone b) Mannitol
   c) Methazolamide d) Xipamide

5) Drug which inhibit peptidoglycan biosynthesis is
   a) Chloramphenicol b) Dicloxacillin
   c) Paromomycin d) Doxycycline

6) One of drug is not effective against systemic amoebiasis is
   a) Metronidazole b) Chloroquine
   c) Diloxanide furoate d) Dehydroemetine

7) Aldosterone antagonist drug gives diuretic effect at Collecting Duct is
   a) Acetazolamide b) Triamterene
   c) Spironolactone d) Chlorothiazide

8) The heterocyclic ring present in Tinidazole

a) Pyrrole b) Imidazole c) Thiazole d) Oxazole

9) One of following drug is β-lactam antibiotics

a) Lincomycin b) Doxycycline

c) Demeclocycline d) Cloxacillin

10) Mechanism of action for Diethylcarbamazine

a) GABA-receptor agonist

b) Alkylate DNA or RNA

c) Uncoupling oxidative phosphorylation

d) None of above

11) Inhibition of $Na^+/K^+/Cl^-$ co-transport at Thick Ascending Limb by drug is

a) Ethycranic acid b) Mannitol

c) Acetazolamide d) Cyclothiazide

12) The heterocyclic ring present in Triamterene

a) Pyrazine b) Pteridine

c) Piperazine d) Piperidine

13) Rate theory proposed by

a) Paton and Rang b) Balleau

c) Gaddum and Clark d) Koshland

14) Glucuronide conjugation occurs in

a) Kidney b) Lung

c) Skin d) All the above

15) Mechanism of action of Sulfonylureas

a) Blocking ATP sensitive K^+-channels in β-cells

b) Reduce Glycogenolysis

c) Reduce intestinal absorption of glucose

d) Reduce serum lipids

16) Mechanism of action for Tetracycline is

a) Inhibit bacterial cell wall synthesis

b) Inhibit bacterial protein synthesis

c) Interfere microbial cell membrane functions

d) Interfere microbial DNA and RNA synthesis

SECTION – I

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

1) What is Amoebiasis ? Classify Antiamoebic agents with suitable examples.

2) Write MOA and SAR loop/high Ceiling Diuretics.

3) Write note on Bioisosterism.

4) Write in details Complexation and Partition Coefficient.

5) Discuss MOA and SAR of Sulfonylureas.

6) Discuss relationship between Ionization and Biological Activity.

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

1) Explain phase – II Metabolic Reactions with suitable examples.

2) Write note on Carbonic Anhydrase Inhibitors with suitable examples.

OR

2) Write synthesis of following :

a) Tolbutamide

b) Niclosamide

c) Chlorpropamide

d) Metronidazole.

SECTION – II

4. Answer **any four** from the following : **(4×4=16)**

   1) Classify Anthalmintics agents on basis of worm infections and discuss anthalmintics agents used in treatment of GI Nematode Infection.

   2) Which are forces involved in Drug Receptor Interaction ?

   3) Classify Diuretics with suitable examples.

   4) Discuss physicochemical factors affecting Drug Metabolism giving suitable examples.

   5) Explain MOA and uses of Tetracycline.

   6) Give structure, chemical name, MOA and uses of

      a) Diloxanide Furoate

      b) Diethylcarbamazine.

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

   1) Define and classify Antibiotics with suitable examples. Discuss chemistry including stereochemistry of penicillin. Write degradation of penicillin.

   2) Discuss conversion of tetracycline to

      a) 4-epitetracyclin

      b) Anhydrotetracycline by degradation

      c) Isotetracycline by cleavage

      d) Chelate comp.

      OR

   2) Write an account on phase-I metabolic pathway with suitable examples.

SLR-I – 26

Seat No.	

B.Pharm. (Semester – V) Examination, 2015
PHARMACEUTICAL ANALYSIS – III

Day and Date : Monday, 14-12-2015 Max. Marks : 80

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

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

1) In photovoltaic cell detector semiconductor layer is made of _____
   a) Ag b) Cu c) Pt d) Se

2) Oxygen _____
   a) F.I. increases b) F.I. decreases
   c) F.I. depends on amount of O_2 d) None of the above

3) Self quenching occurs due to _____
   a) high conc. b) low conc.
   c) presence of O_2 d) heavy metals

4) In spectrofluorimeter light source is _____
   a) Xe lamp b) tungsten lamp
   c) carbon arc lamp d) H_2 lamp

5) R band is _____
   a) $\pi \rightarrow \pi^*$ b) $\sigma \rightarrow \sigma^*$
   c) $\eta \rightarrow \pi^*$ d) $\eta \rightarrow \pi$

6) $1A^\circ$ = _____
   a) 10^{-4} cm b) 10^{-1} cm
   c) 10^{-8} cm d) 10^{-4} centipoises

7) If the solution is red then filter will be _____
   a) green b) yellow
   c) violet d) orange

P.T.O.

8) Increase in intensity of absorption called _____
   a) hyperchromic effect b) hypochromic effect
   c) red shift d) blue shift

9) Reciprocal of wavelength is _____
   a) speed b) wave number
   c) frequency d) velocity

10) Two elements may exhibit different but partly overlapping spectra and emitting at particular wavelength _____
   a) spectral interference b) oxide formation interference
   c) ionization interference d) cation-anion interference

11) Sample to be analysed by atomic absorption must be vaporized or atomised by using a _____
   a) flamebatomiser b) graphite furnase
   c) a or b d) none

12) Flame photometry is also called flame _____ sepctroscopy.
   a) absorption b) emission
   c) a & b d) none

13) The most commonly used path length in most of the UV-Visible spectrophotometer is _____
   a) 10 mm b) 1 mm c) 1 nm d) 10 nm

14) _____ interference occure in AAS.
   a) spectral b) chemical c) a & b d) none

15) Most preferable solvent for quinine sulphate assay by fluorimeter _____
   a) 0.1 M H_2SO_4 b) 0.1 M HCl
   c) 0.1 M NaOH d) 0.1 M KOH

16) Absorption of energy by ground state atom in gaseous state forms the basis of _____
   a) AES b) FES c) AAS d) AFS

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

   1) Give structural requirements of molecule to show fluorescence.

   2) Enlist various burners used in AAS. Discuss in brief any two.

   3) Explain principle of Flame Photometry.

   4) Explain the term red shift, hypochromic effect and auxochrome.

   5) Give different types of transition in organic molecules.

   6) Define triplet state, fluorescence and phosphorescence.

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

   1) Derive Beer-lamberts law in details.

   2) Explain the factors affecting fluorescence.

   3) Derive the simultaneous equation method for assay of substances in multicomponent samples.

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

   1) Give in brief the reasons of deviation from beer's law.

   2) Explain with a neat labeled diagram of fluorimeter.

   3) Write principal and working of PMT.

   4) Write the interferences in atomic absorption spectroscopy.

   5) Explain in details instrumental conditions required for spectroscopic measurement.

   6) Give the applications of flame photometry.

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

   1) Give principal involved in AAS. Give advantage of AAS over FES. Difference between AAS and AES.

   2) With an energy level diagram for photoluminescent molecule explain whole deactivation process.

   3) Derive the Q-absorbance ratio method for assay of substances in multicomponent samples.

SLR-I – 27

Seat No.	

B.Pharmacy (Semester – V) Examination, 2015
PHARMACOLOGY – I

Day and Date : Wednesday, 16-12-2015 Total Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1. Choose the most appropriate answer from amongst the **four** choices for **each** of the following questions (**Each** question carries **1** mark) : **16**

1) Which of the following adrenergic drugs is used as Nasal Decongestant ?
   a) Isoxsuprine
   b) Dobutamine
   c) Terbutaline
   d) Oxymetazoline

2) In case of First Order Drug Elimination _____
   a) Fixed amount of drug is eliminated per unit time
   b) Fixed proportion of drug is eliminated per unit time
   c) Rate of elimination is inversely proportional to plasma concentration
   d) None

3) If the slope of DRC of a drug is steep, which of the following statement is true ?
   a) A small increase in dose will lead to marked rise in response
   b) A small error in dose calculation may lead to serious adverse effects
   c) Dose individualization is needed
   d) All the above

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

5) Which of the following drugs is better absorbed from intestine ?
   a) Quinine b) Insulin
   c) Ibuprofen d) Aspirin

P.T.O.

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

7) _____ is an example of drug producing dependence.
   a) Paracetamol b) Aspirin
   c) Sulfonamides d) Morphine

8) Adrenaline in Anaphylaxis shows _____ antagonism.
   a) Chemical b) Receptor
   c) Physiological d) Physical

9) _____ receptor is an example of Inhibitory Auto-receptors ?
   a) Alpha-2 b) Alpha-1
   c) Beta-1 d) Beta-2

10) Which of the following ganglionic blocker was used historically in the treatment of hypertension ?
   a) Pentolinium b) Hexamethonium
   c) Trimethaphan d) Nicotine

11) Clonidine is selective _____ receptor agonist.
   a) Alpha-2 b) Alpha-1
   c) Beta-1 d) Beta-2

12) d-Tubocurarine is _____ receptor blocker.
   a) N_N b) N_M
   c) M_1 d) M_2

13) The major urinary metabolite of catecholamines is _____
   a) Metanephrine b) Normetanephrine
   c) Phenylalanine d) Vanilyl Mandellic Acid (VMA)

14) Which of the following receptor is an example of G-Protein Coupled Receptor ?
   a) Beta Adrenergic b) Nicotinic
   c) $GABA_A$ d) $5\text{-}HT_3$

15) Following is/are contraindicated with MAO Inhibitors.
   a) Cheese b) Beer
   c) Tyramine d) All of these

16) Which of the following is a well-known Microsomal enzyme inducer ?
   a) Phenobarbitone b) Cimetidine
   c) Aspirin d) Nimesulide

SECTION – I

2. Answer **any four** of the following : **(4×4=16)**
   i) List out unique advantages and disadvantages of intravenous route of administration.
   ii) Define Agonist, Antagonist, Partial Agonist and Inverse Agonist.
   iii) Write a note on Essential Drugs Concept.
   iv) Write a note on Biological Membranes.
   v) Write a note on Microsomal and Non-microsomal Enzyme Systems.
   vi) Brief various mechanisms of Drug absorption.

3. Answer the following : **(8×2=16)**
   i) Discuss various mechanisms of drug action with examples.
   ii) Discuss Biotransformation in detail with suitable examples.

   OR

   ii) Describe factors modifying drug action in detail.

SECTION – II

4. Answer **any four** of the following : **(4×4=16)**
   i) Can acetyl choline be used as a drug ? Explain.
   ii) Classify skeletal muscle relaxants. Give their uses.
   iii) Which is the drug of choice in the treatment of anaphylaxis ? Justify.
   iv) Discuss various uses of atropine.
   v) Write short notes on ganglionic blockers.
   vi) Explain the Biphasic response of adrenaline.

5. Answer the following : **(8×2=16)**
   i) Discuss in detail the drug toxicity in man. Give suitable examples.
   ii) Describe the symptoms, first aid and treatment of Belladonna poisoning.

   OR

   ii) Classify adrenergic drugs with examples. Discuss the pharmacology of Noradrenalin.

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SLR-I – 28

Seat No.	

B.Pharmacy (Semester – V) Examination, 2015
BIOTECHNOLOGY

Day and Date : Friday, 18-12-2015 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1) In animal cell, one of the following cell organelle takes part in protein synthesis.
   a) Golgi complex b) Ribosome
   c) Mitochondria d) Plasma membrane

2) _____ is the most commonly used type of fermenter.
   a) Impeller baffled b) Bubble column
   c) Internal loop d) Tower

3) Total number of stopping (nonsense) codons present in animals are
   a) 60 b) 3 c) 64 d) 20

4) For animal cell culture medium, serum is sterilized by _____ method of sterilization.
   a) Moist heat b) Dry heat c) Radiation d) Filtration

5) Callus in plant tissue culture is
   a) Organized cell mass b) Unorganized cell mass
   c) Totipotency d) Explant

6) One of the following is not a germ plasm
   a) Gene b) Plasmid
   c) Amino acids d) Protoplast and cell

7) To release intra-cellular product _____ technique is used.
   a) Ultra sonication b) Osmotic shock
   c) Grinding d) All of the above

8) Nutrients are added continuously in _____ fermentation.
   a) Batch b) Feed Batch
   c) Continuous d) None of the above

9) Aspect ratio of fermenter is _____ ratio.
   a) Feed/product b) Height/Diameter
   c) % of product produced d) Both a and b

10) In plant tissue culture, one of the following reagent is not used for surface sterilization.
   a) Sodium hypochlorate b) Bromine water
   c) Mercuric chloride d) Sodium chloride

11) Biocatalysts used in biotransformation are
   a) Growing cells b) Non growing cells
   c) Enzymes d) All of the above

12) Endonucleases used in genetic engineering are of
   a) Type I b) Type II c) Type III d) Type IV

13) _____ enzyme joins two DNA strands.
   a) Ligases b) Adaptors
   c) Linkers d) Endonucleases

14) Penicillin fermentation precursors are
   a) Cysteine b) L-valine c) Dextrose d) Both a and b

15) In genetic code, codon is a group of _____ ribonucleotide base sequences.
   a) Two b) Three c) Four d) Five

16) For COD calculation _____ reagent used as oxidizing agent.
   a) KOH b) Hot acid dichromate
   c) NaOH d) HCl + NaOH

SECTION – I

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

1) Define biotechnology. Write its applications related to pharmaceutical industry.

2) Draw well labeled diagram of industrial fermenter.

3) What is passaging of animal cell culture ?

4) What is germ plasm ? Explain cryopreservation.

5) Define Vaccines and sera. Write types with examples.

6) Explain production of viral vaccines.

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

1) Explain the production of penicillin by considering following points :
   a) Strains used
   b) Inoculum development
   c) Fermentation process
   d) Recovery of

2) Explain PCR with applications.

OR

What are methods of immobilization ? Explain with examples.

SECTION – II

4. Answer **any four** from the following : **(4×4=16)**
   1) What are single cell proteins ?
   2) Explain components of medium used in plant tissue culture.
   3) Explain in brief fermentation monitoring.
   4) Enlist different blotting techniques. Explain any one in detail.
   5) Write a note on restriction endonuclease in genetic engineering.
   6) Write importance of serum in animal cell culture.

5. Answer the following : **(8×2=16)**
   1) Describe bioconversion in details with one example.
   2) Explain different vectors used in genetic engineering.

      OR

      Explain production of insulin by recombinant DNA technology.

SLR-I – 29

Seat No.	

B.Pharm. (Semester – VI) Examination, 2015
SEMISOLID DOSAGE FORM

Day and Date : Tuesday, 8-12-2015 Total Marks : 80

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

1. MCQ : **(16×1=16)**

1) _____ used as keratolytic agent in ointments.

a) resorcinol b) salicylic acid c) sulphur d) all of the above

2) Shrinkage of gel by extrusion of liquid is called _____

a) Synersis b) Dilantancy c) Ebullition d) Coacervation

3) _____ is used as water miscible base in paste formulation.

a) Emulsifying ointment b) Lanolin

c) Polyethylene glycol d) Petrolatum

4) _____ is w/o type of emulsion.

a) Cold cream b) Night cream c) Vanishing cream d) Both a and b

5) Gum tragacanth used as _____ in formulation of tooth paste.

a) binding agent b) foaming agent c) humectants d) abrasives

6) Usually ointments exhibits _____ flow properties.

a) plastic b) pseudoplastic c) dilatants d) all of the above

7) Jelly containing ephedrine sulphate is used as _____

a) spermicidal b) antiseptic c) vasoconstrictor d) anaesthetic

8) _____ is synthetic gelling agent.

a) Pectin b) Gelatin c) Starch d) Carbomer

9) Beeswax is _____ type of ointment base.

a) water soluble base b) emulsion base

c) absorption base d) oleaginous bases

10) Endodermic ointment act as _____

a) Emollients b) Local irritants

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

11) _____ are generally applied with spatula or spread on lint.

a) ointments b) pastes c) jels d) cream

12) _____ is never used in the preparations of ophthalmic ointments.

a) White soft paraffin b) Liquid paraffin

c) Yellow soft paraffin d) None of the above

13) _____ is a cosmetic which is applied primarily on the upper eyelids.

a) Eye shadow b) Mascara

c) Eye pencils d) None of the above

14) Zinc gelatin Jelly is also called as from _____

a) Unna's paste b) Unna's boot

c) Both a and b d) White field ointment

15) Penetration of drug through sweat glands is known as _____

a) tran appendageal routes b) shunt routes

c) both a and b d) none of the above

16) _____ act as humectants.

a) propylene glycol b) sorbitol

c) glycerol d) all of the above

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

1) Write principle and formulation of pain balm.

2) Give an account on stability of cream.

3) Highlight formulation method of paste with its preservation.

4) Define and classify creams. And add short note on ideal qualities of cleansing cream.

5) Enlist ideal characteristics of ointment base and classify ointment bases with example.

6) Give an account on jelling agents.

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

1) Explain in brief mechanism of drug absorption through skin.

OR

1) Give an account on preparations used for eye makeup.

2) Comment on rheology of semisolids.

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

1) Give an account on penetration enhancer.

2) Define and classify cosmetics.

3) Write principle and formulation of nonstaining iodine ointment with methyl salicylate.

4) Explain in detail formulation of vanishing cream.

5) Define and write application of jellies.

6) Write merit and demerits of semisolids.

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

1) Explain factors influencing absorption of drugs from TDDS.

OR

1) Write short note on equipments used for semisolid processing.

2) Write in detail about formulation and quality control test for Lipstick.

SLR-I – 30

Seat No.	

B.Pharm. (Semester – VI) Examination, 2015
MEDICINAL CHEMISTRY – II

Day and Date : Thursday, 10-12-2015 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1) One of the following is pyrimidine derivative
   A) Flucytosine B) Tolnaftate
   C) Amphotericine D) Flucanazole

2) Sulphonamide blocks the synthesis of
   A) PABA B) DFA C) DHFA D) TFA

3) An antineoplastic agent by folate antagonism and having a pteridine ring
   A) Trimethoprim B) Mercaptopurine
   C) Methotrexate D) Folic acid

4) One of the following is not a first line drug for treating Tuberculosis
   A) Isoniazide B) Rifampine
   C) Cycloserine D) Pyrazinamide

5) One of the following antiviral agent exhibit the greatest selective toxicity for the invading virus
   A) Amantidine B) Zidovudine C) Idoxuridine D) Acyclovir

6) A free radical alkylating drug is
   A) Carmustine B) Thiotepa
   C) Procarbazine D) Altretamine

7) Amodiaquine is a derivative of
   A) 3-aminoquinoline B) 4-aminoquinoline
   C) 2-aminoquinoline D) 8-aminoquinoline

8) Busulphan is an alkylating agent, it comes under the category of
   A) Nitrosourea B) Alkyl sulfonate
   C) Anthracycline D) Nitrogen Mustard

P.T.O.

9) The antimalarial drug mepacrine is derivative of
   A) Quinacrine B) Quinqzoline C) Acridine D) Thiazine

10) Which of the sulphonamide is not a true sulphonamide ?
   A) Sulpha pyridine B) Dapsone
   C) Sulphasalazine D) Mafenide

11) The heterocyclic ring present in vinca alkaloids
   A) Pyrrole B) Pyrazole C) Quinazoline D) Indole

12) _____ is an antiviral agent used in the treatment of AIDS.
   A) Zidovudine B) Isoniazide
   C) Procarbazine D) Idoxuridine

13) The drug useful to treat multidrug resistant tuberculosis is
   A) Isoniazide B) Rifampin
   C) Cycloserine D) Pyrazinamide

14) Which of the following drug is used in candidiasis ?
   A) Griseofulvin B) Tolnaftate C) Tolbutamide D) Thiacetazone

15) Which of the following ring is present in Sulphamethaxazole ?
   A) Oxazole B) Iso-oxazole C) Thiazole D) Pyrazole

16) Cancer in glands is called
   A) Sarcoma B) Tumorous C) Carcinoma D) Leukemia

SECTION – I

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

   1) Draw the structure Trimethoprime, Mefloquine.
   2) Write the synthesis of Nalidixic acid.
   3) Classify anti-tuberculosis with e.g.
   4) Write a note on alkylating agent with e.g.
   5) Write SAR of Chloroquine.
   6) Explain combination therapy.

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

   1) Write a note on viral replication classify antiviral agent with e.g.

   2) Write life cycle of malarial parasite. Classify with e.g. Explain Moa and synthesis of chloroquine.

   OR

   3) Explain folic acid inhibitor. Give two e.g. Write synthesis of Pyrimethamine.

SECTION – II

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

   1) Write a note on Dapsone.

   2) Write MOA of Zidovudine.

   3) Write SAR and MOA of griseofulvin.

   4) Write a note on Azole derivatives.

   5) What is DOT Therapy ?

   6) Discuss problems faced in cancer chemotherapy.

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

   1) Write the synthesis and uses of Primaquine, Clotrimazole, Acyclovir.

   2) Write the MOA and SAR quinoline antibacterial agent. Write structure and chemical name of norfloxacin and ciprofloxacin.

   OR

   3) Classify antineoplastic agent giving suitable e.g. of each class. Discuss MOA and outline synthesis of Methotrexate.

SLR-I – 31

Seat No.	

B. Pharmacy (Semester – VI) Examination, 2015
PHARMACEUTICAL ANALYSIS – IV

Day and Date : Saturday, 12-12-2015 Max. Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

I. Multiple Choice Questions : **16**

1) Nujol is
   a) Hexachlorobutaadiene b) Perfluorokerosone
   c) Mineral oil d) None of these

2) _____ is a factor affecting TG curve.
   a) Temperature b) Weight of sample
   c) Geometry of sample holder d) All of these

3) Dextrose injection IP is assayed by
   a) Conductometry b) Polarography
   c) Polarimetry d) Refractometry

4) IR spectra is a plot of _____
   a) % absorbance against wave number
   b) % transmittance against concentration
   c) % absorbance against concentration
   d) % transmittance against wave number

5) The plateaus in the TG curve indicate a range in which _____
   a) There is no change in weight of sample
   b) There is no change in temperature of sample
   c) The sample is thermolabile
   d) All of these

6) Calibration of cell constant of conductance is carried by
   a) 0.1 M NaCl b) 0.1 M $CaCl_2$ c) 0.1 M KCl d) 0.1 M $AlCl_3$

P.T.O.

7) The unit of measurement of conductance is
   a) Ohm b) Ampere c) Mhos d) None of these

8) According to Ohms law strength of current is directly proportional to
   a) Conductance b) Potential difference
   c) Current d) All of these

9) One of the following is measured in amperometric titration
   a) Resistance b) Conductance
   c) Voltage d) Current

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

11) Potentiometer is used to measure
   a) Concentration b) Current
   c) EMF d) Temperature

12) Curve which is obtained from paleography is known as
   a) Polarogram b) Polarocurve c) Polargraph d) All of these

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

14) Gas cell windows which is used for sampling of gases in IR is made up
   a) KBr b) KCl c) NaBr d) All of the above

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

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

SECTION – I

II. Solve **any four** : **(4×4=16)**

1) What is DTA ? Explain thermogram of DTA.
2) Define different types of TG. What are the advantages of TG 750 over other balances ?
3) Write a note on light sources used in IR spectrophotometer.
4) Write a note on potentiometric titrations.
5) What is amperometry ? What is dead stop end point in amperometric titration ?
6) What information is obtained from TG curve ?

III. Solve of the following : **(8×2=16)**

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

OR

2) Discuss sampling techniques in IR spectroscopy.

SECTION – II

IV. Solve **any four** : **(4×4=16)**

1) Write a note on production of linearly polarized light.
2) Explain instrumentation of polarimeter.
3) Write a note on sample holder and furnace used in TG.
4) Define the term Ohms law, conductance, specific resistance and equivalent conductance.
5) Give applications of DSC.
6) Write a note on applications of potentiometery.

V. Solve the following : **(8×2=16)**

1) Discuss in detail optical rotatory dispersion and circular dichroism. Add a note on applications of circular dichroism.
2) What are requirements for vibration to be IR active ? Discuss factors affecting vibrational frequency.

OR

2) Explain various regions of IR radiations. Write note on fingerprint region, also give applications of IR sprectroscopy.

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SLR-I – 32

Seat No.	

B. Pharmacy (Semester – VI) Examination, 2015
PHARMACOLOGY – II

Day and Date :Tuesday, 15-12-2015 Total Marks :80
Time : 10.30 a.m. to 1.30 p.m.

1. Choose the most appropriate alternative for following Multiple Choice Questions. **(1×16=16)**

1) Mannitol is contraindicated in
   a) Acute Tubular Necrosis b) Anuria
   c) Pulmonary Edema d) All of these

2) Further doses of digitalis must be ____ at the earliest sign of toxicity.
   a) Stopped b) Continued
   c) Reduced d) Maintained

3) Digitalis has direct effects on _____ via Na^{+}/K^{+} ATPase Pump.
   a) Myocardial Contractility b) Liver
   c) CNS d) Skin

4) _____ is a popular anti-arrhythmic in intensive care units.
   a) Mexiletine b) Lodocaine
   c) Propafenone d) Digitalis

5) Which of the following is not a potassium channel opener ?
   a) Nicorandil b) Pinacidil
   c) Cromakalim d) Verapamil

6) Half Life of Nitroglycerine is
   a) 2 min b) 40 min
   c) 6 4 – 6 hours d) 60 hours

7) Which of the following is an Angiotensin Receptor Blocker ?
   a) Losartan b) Candesartan
   c) Telemisartan d) All of these

8) _____ was the first H_2 Receptor blocker to be introduced clinically.
   a) Cimetidine b) Ranitidine
   c) Famotidine d) Roxatidine

9) Oral absorption of Digitoxin is _____ %.
   a) 90 – 100 b) 60 – 80 c) 35 d) 10 – 15

10) _____ is a Class IV antiarrhythmic.
   a) Lidocaine b) Phenytoin
   c) Verapamil d) Propafenone

11) Rich dietary source of iron is
   a) Liver-Egg Yolk b) Meat-Chicken
   c) Banana-Apple d) Milk

12) Oral Dose of Paracetamol is _____ TID.
   a) 100 mg b) 500 mg
   c) 750 mg d) 1 gm

13) _____ are indicated for prophylactic therapy of mild to moderate asthma as alternatives to inhaled glucocorticoids.
   a) Salbutamol – Bambuterol b) Theophyline – aminophyline
   c) Montelukast – Zafirlukast d) Hydrocortisone and others

14) Commonly used Anti – *H. Pylori* Drug is
   a) Amoxicillin b) Chloramphenicol
   c) Ciprofloxacin d) Sulfapyridine

15) Treatment of diarrhoea should always start with ———— irrestpective of cause.
   a) Oral Rehydration b) Norfloxacin
   c) Antimotility drugs d) Omeprazole

16) _____ is successfully used of unstable angina.
   a) Nitroglycerine b) Isosorbide Dinitrate
   c) Isosorbide Mononitrate d) Pentaerythrityl Tetranitrate

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

   a) Define Diarrhoea. Classify Antidiarrhoeals with examples.

   b) Discuss Pharmacology of Furosemide.

   c) Write Pharmacotherapy of Asthma.

   d) Define Hemopoeitics, Coagulants, Thrombolytics and Hemostatic.

   e) Discuss in short-Toxicology and treatment of Arsenic poisoning.

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

   a) Justify – "Streptokinase is superior to heparin in first few hours of an anginal attack".

   b) Explain Triple Response of Histamine.

   c) Write a note on Rebound Acidity and add list of drugs producing it.

   d) Give symptoms of Heavy Metal Poisoning and mention two specific antidotes.

   e) Classify antiemetics with adverse effects of metoclopramide.

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

   a) Discuss in detail symptoms and treatment of Atropine Poisoning.

   b) What is congestive Heart Failure ? Discuss cardiac glycosides in detail.

   c) Classify antihypertensives with examples. Add a note on Diuretics.

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

   a) What is COPD ? Add a note on Pharmacology of Mast Cell Stabilizers.

   b) Classify Anti-Ulcer Drugs with examples. Write mechanism of action, Adverse effects and uses of Proton Pump Inhibitors.

   c) What are prostaglandins ? Describe their Biosynthesis and Physiological role.

SLR-I – 33

Seat No.	

B.Pharmacy, (Semester – VI) Examination, 2015
CLINICAL PHARMACOLOGY

Day and Date : Thursday, 17-12-2015 Max. Marks : 80

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

1. Choose the most appropriate alternative for following Multiple Choice Questions. **(1×16 = 16)**

1) In India, introduction of new drugs are regulated by _____
   a) Committee on Safety of Medicines
   b) Food and Drug Administration
   c) Drug Controller General of India
   d) Ethics committee

2) Before conducting a clinical trial the following parameters are required
   a) Protocol
   b) Informed consent form
   c) Regulatory approvals (Phase I, II, III)
   d) All of these

3) Drugs are given with care in pregnancy particularly in the _____, the organogenesis period.
   a) First trimester b) Second trimester
   c) Third trimester d) Fourth trimester

4) Which amongst the following are most preferred class of drugs in asthma patients ?
   a) Selective beta 2 blockers b) Nonselective beta 2 blockers
   c) Selective beta 2 agonists d) Nonselective beta 2 agonists

5) CRO is the commonly used term in clinical pharmacology which refers to _____
   a) Clinical Research Organization
   b) Co-operative Research Organization
   c) Contract Research Organization
   d) Committees of Research Organizations

6) A volunteer who has signed an informed consent can withdraw from the clinical trials _____
   a) after the first dosing of drug during the trial
   b) after total dosing of drug during the trial
   c) before the first dosing of drug during the trial
   d) any time during the trial

7) In the ICMR policy statement, ethics committee is also called _____
   a) Ethos Committee
   b) Institutional Review Board
   c) Ehtics Review Board
   d) Internal Ethical Committee

8) A missed dose of a drug may lead to _____
   a) Loss of efficacy
   b) Withdrawal syndrome
   c) Recurrence of disease
   d) Any of these

9) A foreign company with a new drug invented abroad is allowed to carry out all phases of Clinical Trials in India except _____ trials.
   a) Phase-I b) Phase-II c) Phase-III d) Phase-IV

10) Clinical Pharmacokinetics needs to be applied in daily practice for the drugs with _____ therapeutic window.
   a) narrow b) wide c) both a & b d) optimum

11) Institutional Ethics Committee (IEC) consists of all of the following EXCEPT _____
   a) A lay person from the community
   b) One social scientist
   c) One legal expert or retired judge
   d) Head of the host institution as Chairman of the IEC

12) The main objective of Clinical Pharmacology is to _____ drug therapy.
   a) optimize b) minimize c) maximize d) abolish

13) Modification of Pharmacological Response without altering the concentration of drug in the tissue fluid is an example of _____ interaction.
   a) Pharmacodynamic
   b) Pharmacokinetic
   c) Pharmaceutical
   d) None of these

14) The _____ Degrees of Conviction assist in attributing adverse events to a drug.
   a) Probable and Possible
   b) Conditional
   c) Definite
   d) All of these

15) _____ refers to seriously harmful effects of doses larger than the therapeutic doses.
   a) Side effects
   b) Adverse Drug Reactions
   c) Toxic Effects
   d) Intolerance

16) Drugs with longer half lives are more likely to require _____ for acute treatment.
   a) Lesser doses
   b) Loading dose
   c) Repeated doses
   d) Choosing a formulation

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

1) What do you mean by Clinical Pharmacology ? Brief its scope.

2) Write in brief about the dosage adjustments in patients with hepatic failure.

3) Write notes on ethics in research.

4) Write in brief on the long term use of drugs and the consequences there upon.

5) Give the constitution of Institutional Ethics Committee.

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

1) Discuss in detail the drug therapy in geriatric patients.

2) Discuss the importance of Statistics in Research.

3) Discuss in detail-types of clinical trials, design and size.

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

   1) Write a note on Informed Consent.

   2) Explain the consequences of sudden withdrawal of drugs with suitable examples.

   3) Define the terms agonist, antagonist, partial agonist and inverse agonist.

   4) Write a note on “Me-Too Drugs”.

   5) Write a note on drug therapy in pregnancy.

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

   1) Give different types of drug interactions give suitable examples.

   2) Present a case studies each for COPD and “Acute myocardial infarction”.

   3) Discuss unwanted and adverse drug reactions, give suitable examples.

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SLR-I – 34

Seat No.	

B.Pharm. (Semester – VI) Examination, 2015
PHARMACOGNOSY – II

Day and Date : Saturday, 19-12-2015 Total Marks : 80
Time : 10.30 a.m. to 1.30 p.m.

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

1) Indian Psyllium constitutes _____ parts of the plant.
   A) Seeds B) Husk
   C) Both A) and B) D) Fruits

2) _____ is used in the treatment of Rickets.
   A) Peppermint oil B) Cassia oil
   C) Ricinus oil D) Cod liver oil

3) Indian saffron is synonyms of _____
   A) Turmeric B) Saffron
   C) Kasturi D) Honey

4) Number of stomata and epidermal cells can be counted in determination of _____
   A) Stomatal number B) Stomatal index
   C) Vein-islet number D) Vein-termination number

5) Which of the following crude is not suggested during the pregnancy ?
   A) Clove B) Cassia C) Castor oil D) Fennel

6) Fennel fruits contain _____ type of oil glands.
   A) Schizopterus B) Schizogenous
   C) Schizolysigenous D) Schizomerous

7) Chlorophyll test shows positive for _____
   A) Myrrh B) Pale catechu
   C) Benzoin D) Black Catechu

8) Insect flower belongs to _____ family.

A) Leguminosae B) Compositae

C) Malvaceae D) Meliaceae

9) _____ is an example of phlobatannins.

A) Myrobalan B) Gambir C) Behda D) Amla

10) Datura contains _____ type of stomata.

A) Anisocytic B) Paracytic

C) Dicytic D) Anomocytic

11) _____ not to be used in cosmetic preparations.

A) Turmeric B) Beeswax

C) Hemp D) Musk

12) Vegetable gelatin shows _____ colour with ruthenium red.

A) Green B) Pink

C) Yellow D) Red

13) Drug not belongs to aldehyde volatile oil.

A) Cassia B) Cinnamon

C) Orange peel D) Thyme

14) Identify an unorganized crude drug.

A) Benzoin B) Beeswax

C) Kasturi D) All of above

15) _____ is hydrolysable tannins.

A) Tea B) Behda

C) Pale catechu D) Black Catechu

16) Identify the fiber obtained from mineral source.

A) Gunny B) Hemp

C) Glass D) Wool

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

   1) Explain principle of camera lucida by illustrating line diagram.

   2) Discuss cultivation and collection technology of ginger.

   3) Draw the neat labeled histological diagram of clove flower bud.

   4) Difference between pale catechu and black catechu.

   5) Draw the structure of :

      a) Catechol

      b) Cannabinol

      c) Podophyllotoxin

      d) Anethole.

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 deficiency of vitamin A

      b) Belongs to Berberidaceae family

      c) Containing fruit part

      d) Containing protein fibre.

   2) Explain with outline of carbon fixation pathway leading to various metabolites.

   3) Discuss agar-agar pharmacognostically.

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

   1) Explain therapeutic uses and cosmetic uses of volatile oils with suitable examples.

   2) Classify natural resins and their combination.

   3) Write biological source, method of preparation and uses of shark liver oil.

4) Write biological source and uses of :

   a) Indian Psyllium

   b) Kasturi.

5) Give general tests used for detection of volatile oils.

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

1) Describe cassia bark pharmacognostically.

2) Explain :

   a) Goldbeaters skin test

   b) Phenazone test

   c) Millions test

   d) Chlorophyll test.

3) Write biological source, active constituent with their structure and uses of following :

   a) Cod liver oil

   b) Pyrethrum

   c) Beeswax

   d) Mentha.

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Seat No.	

B.Pharm. (Semester – VII) Examination, 2015
STERILE DOSAGE FORMS

Day and Date : Monday, 7-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

I. MCQ : **16**

1) Hot DOP test is useful for the evaluation of
   a) HEPA b) Flow hoods
   c) Blowers d) All of these
2) Reduction of D-value by 90% is known as
   a) Z-value b) F-value
   c) D-value d) None of these
3) Lacrisert is a
   a) Soluble insert b) Bioerodable insert
   c) Insoluble insert d) Sparingly soluble
4) LVP containing bacteriostatic agent should have a label _____ as a warning.
   a) Not for use of neonates b) Store below 4°C temp.
   c) Keep in dark place d) Dilute before use
5) Mechanism of dry heat sterilization
   a) Oxidation of proteins
   b) Denaturation and coagulation of proteins
   c) Alkylation of sulfhydryl group
   d) Denaturation of DNA
6) As per GMP guidelines FFS machines except filling zone should have environment of
   a) Grade A b) Grade B
   c) Grade C d) Grade D
7) If machines are arranged in one line depending on sequence of operations is known as
   a) Product layout b) Process layout
   c) Combination layout d) Fixed layout

P.T.O.

8) Which layout is preferred for small batch size ?
   a) Product layout
   b) Process layout
   c) Combination layout
   d) Fixed layout

9) Which layout has material handling cost comparatively more ?
   a) Product layout
   b) Process layout
   c) Combination layout
   d) Fixed layout

10) ANDA is an application of
   a) New drug
   b) Approved drug
   c) Post market approved drug
   d) All of these

11) _____ is an isotonic solution.
   a) 0.9% NACl
   b) 0.09% NACl
   c) 0.9% Dextrose
   d) All of these

12) Which method is useful for the estimation of isotonicity ?
   a) NACL Equivalent method
   b) Freezing point depression method
   c) Both a) and b)
   d) None of these

13) Pressure needed for injection refers to
   a) Injectability
   b) Syringeability
   c) Suspendability
   d) All of these

14) As per GMP for grade B and C at least _____ per hour.
   a) 10 air changes
   b) 20 air changes
   c) 50 air changes
   d) 100 air changes

15) As per GMP WFI should meet microbial specification of
   a) NMT 5 CFU/100 ml
   b) NMT 15 CFU/100 ml
   c) NMT 10 CFU/100 ml
   d) NMT 50 CFU/100 ml

16) Which route should be used for depot injection administration ?
   a) I.M.
   b) I.V.
   c) S.C.
   d) None of these

II. Answer **any four** : **16**

a) Describe the vehicles used in parenteral.

b) Write a note on rheological properties of parenteral suspensions.

c) Give the objectives and general design of plant layout.

d) Write a note on SUPAC guidelines.

e) Discuss essential characteristics of parenteral formulations in short.

III. Answer **any four** : **16**

a) Discuss change room with its layout.

b) Discuss TPN and sterile solids of parenteral formulation.

c) How to adjust isotonicity elaborate with example.

d) Discuss any two types of factory layout.

e) What do you mean by pilot plant scale up techniques ?

IV. Answer **any two** : **16**

a) Discuss FFS technology.

b) Give the evaluation testing procedures for parenteral.

c) Discuss ocular bioavailability and ocular inserts.

V. Answer **any two** : **16**

a) Discuss HEPA with its efficiency testing procedure.

b) Discuss pilot plant scale up with suitable example.

c) Provide revised Schedule-M guidelines for the manufacture of parenteral.

SLR-I – 36

Seat No.	

B.Pharmacy (Semester VII) Examination, 2015
PHARMACEUTICAL JURISPRUDENCE

Day and Date : Wednesday, 9-12-2015 Total Marks : 80

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

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

1) The person incharge of state drug laboratory is
   a) Drug Controller b) Assistant Drug Controller
   c) Senior Drug Inspector d) Government Analyst

2) On cancellation of manufacturing license, the loan license is
   a) Cancelled b) Suspended
   c) Temporarily suspended d) None of these

3) List of drug which can be marketed under generic names only is given in schedule.
   a) X b) W c) O d) T

4) The Chairman of DTAB is
   a) President PCI b) Drug Controller of India
   c) Union Health Minister d) Director General of Health Services

5) The name of the Pharmacist may be removed from the register of Pharmacists, if it has been entered due to
   a) Error b) Misrepresentation
   c) Both A and B d) None of above

6) Schedule FF contains the list of following
   a) Drug marketed under generic name
   b) Drug which are habit forming
   c) Standards for ophthalmic preparation
   d) None of above

7) Spurious drugs means
   a) limitations b) Substitutes c) Similar drugs d) All of the above
8) Government Analyst is appointed by Central or State Government under Section
   a) 19 b) 20 c) 21 d) 22
9) License to sell drug specified C and C1 is given in Form number
   a) 19 b) 18 c) 21 d) 24
10) Biological are tested at
   a) Mumbai b) Kolkata c) Chennai d) Kasauli
11) Drug Inspector is appointed by Central or State Government under Section
   a) 19 b) 20 c) 21 d) 22
12) Which Schedule is related to standard for cosmetics ?
   a) O b) U c) S d) T
13) 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
14) Drugs Consultative Committee advices
   a) Central Govt. b) DTAB c) State Govt. d) All the above
15) State Pharmacy Council should have the following number of elected members.
   a) Six b) Nine c) Five d) Seven
16) Standards for mechanical contraceptive are given in Schedule
   a) S b) R c) Q d) T

II. Answer **any four** : **(4×4=16)**

1) Write the objective of Narcotic and Psychotropic Substances Act and give offences and penalties.
2) What is DTAB ? How is it constituted ?
3) Write a note on the qualifications and duties of Drug Inspectors.
4) Describe the labeling conditions specified in the Drugs and Cosmetics Rules.
5) Write the formula for the calculation of the Retail Price of the drug formulations.

III. Answer **any four** : **(4×4=16)**

1) Write the procedure for taking samples of drug for analysis and their dispatch to Government analyst.

2) Mention the advertisements which are exempted under the Drug and Magic Remedies Act, 1954 ?

3) Give the objective of the Pharmacy Act, 1948 and give any three conditions under which name of the pharmacists is removed from register of pharmacist ?

4) Write duties and working procedure of Government Analyst as par D & C Act ,1940.

5) Write constitution and functions of Pharmacy Council of India.

IV. Answer **any two** : **(8×2=16)**

1) Write the qualification, duties and power of Food Inspector. Explain in brief inspection procedure.

2) What are the objectives of Drugs Price Control Order ? How the maximum price of bulk drugs and formulations is calculated ?

3) Discuss briefly the objectives of the Narcotic Drugs and Psychotropic Substances Act, 1985 and explain in detail offences and penalties.

V. Answer **any two** : **(8×2=16)**

1) Describe in detail the procedure for obtaining license and facilities to be provided for running a pharmacy effectively.

2) Write the constitution and composition of Ayurvedic, Siddha and Unani Drugs Technical Advisory Board. What are its functions ?

3) Define the term manufacture as per D & C Act and mention the different types of licences available for the manufacture of drugs.

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SLR-I – 37

Seat No.	

B.Pharmacy (Semester – VII) Examination, 2015
MEDICINAL CHEMISTRY – III

Day and Date : Friday, 11-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

1. Multiple choice question : **(1×16=16)**

1) Morphine and heroin differ from each other in respect of _____
   a) Methyl group on nitrogen
   b) Absence of double bond between C4 and C6
   c) Acetyl group at C3 and C6
   d) Absence of D ring

2) _____ contain indole nucleus in its structure.
   a) indomethacin b) aspirin
   c) naproxem d) nimusulide

3) _____ substituent on the nitrogen of morphine shows μ antagonist activity.
   a) $-CH_2 - CH = CH_2$ b) $-CH_2 - CH_2 - Ph$
   c) $-CH_3$ d) All

4) Fluoxymesterone is modification of _____
   a) estrone b) testosterone
   c) progesterone d) none

5) Piroxicam contain _____ nucleus.
   a) 1, 2 benzothiazine b) furan
   c) pyrazolidine d) indole

6) Phenylbutazone contain _____ nucleus in its structure.
   a) pyrazolidine b) furan
   c) thiazine d) phenanthrene

7) Phenobarbitone is _____
   a) Long acting barbiturate b) Short acting barbiturate
   c) Intermediate acting barbiturate d) Ultra short acting barbiturate
8) Meperidine is popularly known as _____
   a) Morphine b) Pethidine
   c) Pentazocine d) Emetine
9) Barbiturate is derivative of _____
   a) Urea b) Opium
   c) Ethyl alcohol d) Cinnamon
10) Haloperidol is used as _____ agent.
   a) Antipsycotic b) Analeptic
   c) Aniconvulsant d) None of the above
11) Proton pump inhibitors like omeprazole and lansoprazole contain following ring system.
   a) pyrimidine b) benzothiazole
   c) benzimidazole d) indole
12) One of the following is an ester _____
   a) morphine b) heroin
   c) nalorphine d) methadone
13) Pentaprazole used as _____ agent.
   a) Analgesic b) Oral contraceptive
   c) Aniconvulsant d) None of the above
14) One of the following phenothiazine donot possess CF3 group at C2 position
   a) prochlorpromazine b) trifiupromazine
   c) trifluperazine d) flufenazine
15) Which one of the following is not present in opium ?
   a) cyclasocine b) thebaine
   c) codeine d) papaverine
16) 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

2. Answer **any four** of the following questions : **(4×4=16)**
   a) Explain the drug used in gout disease.
   b) Note on selective COX-2 inhibitor with examples.
   c) Explain male sex hormone with examples.
   d) Write the structure, chemical name and uses of ultra short acting barbitrates.
   e) What are MAO inhibitors explain with examples.

3. Answer **any four** of the following questions : **(4×4=16)**
   a) Note on oral contraceptive.
   b) Classify NSAID and explain SAR of salisylic acid derivative.
   c) Note on butyrophenone.
   d) Write synthesis of **any two** :
      1) Diphenhydramine
      2) Acetoaminophen
      3) Mepyridne.
   e) Explain the development of first morphine antagonistic drug.

4. Answer **two** of the following questions : **(8×2=16)**
   a) Classify anticonvulsant drug with common structure and discuss SAR and MOA of hydantoin.
   b) Classify steroid and note on aderenal cortex hormones.
   c) Explain the development of cimetidine as H_2 antagonist.

5. Answer **two** of the following questions : **(8×2=16)**
   a) Classify antipsychotic agent with examples and give SAR of phenothiazine.
   b) Classify hypnotic and sedative drug and explain MOA, SAR of barbituric acid.
   c) Note on opioid receptor and explain MOA and structural features required for narcotic analgesic.

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Seat No.	

B.Pharm. (Semester – VII) Examination, 2015
PHARMACEUTICAL ANALYSIS – V

Day and Date : Monday, 14-12-2015 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

1) Reciprocating pumps in HPLC produces a _____ flow.
   a) Pulsating b) Non pulsating
   c) Constant d) All of the above

2) _____ is commonly used for visualizing amino acid samples.
   a) Ninhydrin b) Gypsum
   c) Sodium nitroprusside d) Ferric chloride

3) Sample application on TLC plate is done by using _____
   a) Capillary b) Micro syringe
   c) Micropipette d) All of the above

4) In TLC activation of plates is done by placing in an oven at _____ °C temperature.
   a) 100-105 b) 150-200 c) 60-80 d) 150-180

5) Carrier gas that is not used in GC is _____
   a) Helium b) Nitrogen c) Hydrogen d) Ammonia

6) Most popular thickness of layer in TLC is _____
   a) 0.25 mm b) 3 mm c) 2 mm d) 0.75 mm

7) Which of the following is the most polar mobile phase ?
   a) Benzene b) Chloroform c) Acetone d) Water

P.T.O.

8) Following are detectors used in HPLC except _____

a) UV-visible b) Mass spectrometry

c) RI d) Kathorometer

9) Choose the correct equation that correlates column efficiency and length of column.

a) N=L/H b) N=H/L c) H=N/L d) L=H/N

10) Number of theoretical plates can be calculated from a chromatogram by equation _____

a) $N=16(t_R/W)^2$ b) $N=4(t_R/W)^2$ c) $N=16(W/t_R)^2$ d) $N=(t_R/W)^2$

11) _____ stationary phase is used for column packing in adsorption column chromatography.

a) Alumina b) Magnesium silicate

c) Silica gel d) All of the above

12) Following stationary phases are used in gel permeation chromatography except _____

a) Agarose b) Alumina c) Dextran d) Poly acrylamide

13) _____ is used for layer prewashing in HPTLC.

a) Methanol b) Benzene c) Ethyl acetate d) All of the above

14) Strong acidic cation exchanger has _____ functional group.

a) Sulphonic b) Methyl amino

c) Quaternary ammonium d) COOH

15) Which chromatographic technique should be used for softening of hard water ?

a) HPLC b) Size exclusion chromatography

c) GC d) Ion exchange chromatography

16) Paper chromatography is a _____ type of chromatography.

a) Adsorption b) Liquid-liquid

c) Planar d) Both b) and c)

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

1) Write a short note on papers used in paper chromatography.
2) Give applications of gel permeation chromatography.
3) What is gel chromatography ? Give mechanism of gel chromatography.
4) Explain the theory of ion exchange chromatography.
5) Write a note on visualization techniques used in planar chromatography.

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

1) Give principle involved in adsorption column chromatography. Explain different methods of column packing.
2) Explain columns used in GC.
3) Give the applications of paper chromatography.
4) Compare TLC and HPTLC.
5) Define the terms retention time, Rf value, adjusted retention volume and capacity factor.

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

1) Draw a neat labeled diagram of instrument of GC. Explain flame ionization detector and thermal conductivity detector in detail.
2) Give applications of HPLC and ion exchange chromatography.
3) Give a detail account of preparation of TLC plates and explain different development techniques of TLC plate.

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

1) What is HPLC ? Explain any two detectors used in HPLC.
2) Explain the plate theory and rate theory of chromatography in detail.
3) Explain in detail development techniques used in paper chromatography. Add a note on partition column chromatography.

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Seat No.	

B.Pharm. (Semester – VII) Examination, 2015
PHARMACOLOGY – III

Day and Date : Wednesday, 16-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

1. Choose the correct answer : **16**

1) Amphetamine produces following effect
   a) Increase motor activity b) Euphoria and excitement
   c) Anorexia d) All of above

2) Opioid receptor act via
   a) Opening of potassium channel b) Inhibition of calcium channel
   c) Both of a) and b) d) Opening of sodium channel

3) Selegiline is
   a) MAO-A inhibitor b) MAO-B inhibitor
   c) Both a) and b) d) None of above

4) Droperidol, a neuroleptic belongs to following class of drug
   a) Phenothiazines b) Thioxanthines
   c) Butyrophenone d) Benzamides

5) Following is an irreversible inhibitor of GABA aminotransferase
   a) Pyrimidine b) Vigabatrin
   c) Lomotrigin d) Gabapentin

6) Fetal alcohol syndrome is characterized by
   a) Normal CNS function
   b) Normal growth
   c) Characteristic cluster of facial abnormalities
   d) All of above

7) Following is inverse agonist of benzodiazepine receptor
   a) Flumazenil b) β-Carboline
   c) Chlordiazepoxide d) Glutethimide

8) Following general anesthetic is oil at room temperature
   a) Propofol b) Ketamine c) Droperidol d) Diazepam

9) Following is intermediate acting insulin preparation
   a) NPH b) Ultralente
   c) Protamine zinc d) Glargine

P.T.O.

10) Following drug, originally synthesized as anthelmintic appears to restore depressed immune function of B-cells
a) Levamisole b) Azathioprin c) Thalidomide d) Sirolimus

11) False nucleotide incorporation is the mechanism of action of following immunosuppressive agent
a) Glucocorticoid b) Azathioprin
c) Daclizumab d) Tacrolimus

12) Antithyroid thionamide affects
a) Active transport of iodine b) Iodination of thyroglobulin
c) Hormone release d) Hormone action

13) The reduced cholinergic activity produce
a) Psychosis b) Depression c) Parkinsonism d) Alzheimer

14) Identify the vitamin which resembling hormone
a) Vit. A b) Vit. B_5 c) Vit. B_6 d) Vit. D

15) Which of the following drug used as emergency contraceptive
a) Mifepristone b) Levormeloxifene
c) Ethinylestradiol d) All of above

16) Which of the following is MOA of Acarbose ?
a) α-Glucosidase inhibitor b) β-Glucosidase inhibitor
c) MAO-A inhibitor d) COMT inhibitor

2. Answer **any four** : **(4×4=16)**

a) Classify oral antidiabetic agent. Give briefly MOA of sulfonylurea and Thiazolidinedione.

b) Explain briefly antithyroid agent.

c) Explain in detail pharmacological action of ethanol.

d) Classify antidepressant, explain aminohypothesis in depression.

e) Describe stages of general anaesthesia.

3. Answer **any four** : **(4×4=16)**

a) Explain principle and schedule of active immunization.

b) Classify antiepileptic drug, Give briefly MOA of phenytoin and gabapentine.

c) Describe pharmacological action of morphine.

d) Explain drug interaction and MOA of MAO inhibitor.

e) Write note on Glucagon analog.

4. Answer **any two** : **(8×2=16)**

   a) Classify neuroleptic, describe in detail pharmacology of chlorpromazine.

   b) Explain in detail pharmacology of drug regulating calcium homeostasis.

   c) Classify non-narcotic analgesics, explain pharmacological action, adverse effect and toxicity of Aspirin.

5. Answer **any two** : **(8×2=16)**

   a) Classify sedative and hypnotic, explain in detail MOA, adverse effect and toxicity of barbiturate.

   b) Explain in detail pharmacology of drug Insulin.

   c) Explain MOA, method of administration and adverse effect of estrogen- progestin combination pills.

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Seat No.	

B. Pharmacy. (Semester – VII) Examination, 2015
PHARMACOGNOSY – III

Day and Date : Friday, 18-12-2015 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) Alkaloids obtained from plants contain _____ in heterocyclic ring.
   a) Sulphur b) Oxygen c) Nitrogen d) Hydrogen

2) Glycosides contain aglycones in combine with
   a) Sugar b) Ketone c) Aldehyde d) Alcohol

3) Water soluble alkaloid present in Ergot is used as
   a) Hypotensive b) Diuretic c) Migraine d) Oxytocic

4) Outer surface of alkaloidal root drug shows annulations in _____
   a) Rauwolfia b) Ipecac c) Rhubarb d) Podophyllum

5) Vitalis test is used to confirm alkaloids of
   a) Apocyanaceae b) Rutaceae
   c) Solanaceae d) Loganiaceae

6) Sterioidal lactones of Ashwagandha is
   a) Withaferin A b) Liquritine c) Anaferin d) Somanine

7) Crude drug Ma-Haung is used as a source of which alkaloid
   a) Strychnine b) Ergometrine
   c) Hyoscyamine d) Emetine

8) Opium alkaloids are derivative of
   a) Palmitic acid b) Oleic acid
   c) Meconic acid d) Abietic acid

9) Identify the family of Digitalis

a) Rosaceae b) Labiatae c) Liliaceae d) Scrophulariaceae

10) Barbaloin contain which type of linkage to sugars

a) N-type b) S-type c) O-type d) C-type

11) Glycosides present in Jestamadhu is

a) Steroidal b) Isothiocynate

c) Indole d) Anthraquinone

12) Isothiocyanate glycoside are present in _____ drug.

a) Mustard b) Picrorrhiza c) Isaphgol d) Aloe

13) Fruit of Carica is the source of _____ enzyme.

a) Bromelain b) Urokinase c) Diastase d) Papain

14) Peels of Lemon and Orange fruits are used as source of

a) Flavonoid b) Terpenoid c) Tannin d) Oils

15) Fixed oil obtained from marine liver of fish is a good source of

a) Minerals b) Vitamin-A c) Harmone d) Fats

16) In biosynthesis of Alkaloid most essential precursor required is _____ acid.

a) Fatty b) Amino c) Organic d) Inorganic

2. Answer **any four** : **(4×4=16)**

a) How alkaloids are classified ? Write with examples.

b) Explain chemistry of Cardenolides.

c) Write a note on Streptokinase enzyme.

d) Write difference between Black and White mustard.

e) Explain the life cycle of Ergot.

3. Answer **any four** : **(4×4=16)**
   a) What are bitters. Write any one in short.
   b) Write a note on Lobelia.
   c) Give the biosynthetic pathway of Tropane alkaloids.
   d) Write a note on newer marine medicinal agent.
   e) What are bioflavonoids ? Explain in brief any one.

4. Answer **any two** : **(8×2=16)**
   a) Define alkaloids. Give Pharmacognosy of Rauwolfia.
   b) How alkaloids of opium are biosynthesized give the pathway.
   c) Write in brief :
      a) Bitter almond
      b) Ashwagandha.

5. Answer **any two** : **(8×2=16)**
   a) What are Glycosides. Explain Anthraquinones with any one example.
   b) What are alkaloidalamines. Explain with reference to Ephedra.
   c) Write a note on :
      a) Saponins
      b) Bioflavonoidal Gingko leaves.

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Seat No.	

Final Year B. Pharmacy (Annual Pattern) Examination, 2015
PHARMACOGNOSY AND PHYTOCHEMISTRY – II

Day and Date : Monday, 21-12-2015 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 Quesitons. **(1×16 =16)**

1) Opium alkaloids are the salts of

a) Quinic acid b) Oleic acid c) Meconic acid d) Oxalic acid

2) Amla is fresh or dried fruit of

a) Arachis freshica b) Amla officium

c) Emblica officinalis d) Amlika acuminata

3) *'Pseudoplexuraporosa'* is the botanical source of

a) Ara- C b) Crossin acetate

c) Bryostatin d) Asperidol

4) Wagner's test is used for detection of

a) Alkaloid b) Tannin c) Glycoside d) Mucilages

5) Artemisia flower heads of compositae is used as

a) Anthelmintic b) Aphrodisiac

c) Mosquito repellent d) Antipruritic

6) Tannins are polyhydroxy _____ acids

a) Phenolic b) Carboxylic c) Organic d) Inorganic

7) Lobeline alkaloid belongs to _____ type of alkaloid.

a) Indole b) Tropane c) Steroidal d) Piperidine

8) Alkaloids of Cinchona bark are detected by

a) Iodine test b) Vitali – Morin test

c) Thalleoquin test d) None of the above

P.T.O.

9) Sacred basil is the synonym of
   a) Vinca b) Jasmine c) Sandalwood d) Tulsi

10) Which one of the following anticancer marine drug obtained from the Sea hare ?
   a) Dolastatin b) Aplidine c) Xenia d) Napthea

11) Drug of choice for the treatment of Gout is
   a) Mustard b) Opium c) Colchicum d) Cinchona

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) Nuxvomica seeds contain trichomes of
   a) Unicellular and stratified
   b) Lignified
   c) Bulbaceous lignified
   d) Multicellular

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) Shatavari belongs to
   a) Apocyanaceae b) Labiteae
   c) Liliaceae d) Rutaceae

2. Answer **any four**. **(4×4=16)**
   a) Write a note on Neem.
   b) Give the classification of Plant Allergens.
   c) Explain any two cytotoxic compounds from marine source.

d) Explain Ashwagandha in brief.

e) Explain following chemical tests :

i) Van Urk's test

ii) Vitali Moris test.

3. Answer **any four**. **(4×4=16)**

a) Give biological source, family, chemical constituents and uses of Ginseng.

b) Define Volatile oils and classify with example.

c) Write the biological source, constituents and uses of Pale catechu.

d) Draw the structure of following constituents :

i) Quinine

ii) Caffeine.

e) Give the Source and uses of :

i) Ephedra

ii) Cardamom.

4. Answer **any two**. **(8×2=16)**

a) Define and classify Tannins, Describe Black Catechu.

b) Discuss Clove under Pharmacognostical scheme.

c) Write Pharmacognosy of Opium.

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 Fennel.

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Seat No.	

B. Pharmacy (Semester – VIII) Examination, 2015
NOVEL DRUG DELIVERY SYSTEMS

Day and Date : Tuesday, 8-12-2015 Max. 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.*

I. Choose the correct answer from the following choices : **(1×16=16)**

1) For maximum bioavailability, drug should be targeted in the vicinity of
   a) oral cavity b) large intestine
   c) small intestine d) oesophagus

2) If in an aerosol the aqueous product is not miscible with the liquefied propellant, it forms
   a) One phase system b) Two phase system
   c) Three phase system d) Five phase system

3) BCS class-III drugs possess
   a) low solubility and low permeability
   b) high solubility and low permeability
   c) low solubility and high permeability
   d) high solubility and high permeability

4) _____ is used as useful tool to analyze solvent characteristics of liquefied propellant.
   a) vapour pressure b) kauri-butanol value
   c) colour d) none of these

5) _____ coating can be applied to increase pressure resistance of glass containers.
   a) ethyl cellulose b) polyvinyl cellulose
   c) polyvinyl alcohol d) none of these

6) The membrane materials that can be added for osmotic devices are _____
   a) flux enhancer b) dispersing agent
   c) both a and b d) none of these

7) Matrix systems can be prepared by
   a) encapsulation b) binding
   c) congealing d) none of these

8) The delivery limit on drugs those are absorbed from small intestine in the fed state is
   a) 3 – 6 Hrs b) 1 – 2 Hrs
   c) 6 – 10 Hrs d) 10 – 12 Hrs

9) _____ is used in ultrasonication equipment.
   a) Quartz b) Silicon dioxide
   c) Barium tri-nitrate d) All of these

10) If in an aerosol the aqueous product is miscible with the liquefied propellant, it forms _____
   a) One phase system b) Two phase system
   c) Three phase system d) None of these

11) As a general rule _____ produce more stable multiple emulsions.
   a) mineral oils b) volatile oils
   c) fixed oils d) all of these

12) Implantable drug delivery system should be _____
   a) isobaric b) sterile
   c) both a and b d) none of these

13) Poor drug absorption from colon is due to
   a) less surface area b) more viscous luminal contents
   c) lower water content d) all of these

14) The release rate from a coated formulation depends upon
   a) Polymer ratio b) Thickness of coat
   c) Both a and b d) None of these

15) _____ pH range is most unsuitable for bioadhesion.
   a) 4 – 7 b) 1 – 3
   c) Both a and b d) None of these

16) Alginates are example of _____ type of polymers.
   a) hydrophilic b) hydrophobic
   c) amphiphilic d) none of these

II. Answer **any four** : **(4×4=16)**

1) What are the benefits of liposomal drug delivery systems ?

2) Discuss implants as a controlled drug delivery system.

3) Give the labeling and storage requirement for pharmaceutical aerosols.

4) Describe the design of intra-uterine devices giving suitable examples.

5) Write a note on three phase aerosols systems.

III. Answer **any four** : **(4×4=16)**

1) Classify propellants. Explain in detail about liquefied propellants.
2) Describe the drug selection criteria for modified drug delivery systems.
3) Giving relevant example explain externally modulated drug delivery system.
4) How is the total dose of an oral CRDDS calculated ?
5) Write a note on foam aerosols.

IV. Answer **any two** : **(8×2=16)**

1) Explain how modified release is evaluated by dissolution tests.
2) Develop a formula for bioadhesive drug delivery. Give logical reasoning for selection of excipients in the formula.
3) Explain the formulation of solution and suspension types of aerosols.

V. Answer **any two** : **(8×2=16)**

1) Give methods to develop oral modified drug delivery systems. Discuss the design of diffusion controlled systems.
2) Explain the important physicochemical properties of liquefied propellants. How are they numbered ?
3) Describe the different approaches for transdermal drug delivery systems.

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Seat No.	

B.Pharmacy (Semester – VIII) Examination, 2015
PHARMACEUTICAL BUSINESS MANAGEMENT

Day and Date : Thursday, 10-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

1) _____ is an art and science of getting the work done through people with satisfaction for employer and employee and public.
   a) Planning b) Management c) Both a and b d) None of these

2) Which of the following are sources of recruitment ?
   a) Journal ads b) Newspaper ads
   c) Campus interviews d) All of these

3) Marketing is science and art of exploring, creating and delivering value to satisfy needs of _____
   a) Customer b) Retailer c) Wholesaler d) Manufacturer

4) The activity of determining and satisfying wants in a systemic manner is called as _____
   a) Marketing mix b) Marketing research
   c) Both a and b d) None 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 involves group of ingredients into the categories _____
   a) Product b) Price c) Place d) All of these

8) Second stage in the life cycle of products 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) The growing population of a country indicates a growing _____ for consumer.
   a) Medicine b) Vehicle c) Market d) None of these

11) _____ process of dividing a potential market into distinct subjects and consumer with common characteristics.
   a) Marketing mix b) Marketing research
   c) Market segmentation d) None of these

12) After the medicine loses patent protection, copies of _____ can be manufactured.
   a) Semisolid b) Generic products
   c) Branded products d) All of these

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) The product familiarization program also called as _____
   a) Seeding program b) Forwarding program
   c) Weeding program 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) A firms marketing mix would not include _____
   a) Product b) Price c) Profit d) Promotion

II. Answer **any four** : **(4×4=16)**

1) Explain importance of understanding market behavior in the marketing management.

2) Explain the role of Pharmaceutical sales representative.

3) Discuss product life cycle.

4) Define the training and why is it necessary.

5) Discuss the special features of co-operative form of business organization.

III. Answer **any four** : **(4×4=16)**

1) What are the personal qualities of good professional sales representative ?

2) Give a brief account of wholesaler.

3) Define the term planning and discuss the salient features of planning.

4) Discuss marketing of generic drugs.

5) Write a note on pharmaceutical industry in India.

IV. Answer **any two** : **(8×2=16)**

1) What do you know about market research ? Discuss the various methods of market research.

2) Discuss the various importance and reasons of branding.

3) Describe the various functions of management in a brief.

V. Answer **any two** : **(8×2=16)**

1) Explain in detail about Pharmaceutical distribution channels.

2) What are the salient features of sole proprietorship business ? Describe the advantages and disadvantages of this form of organization.

3) Explain the term retailers. Mention the main functions which are generally performed by the retailers.

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Seat No.	

B.Pharmacy (Semester – VIII) Examination, 2015
MEDICINAL CHEMISTRY – IV

Day and Date : Saturday, 12-12-2015 Total Marks : 80

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

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

1) All of the following agent are β -adrenergic agonist except
   a) Epinephrine b) Dobutamine
   c) Isoproterenol d) Phentolamine

2) Which of the following drug is the shortest acting acetylcholinesterase inhibitor
   a) Edrophonium b) Neostigmine
   c) Trimethorphan d) Physostigmine

3) Which one of the following is a MOA of lovastatin ?
   a) Increase 7α -hydroxylase activity
   b) Increase lipoprotein lipase
   c) Inhibit 3-hydroxy-3-methylglutaryl-co-A reductase enzyme
   d) Inhibit hormone sensitive lipase

4) Choose the drug that often causes tachycardia when given in regular doses
   a) Verapamil b) Propranalol
   c) Guanethidine d) Isosorbide dinitrate

5) Which of the following is selective β 2-agonist ?
   a) Caffeine b) Propranolol c) Salbutamol d) None of above

6) _____ heterocyclic ring is present in diazoxide drug.
   a) Benzthiazole b) Benzothiadiazine
   c) Benzodiazepam d) Benzothioxazole

7) Nicotinic action of acetyl choline is blocked by the drug
   a) Atropine b) d-tubocurarine
   c) Neostigmine d) None of above

8) Which one of the following is not a nitrovasodilator ?
   a) Amyl nitrate b) Sodium nitrate
   c) Nitro glycerin d) None of above

9) Minimum structural requirement for binding and cleavage of a substrate by ACE is

a) Dipeptide with a free amino group

b) Dipeptide with a free carboxylate group

c) Tripeptide with a free carboxylate group

d) Tripeptide with a free amino group

10) Which one of the following called cardiotonic agent ?

a) Dopamine b) Isoprenaline c) Digitalis d) Propranolol

11) _____ is a starting material used in biosynthesis of Acetyl choline.

a) Tyrosine b) Serine c) Tryptophan d) Choline

12) _____ drug affect the storage of adrenaline.

a) Reserpine b) Guanithidine c) Metyrosine d) Both a) and b)

13) _____ is not an irreversible cholinesterase inhibitor drug.

a) Neostigmine b) Ecothiophate iodide

c) Isoflurophate d) Parathione

14) _____ is a calcium antagonist drug.

a) Verapamil b) Diltiazem c) Nifidepine d) All of above

15) Salbutamol can be synthesized from

a) 4-hydroxy-3-hydroxymethyl benzaldehyde

b) 2-hydroxy-3-hydroxymethyl benzaldehyde

c) 4-methoxy-3-hydroxymethyl benzaldehyde

d) None of above

16) Insertion of _____ bridge in arylethanolamisne gives aryloxy propanolamine class of β-blockers.

a) oxymethylene b) oxyethylene

c) oxybutylene d) methylene

2. Solve **any four** : **(4×4=16)**
   1) Explain the drug affecting storage and release of Nor-adrenaline.
   2) Discuss MOA of calcium channel blocker with suitable examples.
   3) Explain SAR of acetylcholine.
   4) Define and classify antianginal agents. Give SAR of organic nitrate.
   5) Explain β-adrenergic blocker drug.

3. Solve **any four** : **(4×4=16)**
   1) Explain HMG-CO-A reductase inhibitor with examples.
   2) Write on neuromuscular blocking agent.
   3) Explain SAR of direct acting sympathomimetics drug.
   4) Discuss MOA and SAR of reversible cholineresterase enzyme inhibitors with suitable examples.
   5) Write in short on Hansch analysis.

4. Solve **any two** : **(8×2=16)**
   1) Give chemistry, SAR and MOA of cardiotonic agent.
   2) Define and classify antihypertensive agent. Explain MOA and SAR of ACE inhibitors.
   3) Write synthesis and uses of
      a) Dicyclomine
      b) Procainamide
      c) Cyclopentolate
      d) Nifedipine.

5. Solve **any two** : **(8×2=16)**
   1) Explain biosynthesis, storage and release of Nor-Adrenaline. Name the drug target which will affect the process of adrenergic nerve transmission.
   2) Define and give types of pro-drug. Explain each types with suitable examples.
   3) Enlist various parameters studied in QSAR parameter. Explain in detail stearic and electronic QSAR parameter.

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Seat No.	

B.Pharm. (Semester – VIII) Examination, 2015
PHARMACEUTICAL ANALYSIS – VI

Day and Date : Tuesday, 15-12-2015 Total Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

1) Most commonly used internal standard in NMR is
   a) Tetra Methyl Selenium
   b) Tetra Methanol Selenium
   c) Tetra Methyl Silane
   d) Tetra Methanol Silane

2) Magnetic field strength in mass spectrometry is generally measured in
   a) Guass
   b) Tesla
   c) Cycles per second
   d) Both a) and b)

3) Mass spectroscopy normally detects _____
   a) Negative ions
   b) Positive ions
   c) Neutral particles
   d) All of the above

4) Nitrogen rule states that compound having odd number of molecular mass contains _____
   a) No nitrogen
   b) Even number of nitrogen atoms
   c) Odd number of nitrogen atoms
   d) No nitrogen or odd number of nitrogen

5) Chemical shift is expressed in _____ units.
   a) cm^{-1}
   b) ppm
   c) mm^{-1}
   d) m/s^2

6) In Mass spectroscopy Tropylium ion forms peak at m/e = _____
   a) 91
   b) 89
   c) 57
   d) 191

P.T.O.

7) Which of the following relation is true for Quantitation Limit (QL) ?

a) $QL = \frac{10 \times \text{Std. deviation}}{\text{Slope of cal. curve}}$ b) $QL = \frac{10.3 \times \text{Std. deviation}}{\text{Slope of cal. curve}}$

c) $QL = \frac{3.3 \times \text{Std. deviation}}{\text{Slope of cal. curve}}$ d) $QL = \frac{5.3 \times \text{Std. deviation}}{\text{Slope of cal. curve}}$

8) Which of the following type of glass container has less hydrolytic resistance ?

a) Type I b) Type II c) Type III d) Neutral glass

9) Which of the following is a measurement of scattering of values in a data set ?

a) Mean b) Mode

c) Median d) Standard deviation

10) M + 1 peak is observed for compounds with _____ isotope.

a) Chlorine b) Bromine c) C^{13} d) Both a) and b)

11) MALDI uses _____ for ionising a sample.

a) Electron beam b) Argon atoms

c) Laser beam d) Methane gas

12) Chemical ionization uses _____ reagent gas.

a) Nitrogen b) Methane c) Hydrogen d) Argon

13) As per ICH guidelines accuracy should be assessed using minimum _____ determinations.

a) 9 b) 3 c) 6 d) 5

14) In mass spectrometry vacuum system is used to remove _____

a) Neutral molecules b) Negative ions

c) Radicals d) All of the above

15) The arithmetic mean of the given data set is _____

Data set : 15, 45, 55, 63, 47

a) 45 b) 50 c) 60 d) 40

16) Which of the following test is performed for plastic packaging material for non parenteral use ?

a) Leakage Test b) Non volatile residue

c) Clarity of aqueous extract d) All of the above

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

1) Explain in brief quality assurance.
2) Define the terms :
   i) Robustness
   ii) Specificity
   iii) Median
   iv) Mode.
3) Explain Normal Distribution and Standard Deviation.
4) Define accuracy. How is accuracy for an analytical method for assay of drug substance determined ?
5) Give principle involved in mass spectrometry.

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

1) Give the principle of proton NMR.
2) Explain electron impact ionisation in mass spectrometry.
3) Explain in short bursting strength test and tensile strength test for packaging material.
4) Which standard is used in NMR ? Justify.
5) Write in detail F Test.

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

1) Elaborate on quality control tests for Plastic as a packaging material.
2) What is chemical shift ? Explain the factors affecting chemical shift.
3) Enlist components of mass spectrometer and explain sample inlet system of it. Add a note on Mc Lafferty rearrangement and Retro Diel Alder's rearrangement.

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

1) Explain instrumentation involved in NMR spectroscopy with a neat labeled diagram.
2) Explain in detail any two mass analysers with appropriate diagram.
3) Explain in detail coupling constant in NMR. Also add a note on applications of NMR.

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SLR-I – 46

Seat No.	

B. Pharmacy (Semester – VIII) Examination, 2015
PHARMACOLOGY – IV

Day and Date : Thursday, 17-12-2015 Max. Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

I. Choose most appropriate answer for multiple choice questions given below : **(1×16=16)**

1) Which of the following anti-tubercular agent is bactericidal ?
   a) Ethambutol b) Streptomycin
   c) Isoniazid d) Para Amino Salicylic Acid

2) Which of the following fluoroquinolones have highest propensity to cause phototoxicity ?
   a) Norfloxacin b) Sparfloxacin
   c) Ciprofloxacin d) Ofloxacin

3) _____ is an ester prodrug of ampicillin with better tissue penetration and lesser incidence of diarrhoea.
   a) Bacampicillin b) Amoxicillin
   c) Carbenicillin d) Piperacillin

4) _____ of the following is an antimetabolite type antifungal drug.
   a) Amphoterecin-B b) Flucytosine
   c) Griseofulvin d) Nystatin

5) Which of the following drug is active against malarial parasites in Hepatic, Erythrocytic, Latent tissue and gametocytic phase of their life cycle ?
   a) Quinine b) Primaquine
   c) Chloroquine d) Amodiaquine

6) Alkylating agents alkylate the DNA of tumor cells most frequently at _____ position.

a) 7^{th} – Guanine
b) 7^{th} – Adenine
c) 5^{th} – Guanine
d) 5^{th} – Adenine

7) Which among the following cytotoxic drugs has highest potential to cause vomiting ?

a) Etoposide
b) Fluorouracil
c) Cisplatin
d) Procarbazine

8) _____ of the following is an example of Quantal Bioassay.

a) Insulin induced hypoglycemic convulsions in rats
b) Acetic acid induced writhing response in mice
c) Acetylcholine induced contractions of chick ileum
d) Both a) and b)

9) _____ is an antihypertensive which is also used in the treatment of alopecia, applied as a 2% solution.

a) Propranolol
b) Nifedipine
c) Minoxidil
d) Hydralazine

10) _____ of the following is a keratolytic agent used in the treatment of Psoriasis.

a) Salicylic Acid
b) Calcipotriol
c) Dithranol
d) Coal Tar

11) A drug used in the treatment of Acne, structurally similar to tretinoin but with lesser irritancy is

a) Adapalene
b) Cyproterone
c) Azelaic Acid
d) None of these

12) _____ is a histamine substitute used in the treatment of vertigo and Meneier's disease.

a) Cinnarizine
b) Betahistine
c) Cyproheptadine
d) Promethazine

13) _____ is a non-selective beta adrenergic blocker used in the treatment of glaucoma as 0.25% drops.

a) Amlodipine b) Losartan

c) Timolol d) Atenolol

14) Specific dose related toxicity of sulfonamides is

a) Crystalluria b) Glucosuria

c) Ototoxicity d) Allergic Reactions

15) _____ is an example of acid resistant penicillin.

a) Penicillin G b) Procaine Penicillin

c) Penicillin V d) Benzathine Penicillin

16) _____ is an example of first generation of parenteral cephalosporin.

a) Cephalexin b) Cefadroxil

c) Cefazolin d) Cephradine

II. Answer **any four** : **(4×4=16)**

1) Why sulfamethoxazole and Trimethoprim are used in a fixed dose combination ?
2) Write a note on Bacterial Resistance.
3) Write a brief note on drug therapy of psoriasis.
4) Classify Antifungal Drugs with examples.
5) Describe bioassay of d-Tubocurarine.

III. Answer **any four** : **(4×4=16)**

1) Describe common properties of Aminoglycoside antibiotics.
2) Classify Anti-viral drugs with examples.
3) Briefly write about drug therapy of acne.
4) Write mechanism of action of Erythromycin and Ciprofloxacin.
5) Write a note on adverse effects and uses of Tetracyclins.

IV. Answer **any two** : **(8×2=16)**

1) What are antineoplastic drugs ? Classify them with examples. Add a note on Antimetabolites as antineoplastic drugs.

2) Why tuberculosis is a difficult to treat infection ? Classify anti-tubercular drugs with examples. Add a note on treatment of tuberculosis.

3) Define Bioassays. Write principles, types and applications of Bioassays.

V. Answer **any two** : **(8×2=16)**

1) Classify antiretroviral drugs with examples. Add a note on Treatment of AIDS.

2) Enumerate various classes of drugs used in the treatment of glaucoma. Add a note on pharmacotherapy of glaucoma.

3) What are beta Lactam antibiotics ? Classify Penicillins with examples. Add a note on mechanism of action, adverse effects and uses of Benzyl penicillin.

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SLR-I – 47

Seat No.	

B. Pharmacy (Semester – VIII) Examination, 2015
HERBAL TECHNOLOGY

Day and Date : Saturday, 19-12-2015 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) Instrumental analyses employed for heavy metals determination is by
   a) Atomic absorption spectrophotometry (AAS)
   b) GC-MS
   c) HPLC
   d) All the above

2) Recommended Packaging options for drugs that are woody in nature – Root, stem, wood, woody bark etc is
   a) Gunny bags b) Jute bags
   c) Woven sacks d) All the above

3) Disintegration time and weight variation are the quality control tests for
   a) Vati b) Bhasma c) Pishti d) Taila

4) In the Quality control for Hair dyes, Color uniformity, compatibility of color with hair, washability of color and color stability are the evaluation parameters to determine the
   a) Performance b) Toxicity
   c) Physico-chemical property d) None

5) Asavas are prepared by
   a) directly using fresh herbal juices
   b) decoctions of herbs in boiling water
   c) both a) & b)
   d) none of the above

6) Semi-solid preparations of drugs prepared by addition of sugar, Jaggery or sugar candy and boiled with prescribed drug juice or decoction.

a) Arka b) Avaleha c) Arista d) Asava

7) Ideal time for collection of leaves and herbs are

a) at the end of the vegetation period

b) in the spring

c) at the flowering stage

d) none of the above

8) Problems that are not applicable to synthetic drugs but influence the quality of herbal drugs

a) Plant materials are chemically and naturally variable.

b) The source and quality of the raw material are variable.

c) The methods of harvesting, drying, storage, transportation, and processing

d) All the above

9) Natural common herb used in cosmetics as hair conditioner and growth promoter

a) Neem b) Sandal wood c) Ginkoba d) Henna

10) Quality of herbal medicinal product complies with _____

a) GMP b) GLP c) GACP d) All of above

11) Asava and Arista are belongs to _____ type of preparation.

a) Homopathic b) Sidda c) Unani d) Ayurvedic

12) Poly herbal formulation is an advantage to get all together improves efficacy and reduces _____.

a) Safety b) Adverse effect

c) Quality d) Medicinal value

13) General Requirements for assessment of the efficacy of herbal medicine as per WHO.

a) Acute disease b) Health condition

c) Chronic disease d) All the above

14) Recommended Packaging options for Fleshy materials-fleshy rhizomes (Shatavari) fruit rinds (Kokum butter) of flowers, fruit (Amla)

a) Jute bags with high polyethylene liners

b) Woven sacks with high polyethylene liners

c) Both a) and b)

d) None

15) Nutraceuticals and health foods are require to satisfy _____

a) Safety and effective b) Natural

c) Attractive Pack d) Low cost

16) Spurious drugs are grouped in section _____

a) 33EEA b) 33HT c) 33EEB d) 33EH

2. Answer **any four**. **(4×4=16)**

1) What are Pesticidal residues ? Write its effects in crude drugs.

2) Classify various dosage forms along with their merits and demerits.

3) Write the method of preparation of Gutika.

4) Write 4 merits and demerits of Monoherbal Formulations.

5) What are Ayurvedic formulations ? Give examples.

3. Answer **any four**. **(4×4=16)**

1) How do you determine the microbial count in plant drugs.

2) Define Phytopharmaceuticals and give examples including their Source and Indications.

3) What are hygienic conditions required at factory premises of AUS Formulations.

4) What type of natural products are usually used in herbal cosmetics ?

5) Define the following with examples.

a) Avaleha b) Churna

4. Answer **any two**. **(8×2=16)**

   1) Explain Poly herbal formulations and describe their merits and demerits.

   2) What are WHO 1992 Recommendations for quality of Plant raw material as per Pharmacopoeial specifications.

   3) Write note on

      a) Herbal Drug regulations in India

      b) Evaluation of Taila

5. Answer **any two**. **(8×2=16)**

   1) How do you prepare and standardize Asava and Arista ? And give examples .

   2) How herbal shampoos helps in maintaining healthy conditions of hairs ?

   3) Write note on :

      a) Preparation and Evaluation of Churna

      b) Define four different class of herbal medicines.

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