SLR-JA-1

Seat No.	

Set P

B. Pharmacy (Semester - I) (CBCS) Examination: March/April - 2024
Human Anatomy and Physiology-I (801101)

Day & Date: Tuesday, 21-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions **20**

1) Finger like projection that helps in absorption _____.
a) Cilia b) Microvilli
c) Flagellum d) Houses

2) Which of following connective tissue cells consist of matrix of gelatinous material?
a) Cartilage
b) Lymph
c) Areolar, adipose, reticular, dense
d) Bone

3) Which is the structure level of organization?
a) Chemical level b) Cellular level
c) Organ level d) All of above

4) Platelets are formed from what type of cell _____.
a) Melanocytes b) Macrophages
c) Astrocytes d) Megakaryocytes

5) On what basis blood group is classified _____.
a) Antigen and antibody b) Rh factor
c) Hemoglobin content d) Oxygen Content

6) Which of the following leukocytes have the ability to produce antibodies?
a) Monocyte b) B Lymphocytes
c) Neutrophils d) None of above

7) Which of the following are the principal lymphoid organs in the body?
a) Lymph nodes b) Malt
c) Peyer's patches d) Spleen

8) The Trochlear nerve is _____ cranial nerve.
a) IV b) IX
c) VI d) V

9) The outer layer of the skin is composed of _____.
a) Transitional epithelium
b) Pseudo stratified columnar epithelium
c) Stratified columnar epithelium
d) Stratified squamous epithelium

10) Sudden closure of AV valves produces _____.
a) Fourth Sound b) First Sound
c) Third Sound d) Second Sound

11) Which of the following taste receptors are located along the sides of the tongue?
a) Salt b) Sweet
c) Bitter d) Sour

12) Shoulder and hip joint are _____ type of joint.
a) Condyloid joint b) Ball and socket joint
c) Hinge joint d) Fibrous joint

13) Postganglionic fiber neurotransmitter in sympathetic division is _____.
a) Adrenalin b) Acetyl choline
c) Nor - Adrenalin d) None

14) Which of following is a function of sympathetic nervous system?
a) Dilation of pupil b) Inhibition of saliva
c) Increase heart beat d) All

15) Sweat glands also known as _____.
a) Sudoriferous b) Both A & B
c) Sudoriparous gland d) None of above

16) P wave on the electrocardiogram corresponds / represents _____.
a) Arterial depolarization b) Ventricular depolarization
c) Both a and b d) none of above

17) Which of following is the contractile protein of a muscle?
a) Tubulin b) Tropomyosin
c) Myosin d) All of these

18) The first vertebra of cervical region of vertebral column is known as: _____.
a) Atlas b) Sacral
c) Thoracic d) Axis

19) Blind spot in eye is a synonym for _____.
a) Sclera b) Choroid
c) Optic disc d) Macula Lutea

20) Bi-lobed nucleus is observed in _____.
a) Neutrophil b) Eosinophils
c) Erythrocytes d) Lymphocytes

Q.2 Answer any seven of the following questions. **35**

a) Explain mechanism of homeostasis process with any one example.
b) Write structure, location and function of epithelial and muscular tissue.
c) Describe the process of cell division.
d) Write about Integumentary System.
e) Write the forms of intracellular signaling process.
f) Explain structural and functional classification of joint with examples.
g) Write a short note on electrocardiogram.
h) Give the composition of blood. Add note on erythrocytes.
i) Write note on parasympathetic nervous system.

Q.3 Answer any two of the following questions. **20**

a) Explain in detail about cardiac cycle. Add note on ECG.
b) Discuss anatomy and physiology of Ear.
c) What is hemostasis? Explain in detail about clotting mechanism.

SLR-JA-2

Seat No.	

Set P

B. Pharmacy (Semester - I) (CBCS) Examination: March/April-2024
Pharmaceutical Analysis - I (801103)

Day & Date: Friday, 24-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice questions **20**

1) Hydrogen electrode can be used as _____ in potentiometry.
   a) Reference b) Indicator
   c) Both of a and b d) None of these

2) Reduction involves _____.
   a) Loss of electron b) Gain of electron
   c) Both a and b d) None of these

3) 40 gm of NaOH in 1 liter means _____.
   a) 1 M b) 1 N
   c) 0.5 N d) Both a and b

4) In Hydrogen electrode, the electrode is placed in a solution of _____ M HCl.
   a) 0.5 b) 1
   c) 2 d) 3

5) Which is example of Protogenic solvents?
   a) HCl b) KOH
   c) HAC d) Benzene

6) Which of the following is primary standard
   a) Oxalic acid b) Potassium permagnate
   c) Sodium thiosulphate d) Sodium hydroxide

7) No. of moles of solute present in one Kg of solvent is _____.
   a) Normality b) Molarity
   c) Molality d) Formality

8) Aromatic Primary amines are titrated with _____.
   a) Sodium nitrite b) Perchloric acid
   c) Acetic acid d) None of above

9) _____ is used for end point detection in nitrite titration.
   a) Starch solution b) Starch-iodine solution
   c) Starch paper d) Starch-iodide paper

10) The sulpha drugs are titrated with _____.
   a) Sodium sulphate b) Sodium hydroxide
   c) Sodium nitrite d) None of above

11) _____ Is the determination of the amount of a particular element, species or compound present in a sample.
   a) Quantitative analysis b) Qualitative analysis
   c) Limit test d) None of the above

12) In Conductometric titration of strong acid with strong base _____ shaped graph is obtained.
a) V b) Y
c) Plateu d) Straight line

13) _____ is used as indicator in complexometric titration.
a) Erichrome black T b) Xylenol or
c) Murexide d) All of the above

14) Sodium chloride assay is based on _____.
a) Volhards b) Mohrs
c) Gay Lusacs d) Fajan's

15) EDTA is a _____.
a) Hexadentate ligand b) Tetradentate ligand
c) Octadentate ligand d) Pentadentate ligand

16) Which drug is assay by redox titration?
a) Ferrous gluconate b) Metformin
c) Cinchonism d) Digioxin

17) In precipitation titration _____ titrant is used.
a) Silver nitrate b) Sodium thiosulphate
c) EDTA d) None of these

18) Assay of Ephedrine HCl based on _____.
a) Acid base titration b) Non aqueous titration
c) Precipitation titration d) Complexometric titration

19) _____ is protophilic solvent.
a) Pyridine b) ethylene diamine
c) Acetic acid d) Both a and b

20) For filtration of gelatinous precipitate in gravimetric analysis _____ is used.
a) Filter paper b) Filter pulp
c) Filter mats d) None of these

Q.2 Long answers (Answer 2 Out of 3) **20**

a) Write note on principle, types and application of redox titrations.
b) Describe in detail gravimetric analysis.
c) Define pharmaceutical analysis and write its scope. Discuss different techniques of analysis.

Q.3 Short answers (Answer 7 out of 9). **35**

a) Write note on masking & demasking agents.
b) Write note on sodium nitrite titration.
c) Write construction and working of one reference electrode and indicator electrode.
d) Write in brief about limit test with example.
e) Explain end point detection of acid base titration by conductometry.
f) Explain dropping mercury electrode.
g) Write note on theories of acid base indicators.
h) Discuss Volhards and modified Volhards method.
i) What is non aqueous titration and write note on solvents used in non-aqueous titration

SLR-JA-3

Seat No.	

Set P

B. Pharmacy (Semester - I) (CBCS) Examination: March/April-2024
Pharmaceutics - I (801105)

Day & Date: Monday, 27-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice questions. **20**

1) The first edition of Indian Pharmacopoeia was published in _____.
   a) 1945 b) 1955
   c) 1965 d) 1966

2) The extra pharmacopoeia was written by _____.
   a) William Martindale b) Dr. B. N. Ghosh
   c) Dr. B. Mukherji d) Dr. Nityanand

3) The Effervescent granules are _____ type of dosage form.
   a) Liquid b) Semisolid
   c) Solid d) Gaseous

4) _____ are administered by means of a suitable special injector or surgical incision.
   a) Pills b) Troches
   c) Lozenges d) Implants

5) Which one of the following is multi-particulate dosage forms.
   a) Beads b) Pellets
   c) Both a and b d) None of the above

6) Which one of the following formulation contains alcohol?
   a) Elixirs b) Tinctures
   c) Spirits d) All of the above

7) Subscription contains instructions to the _____.
   a) Patients b) Pharmacists
   c) Physician d) All of the above

8) 1 Pint = _____ cups.
   a) 1 b) 2
   c) 3 d) 4

9) _____ solutions refers, two solutions having the same osmotic pressure across a semi permeable membrane.
   a) Hypertonic b) Hypotonic
   c) Isotonic d) None of the above

10) Dusting powders are _____ used bulk powders.
   a) Orally b) Internally
   c) Externally d) None of the above

11) Saccharine sodium is used as _____.
   a) Sweetener b) Gelling agent
   c) Diluents d) Humectants

12) Which one of the following is an example of chelating agent?
a) Disodium EDTA b) Starch
c) Lactose d) Glycerin

13) Identify monophonic liquid dosage form amongst following.
a) Suspension b) Emulsion
c) Dispersion d) Solution

14) Iodine throat paint is also called as _____.
a) Lugol's Solution b) Mandal's Paint
c) Aqueous Solution d) None of the above

15) _____ should not be applied to the broken skin.
a) Liniment b) Lotion
c) Both a and b d) None of the above

16) Aerosols are _____ type of dosage form.
a) Semisolid b) Liquid
c) Both a and b d) Gaseous

17) Aluminium Hydroxide gel is used as _____.
a) Analgesic b) Antipyretic
c) Antacid d) Antipruritic

18) _____ is phenomenon in which dispersed phase separates out, forming a layer on the top of continuous phase.
a) Cracking b) Creaming
c) Sedimentation d) Flocculation

19) _____ are also called as polyethylene glycol.
a) Macrogols b) Carbowaxes
c) Polyglycols d) All of the above

20) Which one of the following is not an oleaginous base?
a) Hard Paraffin b) Liquid paraffin
c) Soft paraffin d) Lanolin

Q.2 Answer any seven of the following questions. **35**

a) Write in detail about solid dosage forms.
b) Discuss various methods of ointment preparation.
c) Explain physical incompatibility with suitable example.
d) Define dosage forms. What is need of dosage forms?
e) Explain methods of preparation of emulsion.
f) Define Displacement value? Why and how it is calculated?
g) Give advantages and disadvantages of liquid dosage forms.
h) Write a note on effervescent granules.
i) Write a note on flocculated and deflocculated suspension.

Q.3 Answer any two of the following questions. **20**

a) Discuss various factors affecting posology.
b) Define prescription. What are the parts of prescription?
c) Write a note on United States pharmacopoeia and British pharmacopoeia.

SLR-JA-4

Seat No.		Set	P

B. Pharmacy (Semester - I) (CBCS) Examination: March/April-2024
Pharmaceutical Inorganic Chemistry (801107)

Day & Date: Wednesday, 29-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) IP 2007 addendum was released in _____ (COI).
   a) 2007 b) 2008
   c) 2012 d) 2018

2) Computer generated structural formulae were used first time in IP _____.
   a) 1996 b) 2007
   c) 2010 d) 2018

3) British Pharmacopoeia was published in _____.
   a) 1867 b) 1866
   c) 1865 d) 1864

4) In the limit test for sulphate dil _____ is used.
   a) HCl b) HNO_3
   c) H_2SO_4 d) None of these

5) To trap hydrogen gas in the limit test for arsenic _____ is used.
   a) Mercuric chloride paper b) Lead acetate cotton plug
   c) 0.1 mm hole in tube d) None of these

6) To maintain alkaline media in the limit test for iron _____ is used.
   a) Citric acid solution b) Thioglycolic acid
   c) Ammonia d) All of these

7) The term very soluble express _____ Volume of solvent.
   a) Less than 1 b) 1-10
   c) 10-30 d) 30-100

8) _____ is/are the source(s) of impurities for the pharmaceuticals.
   a) Raw material b) Reagents
   c) Water d) All of these

9) The condition of decreased levels of potassium is termed a _____.
   a) Hyponatremia b) Hypokalemia
   c) Hypocalcemia d) Hypophosphatemia

10) In the new formula of ORS by WHO involves use of _____.
   a) Sodium citrate b) Trisodium citrate dihydrate
   c) Glucose d) All of these

11) _____ mm hole is made at one end of glass tube for arsine gas passage.
   a) 1 b) 2
   c) 2.5 d) 1.5

12) Three volumes for IP released in year _____ for the first time.
a) 1985 b) 1996
c) 2007 d) 2014

13) In _____ Govt. of India constituted committee for preparing IP.
a) 1947 b) 1948
c) 1949 d) 1955

14) In class II methods _____ is used for tonicity adjustment.
a) NaCl b) Water
c) Both a and b d) None of these

15) _____ is a major extracellular ion.
a) Na^+ b) K^+
c) Mg^{++} d) All of these

16) Hyponatremia means _____.
a) Decreased Na^+ b) Increased Na^+
c) Increased K^+ d) Decreased K^+

17) ORS does not contains _____.
a) NaCl b) Glucose
c) HCl d) KCl

18) _____ % aq. Solution of NaF is used topically.
a) 1 b) 2
c) 2.5 d) 4

19) Vessels of copper & galvanized iron introduces _____ as an impurity.
a) Cu b) Fe
c) Zn d) Ca

20) Ammonium chloride assay is based on _____ type of titration.
a) Acid-base b) Precipitation
c) Both A and B d) Gravimetry

Q.2 Answer the following the Questions. (Any Two) **20**

a) What are Antacids? Explain in detail Antacid Therapy.
b) What do you mean by Poison & Antidote? Explain their Classification.
c) Explain in detail methods of Adjusting Tonicity.

Q.3 Answer the following Questions. (Any Seven) **35**

a) Give the sources of Impurities.
b) Compare & contrast limit test for Sulphate and modified limit test for Sulphate.
c) What is role of Fluoride? Give the properties, preparation and uses of Sodium Fluoride.
d) What are Anticaries Agents?
e) Explain in detail Oral Rehydration Therapy.
f) Explain in detail limit test for Iron.
g) Give the preparation, properties, uses & assay of Hydrogen Peroxide.
h) Explain in Detail Expectorants.
i) Explain Geiger- Mullar counter with a labeled diagram.

SLR-JA-5

Seat No.		Set	P

B. Pharmacy (Semester - II) (CBCS) Examination: March/April-2024
Human Anatomy and Physiology- II (801201)

Day & Date: Tuesday, 21-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Autonomic nervous system controls _____.
a) Voluntary movements b) reflex actions
c) Semi-voluntary movements d) Involuntary movements

2) Which of the following cavities contain a component of the central nervous system?
a) abdominal b) pelvic
c) cranial d) thoracic

3) Enzyme formed in mouth is known as _____.
a) amylase b) Starch
c) lipase d) Insulin

4) Process of elimination of all undigested food from body is classified as _____.
a) digestion b) defecation
c) refraction d) diffraction

5) Parietal cell secrets _____.
a) gastrin b) hydrochloric acid
c) pepsin d) pepsinogen

6) Age, Gender, Body size and climate determine the _____.
a) growth rate of an individual
b) basal metabolic rate
c) basal hydrolysis rate
d) pressure influence on growth rate

7) The amount of air that can be inspired above the tidal volume is called as _____.
a) reserve air b) expiratory reserve
c) inspiratory reserve d) vital air

8) The structures in the lungs where gas exchange occurs are called ____.
a) atria b) alveoli
c) ventricles d) bronchi

9) Tidal volume is air _____.
a) Remaining in the lungs after forced expiration
b) Exchanged during normal breathing
c) Inhaled after normal inspiration
d) Forcibly expelled after normal expiration

10) Correct sequence of urine formation is _____.
a) Filtration, Reabsorption, secretion
b) Reabsorption, Filtration, secretion
c) Secretion, Filtration, Reabsorption
d) Filtration, secretion, Reabsorption

11) Urea is the waste product that results from the metabolism of _____.
a) fat b) glucose
c) minerals d) proteins

12) Somatostatin is secreted by _____.
a) pancreatic delta cell b) pancreatic polypeptide cell
c) zona fasciculate d) posterior pituitary

13) Gluconeogenesis occurs in the liver due to the action of _____.
a) aldosteron b) insulin
c) secretin d) cortisol

14) Sertoli cells are _____.
a) endocrine b) nutritive
c) protective d) secretory

15) The timing of puberty can be influenced by which of the following _____.
a) genes b) stress
c) amount of body fat d) all of the above

16) Spermatogenesis takes place in the _____.
a) prostate gland b) glans penis
c) seminiferous tubules d) ejaculatory duct

17) Type of sugar in DNA are _____.
a) Triose b) Tetrose
c) Pentose d) Hexose

18) In meiosis how many daughter cells are produced _____.
a) 8 b) 6
c) 4 d) 2

19) Intrinsic factor is produced by which cell in stomach _____.
a) mucous cells b) chief cells
c) enteroendocrine cells d) parietal cells

20) The four distinct lobes of the cortex are _____.
a) occipital, parietal, temporal and frontal lobe
b) sensory, auditory, visual and motor lobes
c) hind, mid, fore and association lobes
d) front, back, side and top lobes

Q.2 Answer the following. (Any Seven) **35**

a) Give the classification and functions of nervous system.
b) Explain structure and function of liver.
c) Define translation and transcription process of protein synthesis
d) Enlist the factors affecting on BMR.
e) Draw neat labeled diagram of respiratory system and Define the terms
1) Acute bronchitis
2) Chronic bronchitis
3) Asthma

f) Explain the urine formation process.
g) Write a note on Renin- Angiotensin- Aldosterone system.
h) Explain the structure of sperm and process of spermatogenesis.
i) Explain the process of digestion in the stomach.

Q.3 Answer the following. (Any Two) **20**

a) Draw well labeled diagram of brain and explain its different parts.
b) Draw neat labeled diagram of female reproductive organs in the pelvis. Explain menstrual cycle with hormonal changes.
c) Write a note on hormone released from hypothalamus ad pituitary gland.

SLR-JA-6

Seat No.		Set	P

B. Pharmacy (Semester - II) (CBCS) Examination: March/April-2024
Pharmaceutical Organic Chemistry- I (801203)

Day & Date: Friday, 24-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) Propadienes $CH_2=C=CH_2$ is _____.
   a) Conjugated dienes b) Cumulated dienes
   c) Isolated dienes d) None of these

2) Primary alcohol is obtained by _____.
   a) Hydration of alkene b) Dehydration of alkene
   c) Dehydrogenation of alkenes d) None of these

3) 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 these

4) _____ is the regent used in Aldol condensation.
   a) NaOH b) EtOH
   c) KBr d) None

5) Which of the following is strongest acid?
   a) Water b) Formic acid
   c) Acetic acid d) Propanoic acid

6) SN_1 mechanism Proceeds _____ intermediate state.
   a) Free radical b) Pentavalent transition
   c) Carbocation d) None of these

7) Tollen's reagent can be used to distinguish _____.
   a) Amines b) Alcohols
   c) Aldehydes and ketones d) None of these

8) The Grignard reagent is an_____.
   a) Alkyl halide b) Alkyl magnesium halide
   c) An alkyl manganese halide b) A dialkyl copper compound

9) In SN_2 reaction product shows _____ type of stereochemistry.
   a) Retention of configuration b) Inversion of configuration
   c) Racemic mixture d) None of these

10) What is the IUPAC Name for given structure $CH_2=CH-CHO$?
   a) 1-Propanoic acid b) Prop-2-en-I-al
   c) 2-Propanol d) I-Propanal

11) Which of the diazonium salt is most stable?
   a) Aryl diazonium salt b) Alkyl diazonium salt
   c) Cyclo alkyl diazonium salt d) None of above

12) Alkene undergoes hydrogenation reaction to give _____.
   a) Alkanes b) Alkenes
   c) Alkynes d) Conjugated alkanes

13) Propene reacts with HBr in presence of peroxide to give _____.
   a) N-Propyl bromide b) Allyl bromide
   c) Isopropyl bromide d) Vinyl bromide

14) Carbon atom in alkynes is _____.
   a) Sp^4 hybridized b) Sp^3 hybridized
   c) Sp^2 hybridized d) Sp hybridized

15) SN_1 reactions are _____.
   a) Non-molecular b) Unimolecular
   c) Bimolecular d) Tetramolecular

16) Bromine water test is an example for _____ reaction.
   a) Substitution b) Addition
   c) Elimination d) None

17) Ether reacts with conc. HCl or H_2SO_4 in cold to give _____.
   a) Oxonium ion b) Alkene
   c) Alkoxide d) Zwitterion ion

18) Select the order of stability of carbonium ion is _____.
   a) Primary>Secondary>Tertiary
   b) Tertiary > Secondary >Primary
   c) Tertiary >Primary >Secondary
   d) Secondary > Primary > Tertiary

19) Oxidation of primary alcohol gives _____.
   a) Amines b) Aldehydes
   c) Ketones d) Cynide

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

Q.2 Answer Any Seven of the following Questions. **35**

a) Write a note on Saytzeff's rule and Hoffmann rule with suitable example.
b) Define and classify alcohols. How will you separate primary, Secondary, tertiary alcohols?
c) Describe Markovnikov and antimarkovnikov reactions with suitable example.
d) Write a note on stability of conjugated dienes and allylic rearrangement.
e) Write method of preparation of alcohols.
f) Write a note on E_1 and E_2 reactions.
g) Write any five reactions of alkanes.
h) Write method of preparation of aldehydes.
i) Write mechanism, reactions, conditions and criteria with application for benzoin reaction.

Q.3 Answer Any Two of the following Questions. **20**

a) Explain Aldol condensation and Perkin Condensation in detail.
b) Write method of preparation and reactions of alkene.
c) Explain SN_1 and SN_2 reactions of alkyl halide. Describe factor affecting on it.

SLR-JA-7

Seat No.		Set	P

B. Pharmacy (Semester - II) (CBCS) Examination: March/April-2024
Biochemistry (801205)

Day & Date: Monday, 27-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Imino acid found in protein structure is _____.
   a) Arginine b) Proline
   c) Histidine d) Lysine

2) All of the following are basic amino acid except _____.
   a) Lysine b) Arginine
   c) Histidine d) Glycine

3) Folding or twisting of polypeptide chain is called as _____.
   a) α helix b) β sheet
   c) parallel sheet d) Antiparallel sheet

4) DNA does not contain _____.
   a) Thymine b) Adenine
   c) Uracil d) Deoxyrobose

5) Replication of DNA is _____.
   a) Conservative b) Semi conservative
   c) Non Conservative d) None of the above

6) The enzymes of β oxidation are found in _____.
   a) Mitochondria b) Cytosol
   c) Golgi apparatus d) Nucleolus

7) _____ which of the following is not reducing sugar.
   a) Sucrose b) Glucose
   c) Glyceraldehyde d) Fructose

8) Trypsin is an example of the class of enzyme namely _____.
   a) Oxidoreductases b) Transferases
   c) Hydrolases b) Ligases

9) ETC is located in _____.
   a) Mitochondria b) Nucleus
   c) Cytosol d) None of these

10) Alcohol dehydrogenase is the example of class of enzyme namely _____.
   a) Oxidoreductases b) Transferases
   c) Hydrolases d) Ligases

11) The number of ATP produced when a molecule of acetyl Co A is oxidized through TCA cycle _____.
   a) 24 b) 12
   c) 15 d) 10

12) Urea is synthesized in _____ organ.
a) Skin b) Kidney
c) Liver d) Brain

13) Special carnitine transport system is required for _____.
a) Transport of fatty acids b) Activation of fatty acids
c) Proper oxidation d) All of the above

14) After the osazone test sample sugar give needle shaped crystal sample sugar will be _____.
a) Glucose b) Lactose
c) Maltose d) Cellulose

15) α - D - glucose and β - D - glucose are.
a) Anomer b) Epimer
c) Enantiomer d) Geometrical isomer

16) ATP synthetase activity is associated with the mitochondrial enzyme complex _____.
a) I b) III
c) IV d) V

17) The P:O ratio for oxidation of NADH is _____.
a) Four b) Two
c) Three d) One

18) Okazaki pieces are formed during synthesis of _____.
a) mRNA b) tRNA
c) rRNA d) DNA

19) The protein present in hair is _____.
a) Keratin b) Elastin
c) Collagen d) Myosin

20) The optically inactive amino acid is _____.
a) Glycine b) Serine
c) Threonine d) Valine

Q.2 Solve any two. **20**

a) Explain gluconeogenesis
b) Discuss protein biosynthesis with its inhibitors.
c) What is β oxidation of fatty acids.

Q.3 Answer the following questions. **35**

a) Write structure and function of DNA and RNA.
b) Classify amino acids and proteins and write its function.
c) Write note on Electron transport chain.
d) Write note on transamination.
e) Describe Enzyme inhibitors with suitable example.
f) Explain urea cycle.
g) Write in brief about replication of DNA.

SLR-JA-8

Seat No.	

Set P

B. Pharmacy (Semester - II) (CBCS) Examination: March/April-2024
Pathophysiology (801209)

Day & Date: Wednesday, 29-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice questions. **20**

1) Accumulation of water within cytoplasm is seen in _____.
   a) Hydropic change b) Fatty change
   c) Mucoid change d) Hyaline change

2) Inflammation is mediated by?
   a) Histamine b) Serotonin
   c) Prostaglandin d) All of the above

3) Which of the following may cause Heart failure?
   a) Intrinsic pump failure
   b) Increased workload on the heart
   c) Improper filling of cardiac chambers
   d) All of the above

4) Chronic Obstructive Pulmonary Disease does not include _____.
   a) Chronic bronchitis b) Rhinitis
   c) Emphysema d) Bronchial asthma

5) Renal ischemia can be categorized under _____ cause of Acute Renal Failure.
   a) Pre-renal b) Renal
   c) Post renal d) Extra renal

6) Quantitative abnormalities of Polypeptide globin chain synthesis leads to _____.
   a) Hematuria b) Thallassaemia
   c) Hemophilia d) Polycythemia

7) Sudden reduction of body weight by more than 10% is termed as_____.
   a) Obesity b) Wasting syndrome
   c) Hashimoto syndrome d) Cushing syndrome

8) The toxic metabolite in Ethanol metabolism is _____.
   a) Formaldehyde b) Acetaldehyde
   c) Acetyl CoA d) CO_2

9) Which of the following disease occurs commonly at sigmoid colon?
   a) Achalasia b) Regional enteritis
   c) Crohn's diseas d) Ulcerative colitis

10) The major cause of Primary Osteoarthritis is _____.
   a) Infection b) Fracture
   c) Wear and tear d) Joint dislocation

11) Which of the following is the main clinical feature of Alzheimer's disease?
   a) Convulsions b) Abnormalities of posture
   c) Cerebral ataxia d) Progressive dementia

12) *S. typhi is* spread by _____.
   a) Air b) Water
   c) Mosquito d) Sexual contact

13) Chemical agents lacking intrinsic carcinogenicity, but help the initiator carcinogen is known as _____.
   a) Pro-carcinogens b) Apocarcinogen
   c) Promoter carcinogen d) Producer carcinogen

14) The causative organism for syphilis is _____.
   a) Salmonella typhi b) Vibrio cholerae
   c) Tropodema pallidum d) Clostridium tetani

15) Diabetic foot is an example of _____.
   a) Dry gangrene b) Wet gangrene
   c) Gas gangrene d) Pathologic calcification

16) Which of the following is a clinical feature of inflammatory reaction?
   a) Vasoconstriction b) Analgesia
   c) Increased tissue permeability d) All of the above

17) Which of the following is an example of STD?
   a) Typhoid b) Gonorrhoea
   c) Diptheria d) Malaria

18) The most serious condition in bronchial asthma is known as _____.
   a) Bronhiectasis b) Chronic Bronchitis
   c) Idiosyncratic asthma d) Status asthmaticus

19) In the cardinal signs of inflammation, calor refers to _____.
   a) Swelling b) Temperature
   c) Redness d) Pain

20) A rapidand sudden rise in blood pressure above 200/140 mmHg is called as _____.
   a) Pre-hypertension b) Malignant hypertension
   c) Benign Hypertension d) Lethal hypertension

Q.2 Long answers. (Any Two) **20**

a) Classify and describe the risk factors of Congestive Heart Failure.
b) Describe the causes of Chronic Renal Failure. Describe its primary and secondary clinical manifestations.
c) Describe pathogenesis of Iron deficiency anemia, sickle cell anemia and Megaloblastic anemia.

Q.3 Short answers. (Any Seven) **35**

a) What is hypertrophy? Enlist its physiologic and pathologic causes.
b) Distinguish between clinical effects of hypothyroidism and hyperthyroidism.
c) Write a note on types and etiology of chronic bronchitis.
d) Write a note on causes of peptic ulcer.
e) Describe the pathogenesis of atherosclerosis.
f) Write a note on pathogenesis and clinical features of Parkinson's disease.
g) Describe the process of physical and chemical carcinogenesis.
h) Explain the pathogenesis of gout in details.
i) Distinguish between Hepatitis A and Hepatitis B.

SLR-JA-9

Seat No.	

Set P

B. Pharmacy (Semester - III) (CBCS) Examination: March/April-2024
Pharmaceutical Organic Chemistry II (801301)

Day & Date: Monday, 20-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Acid value of given sample of oil or fat is calculated by the formula _____.
a) 1.269 (b-a)w b) 28.05 (b-a)w
c) 5.61 n/w d) 29.05 (b-a)w

2) Electrophilic aromatic substitution reaction of anthracene takes place at _____ position.
a) 9 b) 10
c) 9,10 d) 2

3) Cycloalkanes have general formula _____.
a) CnH2n b) CnH2n-2
c) CnHn d) CnH2n+2

4) Which of the following compounds will undergo coupling reaction with aryl diazonium salt?
a) Aniline b) Phenol
c) Both A & B d) Aliphatic Esters

5) Naphthalene on nitration with HNO3/H2SO4 gives _____.
a) 2-nitronaphthalene b) 1-nitro naphthalene
c) 3-nitronaphthalene d) 4-nitronaphthalene

6) Groups that decrease the electron density around the nitrogen will _____ basicity of amines.
a) decrease b) increase
c) stabilize d) None of the above

7) _____reduction reaction involves use of Zn/Hg and HCl.
a) Wolff b) Birch
c) Catalytic d) Clemmensen

8) _____ Is a oxidation or hydrolysis of fats & oils when exposed to air, light, moisture or by bacterial action resulting in unpleasent taste or odor.
a) Saponification b) Acid value
c) Ester value d) Rancidity

9) _____ on treatment with sodium metal gives cyclopropane.
a) 1-bromopropane b) 1,3-dibromopropane
c) 1,2-dibromopropane d) 2- bromopropane

10) Group with -I effect attached to aromatic carboxylic acid molecule will _____ acidity of the molecule.
a) increase b) decrease
c) No effect d) None of the above

11) Which of the following value neutralises free fatty acids present in 1gm of oil or fat?
a) Iodine b) Acid
c) Saponification d) RM

12) Benzene on birch reduction gives _____.
a) dihydrobenzene b) benzyne
c) tetrahydrobenzene d) perhydrobenzene

13) Which of the following functional group is not an electron withdrawing group?
a) CN b) CHO
c) COOR d) OR

14) Which of the following is an example of unsaturated fatty acids?
a) Linoleic acid b) Linolineic acid
c) Oleic acid d) All of the above

15) Heats of combustion for cyclohexane (-CH2 group) molecule is _____.
a) 166.6 Kcal/Mol b) 158.4 Kcal/Mol
c) 157.4 Kcal/Mol d) 158.7 Kcal/Mol

16) Activating group on benzene directs the electrophile to substitute at the ring on _____ Position.
a) Ortho b) meta
c) para d) both ortho & para

17) _____ Polynuclear hydrocarbon is synthesized by Elbs reaction.
a) Naphthalene b) Anthracene
c) Phenanthrene d) None of the above

18) Which of the following compound contains linear tricyclic polynuclear fused ring system?
a) Phenanthrene b) Anthracene
c) Acenaphthacene d) Both A & C

19) Aliphatic amines are _____ basic than aromatic amines.
a) less b) equi
c) more d) none of the above

20) Sachse Mohr's theory explain about nonplanar _____ conformations of cycloalkanes which are completely free from ring strain.
a) eclipsed b) skew
c) Puckered d) fully eclipsed

Q.2 Short Answer Questions (Any Seven) **35**

a) Enlist activating and deactivating groups for benzene. Give addition reactions of benzene.
b) Why halogens substituted on benzene ring are ortho & Para director and not meta director? Give reason.
c) Write on method of preparations of phenanthrene.
d) Elaborate with suitable examples on acidity of phenols.
e) Discuss on method of preparation of aryl diazonium salt.
f) Discuss on different methods of preparation & reactions of cycloalkanes.
g) Write the structures & uses of BHC and Chloramine-T.
h) Write in short on Ester & RM value.
i) Discuss in detail on Sachse Mohr's theory.

Q.3 Long Answer Questions (Any Two) **20**

a) Elaborate with mechanism of reaction on Friedal craft alkylation & acylation reaction of benzene. Write a note on aromaticity of benzene.

b) Write on method of preparations, reactions of Naphthalene & 1-Naphthol.

c) Discuss on Saponification value. Write on Anthracene.

SLR-JA-10

Seat No.		Set	P

B. Pharmacy (Semester - III) (CBCS) Examination: March/April-2024
Physical Pharmaceutics - I (801302)

Day & Date: Wednesday, 22-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Range of pH scale is _____.
   a) 7 to 10 b) 4 to 8
   c) 7 to 12 d) 0 to 14

2) Strider on the surface of water due _____.
   a) Viscosity b) Density
   c) Surface tension d) Reynolds's number

3) The term pH was given by _____.
   a) Sorensen's b) James Kelvin
   c) M.L. Schroff d) William Procter

4) Which of the following drug molecules binds to α-2 globulin?
   a) Vitamin B complexes b) Vitamin A and B
   c) Vitamin A, D, E, K d) Steroids

5) Which of the following is example of monodentate molecule?
   a) Ammonia b) EDTA
   c) Ethylene diamine d) Ethylene triamine

6) Site-I binding site of HSA is known as _____ binding site.
   a) Warfarin and azapropazone b) Digitoxin
   c) Diazepam d) Tamoxifen

7) Which of the following dissolves more rapidly?
   a) Crystalline form b) Metastable form
   c) Amorphous form d) Polymorphic from

8) The properties which depend on Number of constitute of atom or molecules is called as _____.
   a) Additive properties
   b) Constitutive Properties
   c) Colligative Properties
   d) Additive and Constitutive properties

9) If 1 to 10 parts of solvent required for one part of solute is _____.
   a) Very soluble b) Freely Soluble
   c) Soluble d) Slightly Soluble

10) Decreases in particle size _____ solubility.
   a) Increases b) Decreases
   c) Remains unchanged d) Depends on crystal structure

11) The Refractive Index is used to determine _____.
   a) Concentration b) Molecular weight
   c) To confirm its Purity d) All of the above

12) _____ Solids are also called as super cooled liquids.
a) Amorphous Solids b) Crystalline Solids
c) Liquid Crystals d) Molecular Adducts

13) The process in which the gas converted in to liquid state is known as _____.
a) Freezing b) Sublimation
c) Condensation d) Vaporization

14) A Solids having physical properties different in different directions is known as _____.
a) Isotropic solids b) Anisotropic Solids
c) Crystalline Solids d) Metallic solids

15) The angle between two perpendiculars to the two intersecting faces is termed as _____.
a) Contact Angle b) Angle of repose
c) Interfacial angle d) Acute Angle

16) Gibbs Phase rule is _____.
a) F=C-P+2 b) P=C+P-2
c) C=F-P+2 d) F=C+P-2

17) The temperature above which the liquid can no longer exist as liquid is called _____.
a) Inversion Temperature b) Room Temperature
c) Critical Temperature d) Kelvin Temperature

18) The solubility of gases usually _____ with an increase in temperature.
a) Increases b) Decreases
c) Constant d) First increases then decreases

19) When non-polar substances are dissolved in a polar solvent using surfactants, the process is called _____.
a) solubilization b) Emulsification
c) Gelatinization d) HLB

20) Which of the following co solvents are used to increases the solubility of drug?
a) Ethanol b) Glycerine
c) Sorbitol d) All of the Above

Q.2 Answer the following questions. (Any Two) **20**

a) Discuss in detail methods used for liquefaction of gas.
b) Discuss in detail methods used for determination of complexation.
c) State and derive the Raoult's law with its positive and negative deviations of Raoult's law.

Q.3 Answer the following question (Any Seven) **35**

a) Explain in detail association and solvation mechanism of solubility.
b) Discuss in detail biological applications of buffer.
c) Define Buffer capacity. Explain in detail mechanism of buffer capacity.
d) Explain in detail different factors affecting on solubility of drug.
e) Explain in detail Henderson Hasselblach equation of weak acid with its conjugated salts.
f) Write note HLB Scale.
g) Write the principle and working of drop count method for determination of surface tension.
h) Write principle and working of Abbe's Refractometer.
i) Define liquid crystals and classify with example. Give its application.

SLR-JA-11

Seat No.		Set	P

B. Pharmacy (Semester - III) (CBCS) Examination: March/April-2024
Pharmaceutical Microbiology (801303)

Day & Date: Saturday, 25-05-2024 Max. Marks: 75
Time: 2:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) Test based on the rise of body temperature of rabbits is _____.
   a) Sterility testing b) MIC
   c) Pyrogen testing d) None

2) A three dimentional picture is commonly observed by _____.
   a) SEM b) TEM
   c) Both a and b d) None

3) Durham's tube is kept inserted in tube containing _____ medium to detect gas production.
   a) Sugar b) Indicator
   c) Enriched d) None of the above

4) Bacteria are growing within range of 20-40°C.
   a) Thermophiles b) Mesophiles
   c) Psychrophiles d) All of the above

5) If the magnification of an eyepiece is 10x and the magnification of an objective is 45x then total magnification of microscope is _____.
   a) 100X b) 4500X
   c) 45X d) 450X

6) TMV means _____.
   a) Tomato Mosaic Virus b) Tomato Mottle Virus
   c) Tobacco Mosaic Virus d) Tobacco Mottle Virus

7) Study of Fungi is called as _____.
   a) Mycology b) Phycology
   c) Virology d) Protozoollogy

8) Which of the following is a smallest bacterium?
   a) *N. Gonorrhoea* b) *M. Tuberculosis*
   b) *Mycoplasma* d) *Vibrio Chlolerae*

9) Rod shaped bacteria arranged in chains are called _____.
   a) Diplococci b) Staphylococci
   c) Steptococci d) Streptobacilli

10) Inner folding of cell membrane provides extra space for enzymatic reactions is _____.
   a) Capsule b) Ribosome
   c) Mesosome d) None of above

11) In the holder method, milk is sterilized by pasteurization at _____.
   a) 63°C for 30 minutes b) 73°C for 30 seconds
   c) 65°C for 20 minutes d) 73°C for 30 minutes

12) Mordant used in gram staining for _____.
   a) De-stain the cell
   b) Staining the cell
   c) Fix the primary stain
   d) All of the above

13) Which of the following agents are used as a preservative in ophthalmic solutions?
   a) Chlorocresol
   b) Benzalkonium chloride
   c) Phenol
   d) Dichlorobenzyl alcohol

14) Father of Chemotherapy is _____.
   a) Paul Ehrlich
   b) Robert Koch
   c) Louis Pasteur
   d) Sakahiro Hata

15) The culture media used for cultivation of cultivation of fungus is _____.
   a) Chocolate agar medium
   b) Sabouraud's medium
   c) Tellurite medium
   d) NNN medium

16) Phenol co-efficient indicates _____.
   a) Purity of a disinfectant
   b) Quantity of a disinfectant
   c) Efficacy of a disinfectant
   d) Dilution of a disinfectant

17) Which microorganism used for vitamin (Biotin, folic acid, riboflavin) bioassay?
   a) *L. casei*
   b) *Aspergillus Niger*
   c) *E. Coli*
   d) *S. Cerevisiae*

18) Viruses are best grown in _____.
   a) Blood agar
   b) Enriched media
   c) Liquid media with Serum
   d) Media with living cells

19) For construction of aseptic design, generally plaster walls are easily damaged by impact so for reduction of fungal growth _____ may be added to the paint.
   a) 1 % 8-hydroxyquinoline
   b) Salicylanilide
   c) Pentachlorophenol
   d) All of these

20) Syphilis is caused by _____.
   a) Treponema pallidum
   b) Clostrdium tetani
   c) Yersinia pestis
   d) Bordetella pertussis

Q.2 Answer Any Seven of the following Questions. **35**

a) Explain RW coefficient test for evaluation of disinfectant test.
b) Explain in detail Growth cycle of bacteria.
c) Write a note on Gram staining technique.
d) Elaborate different physical conditions required for growth.
e) Differentiate Cell wall of gram positive and gram negative bacteria.
f) Write characteristics of Candida species.
g) Write the contribution of Robert Koch in detail.
h) Give an exhaustive account on Microbiological assay.
i) Write the Terms / Use of following:
   i) Iris Diaphragm
   ii) Incubator
   iii) Antiseptic
   iv) Microbiostasis
   v) Autoclave

Q.3 Answer Any Two of the following Questions. **20**

a) Give an exhaustive account on life cycle of Bacteriophages.

b) Explain the construction and design of an aseptic room.

c) Explain different sources and types of microbial contamination of pharmaceutical products.

SLR-JA-12

Seat No.	

Set P

B. Pharmacy (Semester - III) (CBCS) Examination: March/April-2024
Pharmaceutical Engineering (801304)

Day & Date: Tuesday, 28-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) Which one of the following is known as fluid?
   a) Always expands until it fills in the container
   b) Cannot be subjected to shear forces
   c) Cannot remain at rest under action of any shear forces
   d) Practically compressible

2) Which one of the following factors is responsible for frictional factor f, of a rough pipe and turbulent flow?
   a) Relative roughness
   b) Reynolds number
   c) Reynolds number and relative roughness
   d) Size of the pipe and the discharge

3) Size reduction CAN NOT be obtained by one of the following Method.
   a) Flocculation b) Mechanical
   c) Physical d) Precipitation

4) Which mill is preferred for wet grinding?
   a) Colloid mill b) Hammer mill
   c) Roller mill d) Rotary cutter mill

5) Which one of these instruments is suitable for measuring minute pressure differences in a fluid?
   a) Diaphragm pressure gauge b) Inclined manometer
   c) Simple manometer d) U-tube differential manometer

6) Brushing method hastens the movement of one of the following materials ____.
   a) Coarse materials b) Dry materials
   c) Light materials d) Sticky materials

7) Flywheel is used to enhance the motion of particles by one of the following modes _____.
   a) Brushing mode b) Centrifugal mode
   c) Gyration mode d) Oscillation mode

8) One of the following theories is not applicable to distillation _____.
   a) Graham's law of diffusion b) Law of conservation of energy
   c) Law of conservation of matter d) Raoult's law

9) Distillation does not involve in one of the following processes _____.
   a) Evaporation
   b) Extraction
   c) Purification
   d) Separation

10) Which heat interchanger consists of bent tubes?
   a) Double pipe heat exchanger
   b) Floating head two-pass heater
   c) Multi-pass heater
   d) Tubular heater

11) Fourier's law is applicable to one of the following types of heat flow.
   a) Conduction
   b) Convection
   c) Radiation
   d) Emission

12) Which equipment gives porous residue on evaporation _____.
   a) Film evaporator
   b) Multiple effect evaporator
   c) Open pan evaporator
   d) Vacuum evaporator

13) The ability of a metal surface to withstand repeated cycles of corrosion is known as _____.
   a) Cavitation erosion
   b) Corrosion fatigue
   c) Erosion
   d) Stress of corrosion cracking

14) Which one of the following CAN NOT be used to combat corrosion?
   a) Increasing the temperature of storage
   b) Pumping of inert gas into solution
   c) Removing air from boiler feed water
   d) Shortening the time of exposure

15) Which one of the following dryer is known as Lyophiliser?
   a) Fluidised bed dryer
   b) Freeze dryer
   c) Drum dryer
   d) Spray Dryer

16) Which of the following forces aids the tumbling action for promoting inter-particle movement?
   a) Electrostatic force
   b) Gravitational force
   c) Surface force
   d) Van der Walls force

17) One of the following types of corrosion is NOT related to liquid flow-related corrosion.
   a) Cavitation erosion
   b) Erosion
   c) Fretting corrosion
   d) Impingement corrosion

18) Which one of the following types of corrosion of metals is flow related?
   a) Biological corrosion
   b) Crevice corrosion
   c) Erosion
   d) Inter-granular corrosion

19) One of the following glass containers is used for the storage of light-sensitive pharmaceuticals.
   a) Airtight
   b) Amber colour
   c) Unit dose
   d) Well closed

20) Corrosion of metals is fairly high in one of the following mediums.
   a) Acidic
   b) Alkaline
   c) Neutral
   d) Non-aqueous

Q.2 Answer Any Seven of the following Questions. **35**

a) Explain working of Rota meter with suitable diagram.
b) What is Size Reduction? Write its Pharmaceutical Applications.
c) Write various objectives of Size Separation.
d) What is meant by Heat Exchangers and Heat Interchanger?
e) Define the following- Distillate, Condenser, Fractional Distillation Molecular Distillation and Vacuum Distillation.
f) Draw well labeled diagram of FBD write its principle.
g) Draw diagram of Double Cone Blender and give its principle.
h) Explain the factors influencing Filtration.
i) Explain objectives of Material Handling.

Q.3 Answer Any Two of the following Questions. **20**

a) What is corrosion describe theories of Corrosion.
b) Describe and explain Bernoullis Theorem. Write its limitations.
c) Describe Principle, construction, working and uses of Spray Dryer.

SLR-JA-13

Seat No.		Set	P

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April-2024
Pharmaceutical Organic Chemistry –III (801401)

Day & Date: Monday, 20-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice questions **20**

1) The substance that rotates plane polarized light is called Optical active substance _____.
   a) reflect b) Refract
   c) rotates d) all of the above

2) Isomerism is defined as molecules having same molecular formula but _____ physical and chemical properties.
   a) same b) different
   c) equivalent d) none of the above

3) In an asymmetric molecule, If -NH2 group is on left hand side, configuration assigned for the molecule is _____.
   a) L b) D
   c) 1 d) d

4) Which of the following projection is used for representation of configuration of chiral molecule on 2D paper?
   a) Newman b) Sawhorse
   c) Fischer d) All of the above

5) If the groups or atoms with higher priorities are on the same side of the Carbon-Carbon double bonds, then configuration of the molecule is denoted by _____.
   a) Z b) E
   c) R d) S

6) _____ Is a point within a molecule such that if an atom is joined to it by a straight line which is extrapolated to an equal distance beyond it in opposite direction meets an equivalent atom.
   a) Plane of symmetry b) Alternating axis of symmetry
   c) Center of symmetry d) Simple axis of symmetry

7) Pyrrole is a five membered heterocyclic compound having _____ Hetero atom.
   a) sulphur b) nitrogen
   c) oxygen d) phosphorous

8) Azepines can be synthesized from _____.
   a) nitrobenzene/Bu3p b) phenylazide
   c) benzene & ethylcarbonazidate d) all of the above

9) _____ is an example of a molecule having Plane of symmetry.
   a) Meso Tartaric acid b) Citric acid
   c) Lactic acid d) Fumaric acid

10) Reduction of isoquinoline with sodium /ethanol gives _____.
a) 1,2-dihydroisoquinoline b) 5,6,7,8 tetrahydroisoquinoline
c) 1,2,3,4 tetrahydroisoquinoline d) 3,4 -dihydroisoquinoline

11) In R & S nomenclature, atom or groups attached to an asymmetric carbon is given highest priority according to _____.
a) atomic number b) atomic mass
c) equivalent mass number d) highest atomic number

12) Pyridine undergo nucleophilic substitution reaction at _____ position.
a) 2 b) 3
c) 4 d) 5

13) Imidazole ring is present in following drugs _____.
a) Cimetidine b) Metronidazole
c) Ketoconazole d) Both A & B

14) Pyrimidine-4,5-diamine reaction with formamide or carbonic acid gives _____.
a) substituted purine b) Pteridine
c) Azepine d) Caffeine

15) If the substituents are different in ortho positions of biphenyl, a chiral molecule existing as a pair of enantiomers called _____.
a) Diastereomer b) Mesomer
c) Atropisomer d) Stereoisomer

16) The conversion of carboxylic acid to Primary amine with one carbon atom less is a _____ Reaction.
a) Schmidt rearrangement b) Claisen-Schmidt condensation
c) Wolff rearrangement d) Beckmann rearrangement

17) Acidic reagent used in beckmann rearrangement reaction are _____.
a) PCI5 b) Conc.H2S04
c) Polyphosphoric acid d) All of the above

18) _____ involves conversion of aldehyde or ketone to alkane in presence of Hydrazine/KOH, 180 0C.
a) Beckmann rearrangement b) Wolff Kishner reaction
c) Dakin reaction d) Schmidt rearrangement

19) _____ reaction is one in which one stereoisomer predominates over another when two or more may be formed.
a) Stereospecific b) Stereoselective
c) Stereoelective d) Stereoisomer

20) _____ Functional groups are not reduced by NaBH4.
a) Carboxylic acid b) Amides
c) Nitriles d) All of the above

Q.2 Attempt any Seven questions. **35**

a) Define following terms with suitable examples.
1) Enantiomers
2) Mesomer

b) Explain with suitable example with mechanism Beckmann rearrangement reaction.

c) Write on different methods of synthesis of Acridine.

d) Write only reactions of Imidazole.

e) Write any two methods of synthesis and three reactions of Pyrimidine.

f) Write on Skraup, Doebner-Miller and Friedlander method of preparation of quinolone

g) Electrophilic substitution reaction in Pyridine takes place at which position? Give reason.

h) Write any two methods of preparation of Pyrazole. Write any three reactions of it.

i) Disscuss any two methods of determination of configuration of geometrical isomers.

Q.3 Attempt any two **20**

a) Write any two methods of preparation & reactions of Pyrrole, Thiophen & Furan. Why pyrrole is weak base? Give reason.

b) Elaborate on different methods of Resolution of racemic mixture with suitable examples.

c) Explain conformational isomers of n-butane & E&Z system of nomenclature of geometrical isomers with suitable examples. Write a note on stereospecific reaction

SLR-JA-14

Seat No.		Set	P

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April-2024
Medicinal Chemistry – I (801402)

Day & Date: Wednesday, 22-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Which type of hydrogen bonding present when hydrogen bonding occurs between molecules?
   a) Intramolecular b) Intermolecular
   c) Both d) None of them

2) Generally, drugs are absorbed in which form _____.
   a) In ionized form b) In unionized form
   c) In both form d) none of them

3) Drugs are bound _____ protein.
   a) Globulin b) Serotonin
   c) Albumin d) All of these

4) NDA is _____.
   a) New Drug Application b) New Drug approval
   c) Novel Drug administration d) New Drug agenda

5) The major detoxification reaction involved in phase-I reaction except ____.
   a) Oxidation b) Reduction
   c) Hydrolysis d) Acetylation

6) Which of the following enzyme is involved in glucuronidation reaction?
   a) UDP pyrophosphate b) UDP dehydrogenase
   c) UDP glucuronyl transferase d) All of these

7) Which of the following reaction is not a phase-II metabolic transformation?
   a) Methylation b) Glucuronic conjugation
   c) Acetylation d) Hydrolysis

8) The process which describes biotransformation of drug is _____.
   a) Drug metabolism b) Protein metabolism
   c) Absorption d) All of these

9) _____ is example of endogenous opioids.
   a) Enkephalin b) Dynorphine
   c) Endorphine d) All of these

10) The predominant adrenoreceptors bronchial smooth muscle is _____.
   a) Beta-1 b) Beta-2
   c) Beta-C d) Beta-4

11) Adrenaline, noradrenaline, dopamine _____ belongs to class catecholamines.
   a) Adrenaline b) Noradrenaline
   c) Dopamine d) All of these

12) Prazocin is _____.
   a) Selective alpha-1 agonist
   b) Selective alpha-1 antagonist
   c) Both
   d) None of these

13) Parathion was commercially used for _____.
   a) Treatment in Glaucoma
   b) An Antidote
   c) An insecticide
   d) In Alzheimer disease

14) Cholinergic receptors are classified as _____.
   a) Muscarinic
   b) Nicotinic
   c) Both A & B
   d) None of these

15) 4-acetamido phenol is _____.
   a) Paracetamol
   b) Aspirin
   c) Aniline
   d) Phenacetin

16) Hypnotics are often referred as _____.
   a) Sleeping Pills
   b) Adrenergic drug
   c) Cholinergic drug
   d) Psychotic drug

17) Starting material for synthesis of Phenytoin is _____.
   a) orthophylenediamine
   b) Benzil
   c) Urea
   d) Both B & C

18) Morphine contains _____ type of nucleus.
   a) Isoquinoline
   b) Quinoline
   c) Phenanthrene
   d) Steroidal

19) NSAID's inhibits _____ enzyme.
   a) MAO
   b) COMT
   c) COX
   d) None of these

20) How many chiral centers in morphine molecule?
   a) 2
   b) 3
   c) 4
   d) 5

Q.2 Answer the following question. (Any Seven) **35**

a) Discuss Phase-II reactions with examples.
b) Give the biosynthesis of acetylcholine with enzyme involve in biosynthesis.
c) Describe the SAR of acetylcholine.
d) Discuss the SAR of Barbiturates with suitable examples.
e) Classify anti-convulsants. Outline the synthesis of Phenytoin.
f) Write a note on salicylates as a class of NSAID.
g) Classify the narcotic analgesics. Discuss the chemistry of morphine molecule.
h) Discuss the development of beta blockers.
i) What is the role of Cytochrome P-450 in drug metabolism?

Q.3 Answer the following questions. (Any Two) **20**

a) Explain the SAR of adrenergic agonist.
b) Discuss morphine derivatives with SAR.
c) Give the synthesis of
   1) Salbutanmol
   2) Propranolol
   3) Dicyclomine hydrochloride
   4) Diazepam
   5) Phenytoin

SLR-JA-15

Seat No.	

Set P

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April-2024
Physical Pharmaceutics – II (801403)

Day & Date: Saturday, 25-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions **20**

1) The particles forms colloid rich layer on mixing of oppositely charge hydrophilic colloids, known as _____.
   a) precipitate b) creaming
   c) coacervation d) flocculate

2) Zeta potential can be measured by _____.
   a) electrophoresis b) electroosmosis
   c) electrodyalysis d) both a and b

3) In lyophobic sols, dispersed phase has no _____ for medium or solvent
   a) repulsion b) attraction
   c) solvation d) hydration

4) Stability of colloids explained by which theory?
   a) Lyotropic series b) Hardy schulze rule
   c) Donnan Membrane d) DLVO

5) The system that undergoes gel-sol-gel transformation is known as _____.
   a) elastic b) shear thickening
   c) shear thinning d) non elastic

6) Greater the thixotropy _____ is the physical stability of suspension
   a) higher b) lower
   c) poor d) all of these

7) _____ the gold number of hydrophilic colloid the greater is the protective power.
   a) higher b) lower
   c) constant d) none of these

8) Ostwald viscometer is used to describe the viscosity of _____ liquid.
   a) dilatant b) newtonian
   c) non Newtonian d) plastic

9) Brownian movement of particles _____.
   a) assists sedimentation b) increases sedimentation
   c) prevents Sedimentation d) does not affect Sedimentation

10) The ratio of stress to strain is called _____.
   a) Poisson Ratio b) Young Modulus
   c) Shear strain d) Elastic Modulus

11) Which of the following orders have abundant application in biological processes?
   a) first b) second
   c) third d) zero

12) Which of the following reaction is observed in the degradation of ampicillin?
a) decarboxylation b) hydrolysis
c) oxidation d) racemization

13) The type of particle diameter that is obtained by microscope method of evaluation is:
a) projected b) Stokes'
c) volume d) volume- surface

14) Dilatant flow is characterized as a reverse phenomenon of:
a) Newtonian flow b) plastic flow
c) pseudoplastic flow d) rheopexy

15) Thixotropic type of behavior is shown by the gel _____.
a) bentonite b) pectin
c) silica d) starch

16) For an ideal suspension, the sedimentation volume should be _____.
a) Equal to one b) less than one
c) more than one d) zero

17) An 'emulsion within emulsion' is designated as _____.
a) o/w/o b) w/o/o
c) w/o/o/w d) w/o/w

18) Andereasen apparatus consists of _____.
a) balance b) electrodes
c) hydrometer d) pipette

19) Which of the following properties is applicable to suspensions?
a) Brownian movement b) laminar flow
c) rapid rate of sedimentation d) Stoke's law

20) Breaking of emulsion is ____.
a) irreversible b) reversible
c) partially reversible d) both a and b

Q.2 Answer any seven of the following questions. 35

a) Write importance of 'Stokes' law of sedimentation in suspension.
b) Write the principal and working of Ostwald viscometer.
c) Describe the experimental methods for determination of *zeta* potential of colloids.
d) Explain the physical degradation of pharmaceutical product.
e) Explain the causes of instability of emulsion.
f) Describe the working principle of Coulter- counter with the help of a labeled diagram.
g) Explain the protective action of colloids with significance of gold number.
h) Elaborate first order reaction. Explain the methods for determination of order of reaction.
i) Describe the rheological behavior of suspension.

Q.3 Answer any two of the following questions. 20

a) Explain in detail mechanism of action of emulsifying agent with suitable examples.
b) Explain the zeta potential. Explain the methods for determination of zeta potential.
c) Describe any two methods to determine the weight distribution of particles in a powder.

SLR-JA-16

Seat No.		Set	P

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April-2024
Pharmacology - I (801404)

Day & Date: Tuesday, 28-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions **20**

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

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

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

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

5) Drugs may act by following principles.
   a) Replacement b) Irritation
   c) Cytotoxic action d) All of above

6) _____ is a naturally occurring cholinesterase inhibitor.
   a) Neostigmine b) Edrochonium
   c) Tacrine d) Physistigmine

7) _____ Drug relaxes bronchial smooth muscles and causes bronchodilation.
   a) Adrenaline b) Salbutamol
   c) Dobutamine d) Nephazoline

8) _____ drug use in migraine.
   a) Ergot alkaloid b) Imidazolines
   c) α 1 Selective d) α 2 Selective

9) _____ is mild sedative antihistaminic drug.
   a) Chlorpromazine b) Pheniramine
   c) Hydroxyzine d) Promethazine

10) _____ Route is often more convenient as well as encouraging to the patient.
   a) Topical b) Oral
   c) Buccal d) Rectal

11) _____ is a highly sedative antihistaminic drug.
   a) Pheniramine b) Meclizine
   c) Diphenhydramine d) Cinnarizine

12) _____ refers to the use of natural metabolites, hormones or their congeners in deficiency states.
a) Stimulation b) Depression
c) Irritation d) Replacement

13) If a drug is given by intravenous administration, you can predict that its bioavailability will be %.
a) 0 b) 50
c) 75 d) 100

14) _____ is an alpha2 selective antagonist.
a) Yohimbine b) Tolazoline
c) Prazosin d) Reserpine

15) Which of the following drug is used in the treatment of Alzheimer's disease?
a) Galantamine b) Bromocriptine
c) Amphetamine d) Amantadine

16) Irreversible interaction of an antagonist with a receptor is due to _____.
a) Ionic bond b) Covalent bond
c) Hydrogen bond d) Van der waals forces

17) _____ is used in the long-term therapy of myasthenia gravis.
a) Carbachol b) Pilocarpine
c) Neostigmine d) Physostigmine

18) _____ is a reversible nonselective alpha and beta antagonist.
a) Propranolol b) Labetalol
c) Metoprolol d) Phentolamine

19) Which stage of sleep is responsible for the incidence of dreams?
a) Stage 2 NREM sleep b) Slow wave sleep
c) REM sleep d) All of the above

20) Opioid receptor is responsible for euphoria and respiratory depression.
a) Kappa b) Delta
c) Mu d) All of the above

Q.2 Answer any seven of the following questions. **35**

a) Enlist & describe various routes of drug administration.
b) Write in brief about nature and sources of drugs.
c) Define general anesthesia; discuss the stages of general an aesthesia.
d) Classify antidepressant drugs, write pharmacological actions of chlorpromazine.
e) What is pharmacokinetics? Discuss its components.
f) Classify sedative and hypnotic drugs and write a note on barbiturate.
g) Classify drugs used in the treatment of Parkinson's disease.
h) Classify skeletal muscle relaxants. Give their uses.
i) Define the terms- agonist, antagonist, inverse agonist, partial agonist, & adverse reactions.

Q.3 Answer any two of the following questions. **20**

a) Discuss in detail dose response relationship & therapeutic index.
b) Define receptor; write general structure and general mechanism of g-protein coupled receptor.
c) Classify anti-cholinergic. Write the pharmacological actions of atropine.

SLR-JA-17

Seat No.	

Set P

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April-2024
Pharmacognosy and Phytochemistry –I (801405)

Day & Date: Thursday, 30-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice Questions. (MCQ) **20**

1) All the following crude drugs are carminative except _____.
   a) Fennel b) Dill
   c) Cannabis d) Clove

2) Removal of sand, dirt, foreign organic part from the crude drug is called _____.
   a) Sprinkling b) Garbling
   c) Gardening d) Transplanting

3) _____ type of stomata is found in the Adulsa under microscopy.
   a) Parallel celled b) Perpendicular celled
   c) Unequal celled d) Irregular celled

4) Identify qualitative chemical test used for detection of Flavonoids.
   a) Shinoda test b) Legal test
   c) Salkowski Test d) Mayer's test

5) Who is regarded as First Pharmacist of the world?
   a) Shen Nung b) Galen
   c) Hippocrates d) Theophrastus

6) Vatta is combination of _____.
   a) Air and Space b) Air and Fire
   c) Air and Water d) Air and Earth

7) Identify the drug not to be stored in the powdered form.
   a) Nux vomica b) Rauwolfia
   c) Squill d) Isabgol

8) All of the following crude drugs are used in the formulation of cosmetic products obtained from mineral origin except _____.
   a) Talc b) Calamine
   b) Sandalwood d) Fuller's Earth

9) Identify the crude drug having antimalarial action.
   a) Artemisia b) Digitalis
   c) Senna d) Vasaka

10) Stage micrometer is not used in the determination of _____.
   a) Stomatal number b) Vein-islet number
   c) Veinlet termination number d) Stomatal index

11) Diterpenoids contains _____ number of isoprene units.
   a) 2 b) 4
   c) 6 d) 8

12) Select the correct example based on morphological system of classification.
   a) Fruits: Caraway, Dill, Rasna
   b) Leaves: Aloe, Catharanthus, Datura
   c) Seeds: Nux vomica, Isabgol, Coriander
   d) Rhizomes: Turmeric, Ginger, Rasana

13) All of the following resins are obtained from plant origin except _____.
   a) Guggul
   b) Colophony
   c) Myrrh
   d) Shellac

14) Which of the following statement is false in case of Resins?
   a) Resins are lighter than water
   b) Resins are amorphous, hard and brittle solids
   c) When resins are heated, they soften initially and ultimately it melts
   d) Electrically, resins are non-conductive

15) Eunicin obtained from marine origin is used as _____.
   a) Anti-microbial
   b) Anticoagulant
   c) Antiprotozoal
   d) Cardiotonic

16) Which of the following enzyme is widely used in plastic surgery, trauma surgery, respiratory medicine, obstetrics and gynecology?
   a) Streptokinase
   b) Urokinase
   c) Papain
   d) Serratiopeptidase

17) _____ is mainly used for cell division and root initiation in cultured tissues.
   a) Gibberellin
   b) Cytokinin
   c) Abscisic acid
   d) Auxin

18) Aloin in aloes shows the presence of _____ glycoside.
   a) -C-
   b) -O-
   c) -S-
   d) -N-

19) Apidae is the family of _____.
   a) Beeswax
   b) Honey
   c) Gelatin
   d) Beeswax and Honey

20) Hot aqueous solution of _____ is acidic in nature.
   a) Agar
   b) Tragacanth
   c) Acacia
   d) Agar and Tragacanth

Q.2 Answer Any Seven of the following Questions. **35**

a) Write the current and future scope of Pharmacognosy.
b) Difference between organized crude drug and unorganized crude drug.
c) Add a note on plant hormones with suitable examples.
d) How does Soil and Pests affect the cultivation of medicinal plants?
e) What do you mean by PTC? Write its applications in Pharmacognosy.
f) Write a note on siddha system of medicine.
g) Define volatile oils. Classify with suitable examples.
h) Write the source, method of preparation and uses of Ricinus oil.
i) Define Stomata. Explain its types with suitable examples.

Q.3 Answer Any Two of the following Questions. **20**

a) Enlist various traditional systems of medicines. Discuss Homeopathic system of medicine.

b) Enlist different methods of cultivation. Add a note on Sexual method of propagation with their merits and demerits.

c) Write synonyms, source and chemical constituents of any one crude of the following classes: -

1) Useful in the Leprosy
2) Used as a Sweetening agent
3) Used as Bulk Laxative
4) Used in the manufacturing of gunny bags
5) Used in the preparation of Capsules

SLR-JA-18

Seat No.		Set	P

B. Pharmacy (Semester - V) (CBCS) Examination: March/April-2024
Medicinal Chemistry –II (801501)

Day & Date: Tuesday, 21-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Cancer can be treated by _____.
   a) Surgery
   b) Radiation, Immuno, Chemo therapy
   c) 70%
   d) 100%

2) Busulphan is _____.
   a) Cytotoxic Drug
   b) Bifunctional alkylating agent
   c) All of the above
   d) Approximate or similar to chlorambucil

3) Which of the following enzyme is essential for the conversion of histidine to histamine?
   a) Histidine amylase b) Histidine hydrolase
   c) Histidine decarboxylase d) Histidine phosphorylase

4) Which of the following histamine receptor increase permeability during inflammation reaction?
   a) H1 receptor b) H2 receptor
   c) H3 receptor d) H4 receptor

5) Furosemide is prepared from 2,4-dibenzoic acid in presence of which acid?
   a) Nitric acid b) Hydrochloric acid
   c) Chlorosulphonic acid d) All of the mentioned

6) Which of the following histamine receptor increases the release of gastric acid?
   a) H1 receptor b) H2 receptor
   c) H3 receptor d) H4 receptor

7) What are diuretic agents?
   a) Drugs that accelerate the rate of urine formation
   b) Drugs that accelerates heart rate
   c) A drug that accelerates breathing rate
   d) A drug that reduces heart rate

8) What is the site of action of the loop diuretics?
   a) Proximal tubule b) Glomerulus
   c) Ascending loop of Henle d) Distal tubule

9) What is the site of action of the potassium-sparing diuretics?
   a) Proximal tubule b) Glomerulus
   c) Descending loop of Henle d) Distal tubule

10) _____ plays important role in gastric acid secretion.
a) Histamine b) Serotonin
c) Atropine d) Doubutamine

11) In SAR of H1 antagonist's 'X' requires to maintain _____ of receptor.
a) Affinity b) Efficacy
c) Migration d) Vitality

12) Select the MOA of Nitrogen mustards.
a) Alkylation of DNA b) DNA cut
c) DNA fragmentation d) DNA coiling

13) Select organic nitrates from the following list
a) Paclitaxel b) Nitrogen mustard
c) Nitric acid d) Nitroglycerin

14) Nitroglycerin is generally synthesized by using _____ as a starting material.
a) Glycerin b) Glycerin Chloride
c) Tri-glycerin d) None of these

15) Select the ACE inhibitors from the following
a) Enalpril b) Tacrine
c) Benzodiazepine d) None of these

16) Warfarin shows action by inhibition of _____ enzyme.
a) Vitamin K epoxide b) Vitamin E reductase
c) Vitamin B reductase d) Vitamin

17) LDL consists _____.
a) 20% lipid & 80 % Protein b) 60 % lipid & 40 % Protein
c) 90 % lipid & 10 % Protein d) 40 % lipid & 60 % Protein

18) _____ used in the breast carcinoma.
a) Progesterone b) Azetidine
c) Cycloserine d) Astemizole

19) _____ used in the polymeric implants to produce birth control products.
a) Estriol b) Levonorgrestel
c) Tamoxiphen d) Lecorphanol

20) Type -II diabetes situation is insulin dependent.
a) True b) False

Q.2 Answer the following questions. (Any Seven) **35**

a) Discuss SAR of local anesthetics.
b) Draw structure & chemical name of Alkylating agent
c) Explain importance of oral contraceptives.
d) Classify anti- diabetic agent. Explain sulphonyl-urease with example.
e) Outline synthesis of promethazine and furosemide.
f) Explain ACE inhibitors as potential antihypertensive drugs.
g) Write a note on cardiac glycoside used in CHF.
h) Give SAR and MOA of H1 antagonists.
i) Classify antimetabolites. Give MOA and uses of any two drugs.

Q.3 Answer the following questions. (Any Two) **20**

a) Classify antineoplastic agents. Explain MOA and uses of alkylating agents with appropriate examples.
b) Classify anti-anginal agents. Explain organic nitrates and diuretics with appropriate examples.
c) Explain structure, numbering and stereochemistry of steroids. Add a note on male sex hormones.

SLR-JA-19

Seat No.	

Set P

B. Pharmacy (Semester - V) (CBCS) Examination: March/April-2024
Industrial Pharmacy – I (801502)

Day & Date: Friday, 24-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Friability test is known as _____.
a) LAL test b) Swelling index test
c) Brittle fracture index test d) Sham test

2) Name of the equipment/s used to measure hardness of tablet _____.
a) Pfizer tester b) Strong Cobb tester
c) Erweka tester d) All the above

3) _____ method requires the addition of granulating agent.
a) Wet granulation b) Dry granulation
c) Direct compression d) None of the above

4) Emulsion is _____ type of dosage form.
a) Monophasic b) Biphasic
c) Triphasic d) None of the above

5) A hypertonic injection can cause _____.
a) Shrinking of blood cells b) Hemolysis
c) Fever d) All the above

6) Which one is a semiautomatic method of capsule filling?
a) Auger fill method
b) Mechanical vibration filling method
c) Dosator method
d) Compression filling method

7) Biopharmaceutics Classification System (BCS) is done based on _____.
a) Solubility b) Permeability
c) Both (a) and (b) d) None of these

8) Determination of particle size is done by _____.
a) Microscopic method b) Sieving method
c) Coulter-Counter method d) All the above

9) _____ is not component of the aerosol system?
a) Propellant b) Dip tube
c) Actuator d) Paddle

10) Ophthalmic preparations should be _____ with lachrymal secretions.
a) Paratonic b) Isotonic
c) Compatible d) None of these

11) SPF stands for _____.
a) Sun Permeation Factor b) Sun Product factor
c) Sun Perfection factor d) Sun Protection factor

12) The rate and extent of absorbed drug available at the site of action is referred as _____.
a) Bioequivalence b) Bioavailability
c) Absorption d) None of the above

13) Enteric coated tablet is disintegrated in _____.
a) Stomach b) Mouth
c) Intestine d) Liver

14) Lamination is _____.
a) Separation of tablet into two or more distinct layers
b) Partial and complete separation of the top and bottom crowns of a tablet
c) Process of sub coating of tablets
d) None of the above

15) The ability of compound to exist in more than one crystalline form is known as _____.
a) Polymorphism b) Solvates
c) Crystallinity d) Clathrates

16) Soft gelatin capsule is _____ piece capsule shell.
a) One b) Two
c) Three d) Four

17) Method used for finishing the capsules _____.
a) Pan polishing b) Cloth dusting
c) Brushing d) All of these

18) Vial is _____.
a) Secondary Package b) Primary Package
c) Tertiary Package d) All of the above

19) Vanishing cream is _____ type of emulsion.
a) Water in oil b) Oil in water
c) Oil in water in oil d) None of the above

20) Which are unit dosage form?
a) Suspension b) Tablet
c) Emulsion d) Solution

Q.2 Answer any Seven of the following questions. **35**

a) Give BCS classification of drugs and its significance.
b) Write the difference between flocculated and deflocculated suspension.
c) What are Parenteral? Write advantages and disadvantages.
d) Define Pre-formulation? Give the concept of Pre-formulation.
e) What is sugar coating? Explain the steps involved in sugar coating.
f) Explain the different stability indicating parameters of emulsion.
g) Explain the production of soft gelatin capsule shells.
h) Write the methods of preparation, labelling and containers for Lipstick.
i) What are aerosols? Add a note on propellants.

Q.3 Answer any Two of the following questions. **20**

a) Discuss In process and final product quality control tests for hard gelatin Capsule.
b) Describe wet granulation and dry granulation technique.
c) Discuss different quality control tests of parenteral products.

SLR-JA-20

Seat No.		Set	P

B. Pharmacy (Semester - V) (CBCS) Examination: March/April-2024
Pharmacology –II (801503)

Day & Date: Monday, 27-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) In digitalis induced AV block _____ used in patient.
   a) Atropine b) Propranolol
   c) Quinidine d) Verapamil

2) _____ should be avoided in digitalis toxicity.
   a) KCL infusion b) Lignocaine
   c) Diuretics d) Propranolol

3) _____ beta blockers has highest half-life?
   a) Atenolol b) Propranolol
   c) Esmolol d) Nadolol

4) _____ ban alpha-adrenoreceptor blockers.
   a) Clonidine b) Alpha methyldopa
   c) Atenolol d) Prazocin

5) Transdermal nitroglycerin is contraindicated in _____.
   a) Stable angina b) Variant angina
   c) In elevated CSF pressure d) All of these

6) Anti-arrhythmic agent _____ moderately slows down AV conduction.
   a) Phenytoin b) Quinidine
   c) Flecainide d) Lidocaine

7) _____ acts through phosphodiesterase-II inhibitor.
   a) Dobutamine b) Phenylephrine
   c) Milrinone d) Vasopressin

8) Administration of _____ produces orange urine.
   a) Warfarin b) Ethylbiscoumacetate
   c) Cumarol d) Phenindione

9) _____ act as a antifibrinolytic?
   a) Streptokinase b) Urokinase
   c) Aprotinin d) All of these

10) Plasma expanders are contraindicated in _____.
   a) In anaemic patient b) In congestive heart failure
   c) In renal insufficiency d) All of the above

11) _____ increases the potassium excretion.
   a) Spironolactone b) Amiloride
   c) Triamterene d) None of these

12) _____ osmotic diuretics is not orally active.
   a) Isosorbide b) Mannitol
   c) Glycerol d) All of these

13) _____ antihistaminic agent cause seadation?
a) Astemizole b) Diphenhydramine
c) Loratadine d) Terfenadine

14) Which one of following phenothiazine derivative is devoid of neuroleptic properties?
a) Chlorpromazine b) Fluphenazine
c) Promethazine d) Thioridazine

15) H1 blocker astemizole is a derivative of _____.
a) Piperidine b) Piperazine
c) Ethanolamine d) Ethylenediamine

16) _____ agent produces retinal damage.
a) D-Penicillamine b) Chloroquine
c) Methotrexate d) Sulfasalazine

17) Long term use of gonadotropin releasing hormone may cause _____.
a) Acromegaly b) Lactation
c) Osteoporosis d) Vaginal yeast infection

18) Graves disease is characterized by all except one _____.
a) Hyperthyroidism b) Dermopathy
c) Ophthalmopathy d) None of the above

19) Which one of the following Prostaglandin used for uterine motility?
a) Dinoprostone b) Misoprostol
c) Carboprost d) All of the above

20) One of the following bioassay methods is used for estimation of ascorbic acid.
a) ACTH b) Vasopressin
c) Oxytocind d) None of the above

Q.2 Answer any seven of the following questions. **35**

a) Explain Pharmacology of Histamine.
b) Classify Diuretics with examples. Add mechanism of action of Furosemide.
c) What is bioassay? Writeit's principle and application.
d) Give detail pharmacology of digitalis.
e) Define and classify non steroid anti-inflammatory drugs.
f) Enlist the different classes of drugs used as antigout and explain mechanism of action of colchicine.
g) Write a note on thyroid hormone.
h) Explain pharmacology of Prostaglandins.
i) Classify anti-arrhythmic agents with suitable examples.

Q.3 Answer any two of the following questions. **20**

a) Write classification of antihypertensive agents. Describe the pharmacology of beta blockers.
b) Give detail pharmacology on oral contraceptives.
c) Classify antihistaminic drugs. Briefly explain the pharmacology of Hl antihistaminic drugs.

SLR-JA-21

Seat No.		Set	P

B. Pharmacy (Semester - V) (CBCS) Examination: March/April-2024
Pharmacognosy and Phytochemistry – II (801504)

Day & Date: Wednesday, 29-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions. **20**

1) All of the following compounds are synthesized via acetate mevalonate pathway except _____.
   a) Steroids b) Triterpenoids
   c) Sesquiterpenoids d) Flavonoids

2) HMG-CoA reductase pathway is also known as _____pathway.
   a) Acetate mevalonate b) Acetate malonate
   c) Shikimic acid d) Polyacetate malonate

3) Select the false statement.
   a) Vinca and rauwolfia are indole class of alkaloids.
   b) Senna and bitter almond are anthracene class of glycosides.
   c) Catechu and Kino are example of condensed tannins.
   d) Benzoin and asafoetida are pathological resins.

4) Yasti is the synonym of _____.
   a) Digitalis b) Dioscorea
   c) Ruta d) Liquorice

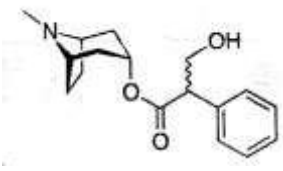
5) _____oil glands are found in the histology of clove flower bud.
   a) Schizogenous b) Schizolysigenous
   c) Eugenius d) Aleurone

6) _____ are amorphous mixtures of essential oils, oxygenated products of terpenes and carboxylic acids found as exudation from the trunk of various trees.
   a) Tannins b) Alkaloids
   c) Volatile oils d) Resins

7) When chloroform extract of black catechu is evaporated to dryness on water bath, then it does not produce greenish yellow colour residue. Identify the name of test.
   a) Combined Umbelliferone test b) Gambier Fluorescence test
   c) Chlorophyll test d) Match stick test

8) The agents used to relieve itching are known as _____.
   a) Astringent b) Demulcent
   c) Antipruritic d) Analgesic

9) Caffeine is a Purine alkaloid obtained from all of the following raw materials by extraction process except_____.
   a) Tea leaves
   b) Coffee seeds
   c) Cocoa species
   d) Basil leaves

10)  is the chemical structure of _____.
   a) Reserpine
   b) Curcumin
   c) Morphine
   d) Atropine

11) Dragendorff's reagent is the solution of _____.
   a) Potassium mercuric iodide
   b) Potassium bismuth iodide
   c) Iodine potassium iodide
   d) Potassium iodide

12) Glycyrhetinic acid shows positive reaction with _____ test.
   a) Shinoda
   b) Liebermann - Burchard
   c) Alkaline
   d) Thalleoquine

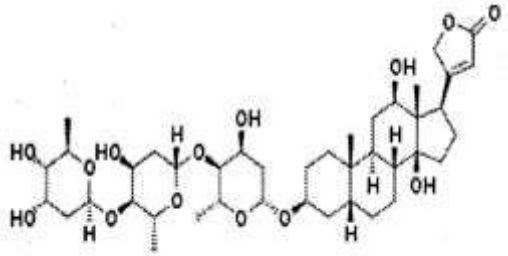
13) _____belongs to family_____.
   a) Prunus amygdalus, Apocyanaceae
   b) Artemisia anuua, Asteraceae
   c) Podophyllum hexandrum, Solanaceae
   d) Digitalis lanata, Lauraceae

14) _____is the technique mainly used for the determination of molecular weight of isolated phytoconstituent.
   a) UV spectroscopy
   b) FTIR spectroscopy
   c) NMR spectroscopy
   d) Mass spectroscopy

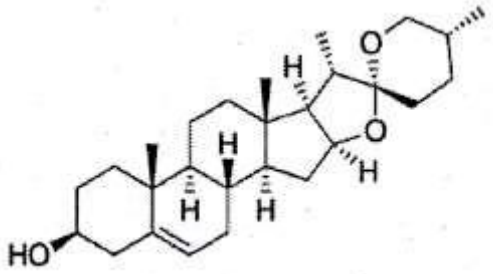
15) ____ is a type of cancer that affects the lymphatic system, which is part of the body's germ fighting immune system.
   a) Addison's disease
   b) Perkinson's disease
   c) Hodgkin's disease
   d) None of the above

16) Select the chemical structure of digoxin.

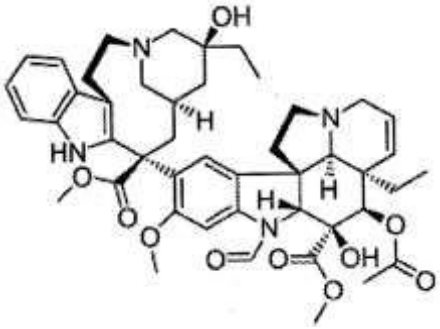
a)



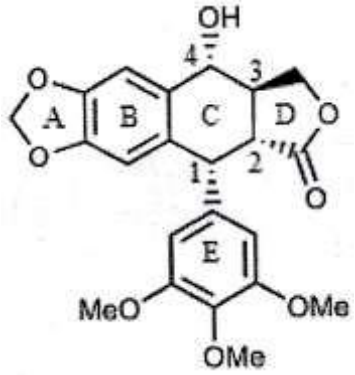
b)



c)



d)



17) _____is the most used supercritical fluid in supercritical fluid extraction technique.

a) Nitrogen
b) Helium
c) Argon
d) Carbon dioxide

18) Electrophoresis is a technique used for the separation of molecules based on their_____.

a) Size and charge
b) Components
c) Colour
d) All of the above

19) In agarose gel electrophoresis, the bands of the DNA can be detected by soaking the gel in ____ solution.

a) Diphenyl amine
b) Potassium bromide
c) Triphenyl amine
d) Ethidium bromide

20) Which of the following statement is not ideal while selecting the solvent for extraction purpose?
   a) Solvent used for the extraction should be too much viscous
   b) Solvent used for the extraction should be Harmless to the environment
   c) Solvent used for the extraction should be Harmful to the man
   d) All of the above

Q.2 Answer any seven of the following questions. **35**

a) Write a note on isoprenoid pathway.
b) Define the terms Expectorant, Carminative, Condiment, Astringent and Stomachic.
c) Write source, chemical constituents and uses of Loban and amber resin.
d) Write a note on any one crude drug used in the treatment of Addison's disease.
e) Explain isolation and identification tests of Podophyllotoxin.
f) Give brief account on analysis of Curcumin by TLC method along with its uses.
g) Explain industrial production and uses of Vincristine.
h) Write a short note on Supercritical fluid extraction technique.
i) Enlist applications of Soxhlet extraction and Microwave assisted extraction techniques.

Q.3 Answer any two of the following questions. **20**

a) Discuss pharmacognostic scheme of Sonmukhi.
b) Explain isolation, identification test and analysis of Reserpine.
c) Write source, active constituent and uses of any one crude drug of the following classes:
   1) Used in the treatment of Hodgkin's disease
   2) Used as dental analgesic
   3) Useful in rheumatism condition
   4) Used as a hair tonic
   5) Used as sweetening agent

SLR-JA-22

Seat No.	

Set P

B. Pharmacy (Semester - V) (CBCS) Examination: March/April-2024
Pharmaceutical Jurisprudence (801505)

Day & Date: Friday, 31-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions. **20**

1) If drug contains in filthy, putrid or decomposed substance then is known as _____.
   a) Misbranded drug b) Adulterated drug
   c) Spurious drug d) None of the above

2) Biologicals are tested at _____.
   a) Mumbai b) Kolkata
   c) Chennai d) Kasauli

3) Pharmacy Act 1948 divided in to _____.
   a) 2 Chapter and 14 Sections b) 5 Chapter and 46 Sections
   c) 8 Chapter and 54 Sections d) 12 Chapter and 90 Sections

4) The First Edition of Indian Pharmacopoeia was published in _____.
   a) 1940 b) 1950
   c) 1955 d) 1985

5) Medical and termination of pregnancy act established in the year____.
   a) 1970 b) 1980
   c) 1971 d) 1975

6) In India first chemists shop started in _____by Mr. Bathgate.
   a) 1811 b) 1920
   c) 1940 d) 1947

7) Manufacturing of Schedule X drug license issues in form no _____.
   a) 24F b) 25C
   c) 25F d) 24E

8) The schedule for standards for cosmetic is _____.
   a) schedule P b) schedule S
   c) schedule B d) None of the above

9) Prescription only drugs that listed in _____.
   a) Schedule H b) Schedule X
   c) Schedule G d) All of them

10) If the woman is below 18 years or is mentally ill, whose consent is required for termination of pregnancy _____?
   a) RMP b) Guardian
   c) Both d) None

11) Schedule H drug belongs to_____.
   a) List of prescription drugs b) Imported drug
   c) Dangerous drug d) Narcotic drug

12) For the manufacturing of cosmetics, license is granted in _____.
a) Form-20d b) Form-25 c
c) Form-20 d d) Form-32

13) A non-bonded manufactory shall be inspected by the officer at least_____.
a) once every month b) once every two months
c) once every six months d) once every year

14) Sera, vaccines and toxins come under schedule _____.
a) O b) P
c) Both options A & B d) C

15) The Narcotic drugs and psychotropic substances act was passed in _____.
a) 1985 b) 1963
c) 1940 d) 1938

16) List of poisonous substances according to Poisons Act is/are:
a) Aconite b) Arsenics and Lead
c) Coca Digitalis d) All of them

17) How much of % of margin is allowed, while fixing a ceiling price of schedules formulations and retail price of new drugs-
a) 16% b) 14%
c) 18% d) 20%

18) Which of the following is an example of magic remedies:
a) Kavachas b) Mantras
c) Talismans d) All the above

19) MRP of scheduled formulations= ceiling price +_____.
a) Retail Price b) Local taxes as applicable
c) Both a and b d) None of these

20) Floor area required for running pharmacy for whole sale or distribution is: _____
a) 30 Sq. meters b) 15 Sq. meters
c) 10 Sq. meters d) 6 Sq. meters

Q.2 Answer the following (Any Seven) **35**

a) Define wholesale, describe conditions of wholesale license.
b) Give constitution and functions of CPCSEA.
c) Define Ethics, write a note on code of pharmacist ethics in relation to his job
d) Define the terms "spurious drug" & "misbranded drug" as per the Drugs & Cosmetics act 1940.
e) Describe prohibition, control and regulations for opium-poppy cultivation as per NDPS Act.
f) Discuss the classes of drugs that are prohibited to be imported as per the D and C Act.
g) Define the terms "Animals" & "Cruelty" as per the Prevention of cruelty to animals act. Write the constitution of Institutional Animals Ethics committee.
h) Define Magic remedy explain prohibition of certain advertisement under Drugs and magic remedies act.
i) Define Minor, explain when pregnancies may be terminated by medical practitioners.

Q.3 Answer the following questions. (Any Two) **20**

1) Write the qualification, duties and powers of drug inspector. Explain in brief inspection procedure.

2) Give objectives of Pharmacy Act. Write constitution and functions of Pharmacy Council of India.

3) Define Cannabis, give objectives of NDPS Act 1985. Discuss offences and penalties of NDPS Act 1985.

SLR-JA-23

Seat No.		Set	P

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April-2024
Medicinal Chemistry - III (801601)

Day & Date: Tuesday, 21-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Which parameter is used to find steric property _____.
a) Freewilson b) Hanch analysis
c) Tafts steric constant d) Hammatt constant

2) Cascade lantentiation concept takes into account which kind of prodrugs.
a) Mixed type prodrugs b) Pro-prodrugs
c) Bioprecursors d) Carrier linked prodrug

3) The basic ring structure for all sulphonamides are _____.
a) Sulphanilamide b) Benzoic acid
c) Purine d) Pteridine

4) Synthetic precursor for nitrofurantoin is _____.
a) 2-nitro-5-furfuraldehyde b) 5-nitro-2-furfuraldehyde
c) Furfuraldehyde d) 3 -nitrofuraldehyde

5) Which is the earliest discovered prodrug _____.
a) Prontosil b) Sulphanilamide
c) Aspirin d) Salicylic acid

6) Select the drug that is active against both HIV & herpatitis B virus
a) Lamivudine b) Indinavir
c) Didanosine d) Efavirenz

7) Chemically INH is a _____.
a) Isonicotinic acid hydrazide b) Acid hydrazide
c) Nicotinic acid d) Nicotinic hydrazine

8) Name the drug belonging to topical azoles class _____.
a) Para-amino salicylic acid b) Clotrimazole
c) Ketoconazole d) Terbinafine

9) Which of the following is not antibiotic
a) Streptomycin b) Chloramphenicol
c) Penicillin d) Co-trimazole

10) _____ is a benzimidazole derivative
a) Mebendazole b) Piperazine citrate
c) DEC d) Pyrantel pamoate

11) Hammett's constant used to find which parameter
a) Hydrophilic b) Electrophilic
c) Steric d) Lipophilic

12) An inactive drug biologically convert to active form drug is called as _____.
a) Active drug b) Inactive moiety
c) Drug d) Prodrug

13) Which is the basic ring present in sulphadiazine
a) Pyridine b) Pyrimidine
c) Pyridazine d) Piperidine

14) Which is antitubercular antibiotic
a) Pyrazinamide b) INH
c) Rifampicin d) Amikacin

15) Biguanides prevent _____.
a) DHFRase b) G6P dehydrogenase
c) Hemazoin formation d) None of the above

16) Tick the drugs for the treatment of an intestinal form of amebiasis.
a) Metronidazole & diloxanide b) Diloxanide & streptomycine
c) Diloxanide & iodoquinol d) Emetine & metronidazole

17) Floroquinolone derivative of urinary anti-infective drug is _____.
a) Ciprofloxacin b) Penicillin
c) Nalidixic acid d) Amikacin

18) Which is long acting sulphonamides _____.
a) Sulphadoxine b) Sulphacetamide
c) Sulphasalzine d) Sulphadiazine

19) Niclosamide is used in the treatment of _____.
a) Cestode type b) Nematode type
c) Trematode type d) All of above

20) Who developed the dock 4.0 programme of software for docking
a) Ewing & kuntz in 2001 b) Rarey 2001
c) Abagyan in 2001 d) Schnecke in 2001

Q.2 Answer the following questions. (Any Seven) **35**

a) Note on second line agents used in tuberculosis
b) Define and Classify antimalarial drugs.
c) Explain various physicochemical parameters used in QSAR.
d) Define and classify Prodrug explain with examples.
e) Explain MOA & SAR of Quinolones with examples.
f) Explain MOA & SAR of azole derivatives act as antiprotozoal agent.
g) Write synthesis and uses of:
1) Metronidazole.
2) Chloroquine.
h) Classify Sulphonamides with examples.
i) Explain the effect of strong acid and strong base on Tetracycline.

Q.3 Answer the following questions. (Any Two) **20**

a) Explain MOA & SAR of Sulphonamides with examples.
b) Explain malarial cell cycle with MOA and SAR of Cinchona alkaloids
c) Classify antiviral agents and write MOA and SAR of purine nucleoside derivatives.

SLR-JA-24

Seat No.		Set	P

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April-2024
Pharmacology-III (801602)

Day & Date: Friday, 24-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) _____ is the foundation therapy for Chronic Obstructive Pulmonary Disease.
   a) Ipratropium + Tiotropium b) B_2 Adrenergic agonists
   c) Both A & B d) Theophylline

2) _____ is centrally acting emetic.
   a) Xylazine b) Concentrated Sodium Chloride
   c) Syrup of Ipecac d) Zinc Sulphate

3) Chronic diarrhoea is caused by _____.
   a) Diabetes b) Tumours
   c) Addison's disease d) All of above

4) _____ act directly on the cell membrane of the micro-organism increasing their permeability and leading to leakage of intracellular components.
   a) Penicillin b) Amphotericin-B
   c) Erythromycin d) Sulphonamides

5) _____ affect bacterial nucleic acid synthesis and decrease DNA-gyrase.
   a) Quinolones b) Rifampicin
   c) Tetracycline d) Nystatin

6) _____ is intermediate acting sulphonamide agent.
   a) Sulfisoxazole b) Sulphamethoxazole
   c) Sulphadoxine d) Mafenide

7) _____ reported to cause imbalance in blood sugar level.
   a) Sparfloxacin b) Levofloxacin
   c) Gatifloxacin d) Moxifloxacin

8) The success of a penicillin antibiotic is causing cell death is related to antibiotics _____.
   a) Size b) Charge
   c) Hydrophobicity d) All of above

9) _____ is an example of fourth generation cephalosporin.
   a) Cefepime b) Cefixime
   c) Cetizoxime d) Cefuroxime

10) Renally impaired patients should not be treated with any of the tetracycline except _____.
   a) Tetracycline b) Chlortetracycline
   c) Oxytetracycline d) Doxycycline

11) Chloramphenicol show _____ adverse drug reaction.
   a) Anemia b) Gray babay syndrome
   c) Bone marrow depression d) All of above

12) Secondary anti tuberculosis drug used in standard therapeutic regimen is _____.
   a) Rifampicin b) Ethionamide
   c) Pyrazinamide d) Streptomycin

13) Drug used in leprosy _____.
   a) Acedapsone b) Rifampicin
   c) Thiacetazone d) All of above

14) _____ disrupts the fungal cell membrane.
   a) Amphotericin-B b) Griseofulvin
   c) Flucytosine d) Other than A, B & C

15) Anti viral agent is _____.
   a) Providing protection b) Started early
   c) Inhibiting replicating virus d) All A, B & C

16) Effective control of Sexually Transmitted Diseases can be done by _____.
   a) Contact tracing
   b) Specific & curative treatment schedules
   c) Regular post-treatment surveillance
   d) All of above

17) Interferon- _____ is approved for use in relapsing type multiple sclerosis.
   a) α b) β
   c) γ d) δ

18) _____ is used as an antidote in Heavy metal poisoning.
   a) Dimercaprol b) Succimer
   c) Edetate calcium disodium d) All A, B & C

19) _____ is cytokine having red blood production property.
   a) Erythropoietin b) Thymopoietin
   c) TNF-α d) Interleukin-24

20) _____ is the main problem in cancer chemotherapy.
   a) Low margin of safety b) Normal cells also killed
   c) Recurrence d) All of the above

Q.2 Answer Any Seven of the following Questions. **35**

1) Explain mechanism of action, adverse effect and therapeutic uses of selective Beta 2 agonist.
2) What are laxative and purgative? Classify them with example.
3) Discuss about the mode of action of tetracyclines and its drawbacks.
4) Write down the drug regime as per recommendation of WHO guidelines for Multi Drug Resistant tuberculosis.
5) Comment on current & new drugs used in malaria therapy.
6) Explain recent advances in treatment of fungal infections.
7) Describe in detail drug used in urinary tract infection.
8) Explain the term chronopharmacology. Write significance of chronopharmaoclogy.
9) Write note on Cotrimoxazole.

Q.3 Answer Any Two of the following Questions. **20**

1) Classify antiamoebic agents with examples. Write MOA, adverse effect and uses of metronidazole.

2) Give the general principle of treatment of poisoning. Add note on lead, arsenic and mercury poisoning.

3) Classify penicillin. Explain in detail pharmacology of penicillin.

SLR-JA-25

Seat No.		Set	P

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April-2024
Herbal Drug Technology (801603)

Day & Date: Monday, 27-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) Iodine value, Acid value are employed as Quality control for _____.
a) Oil b) Protein
c) Flovon d) Shampoo

2) Select the natural non excipient crude drug from the following _____.
a) karaya gum b) Tragacanth
c) Sterculia gum d) Pepper

3) Factors affecting stability of herbal medicine _____.
a) Physical b) Chemical
c) Environmental d) All of the above

4) Schedule T relates with _____ of herbal medicines.
a) GAP b) GMP
c) GACP d) GLP

5) Shelf life can be obtained from _____ test.
a) Stability b) Microbial
c) Pyrogen d) physical status

6) Standard sample used for determination of Tannin content _____.
a) Cocaine b) Brucine
c) Quinine d) Gallic acid

7) Important documents in GMP as per guidelines is _____.
a) Manuals b) Protocols
c) Policies d) All of the above

8) The residue remaining after incineration is use for determination of inorganic content is _____.
a) Ash b) Extractive
c) Moisture d) Foreign matter

9) _____ What is the full form of ICH.
a) International conference on harmonization
b) International council of harmonization
c) Internal council on harmonization
d) Internal conference on harmonization

10) Steroidal drug are confirmed from the following chemical test _____.
a) Tollens b) Vitalis test
c) Libermann-Burchard test d) Benedicts test

11) Trade Mark of Herbal product helps in _____.
a) Identifying Products b) Turnover
c) Reduce Cost d) Improve Quality

12) In quality control department the area must be _____ Sq feet as per GMP.
a) 200 b) 150
c) 100 d) 50

13) Which is not chromatographic technique _____.
a) TLC b) HPTLC
c) IR d) HPLC

14) Optical rotation is measured by _____.
a) Viscometer b) Opticometer
c) Polarimeter d) Microtome

15) Quality systems involves _____ system of the following?
a) Cleaning b) Designing
c) Production d) Evaluation

16) Gutika formula contain like karpura, kasturi are added _____ stage.
a) Final b) Initial
c) In between d) After rolling

17) Test parameters used in evaluation of herbal samples are _____.
a) Microbiological testing b) Dissolution test
c) Test for heavy metal d) AII of the above

18) Polyherbal formulation is more popular in Ayurvedic preparation due to _____.
a) Synergestic b) Quality
c) Adverse Effect d) Low Value

19) As per ICH guidelines _____ tool used for Efficacy of herbal medicine.
a) Behavior studies b) Side effect
c) Clinical Trials d) Therapeutic Data

20) Disintegration time and weight variation are important quality control tests used for _____ products.
a) Gutika b) Taila
c) Bhasma d) Lavana

Q.2 Answer Any Seven of the following Questions. **35**

1) Define processing and add a note on Processing of herbal raw material.
2) Write about method of preparation and standardization of Lehya.
3) What are Hair conditioners, name 4 herbal drugs used as conditioners.
4) Write Classification of Herbal-Drug and Herb-Food Interactions.
5) Discuss Bioprospecting and Biopiracy.
6) Discuss goal and any four components of GMP.
7) Write a note on Schedule Z of Drugs & Cosmetics Act for ASU drugs.
8) Write a short note on herbal syrup.
9) Write a note on herbal industry.

Q.3 Answer Any Two of the following Questions. **20**

1) What are Neutraceuticals? write health benefits and role of Neutraceuticals.
2) Write a note on:
a) Hypercium
b) Garlic
c) Fenugreek
d) Kava-kava
3) What are Ghutika & Churna write the method of preparation and evaluation.

SLR-JA-26

Seat No.		Set	P

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April-2024
Biopharmaceutics & Pharmacokinetics (801604)

Day & Date: Wednesday, 29-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

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

2) The biological half-life of drug: _____.
   a) Is a constant physical property of the drug
   b) Is a constant chemical property of the drug
   c) May be increased in patients with impaired renal failure
   d) May be decreased in patients by giving the drug by rapid I.V. injection

3) Bioavailability is defined as _____.
   a) Rate of drug absorption b) Rate of drug distribution
   c) Rate of drug elimination d) Rate and extent of absorption

4) USP Dissolution testing apparatus-1 means _____.
   a) Rotating paddle apparatus b) Rotating cylinder apparatus
   c) Rotating basket apparatus d) Cylinder apparatus

5) Average amount of time spent by the drug in the body before being eliminated is called as _____.
   a) AUC b) MRT
   c) AUMC d) None

6) Which one of these are correct Michaelis-Menten equation?
   a) $-dC/dt = Vmax\ C/Km + C$ b) $dC/dt = Vmax\ C/Km + C$
   c) $-dC/dt = Vmax\ C/Km$ d) $-dC/dt = Km + C/Vmax\ C$

7) The term open indicates that the input and output are _____ and that the drug can be eliminated from the body.
   a) Bidirectional b) Unidirectional
   c) Both a and b d) None

8) Which is the other name of “cell eating”?
   a) Transcytosis b) Phagocytosis
   c) Pinocytosis d) Endocytosis

9) The onset of drug action depends on the rate of: _____.
   a) Drug absorption b) Drug dissociation
   c) Both a and b d) None

10) Which of the following is not a mechanism for pharmacokinetic analysis?
   a) Compartment analysis b) Non compartment analysis
   c) Physiologic modeling d) Human model

11) C max in plasma concentration Vs time curve indicate _____.
   a) Rate of absorption = Rate of Elimination
   b) Complete absorption of drug
   c) Beginning of drug excretion
   d) Saturation of metabolizing enzyme

12) Noyes-Whitney equation is used to describe _____.
   a) Protein Binding
   b) Dissolution
   c) Elimination
   d) Disintegration

13) What is the equation for biliary clearance?
   a) No such equation is there
   b) Biliary clearance rate/ plasma drug concentration
   c) Plasma drug concentration / biliary clearance rate
   d) Plasma drug concentration / Bile flow - biliary drug concentration

14) Drugs undergoing first pass metabolism are advised not to be administered through.
   a) Oral
   b) Rectal
   c) Transdermal
   d) Parenteral

15) Which one of these is not a theory of Drug dissolution?
   a) Diffusion layer model
   b) Fick's law of diffusion
   c) Penetration or surface renewal theory
   d) Interfacial barrier model

16) Which drugs are absorbed through pore transport?
   a) Molecules greater than 400 Dalton
   b) Water-soluble drugs of molecular weight less than 100 Dalton
   c) Oily droplets
   d) None of the above

17) Binding of drugs falls into two components those are _____.
   a) Binding of drugs to blood components and to extravascular tissue
   b) Binding of drugs to blood components and to other cells
   c) Binding of drugs to cells and blood cells
   d) Binding of drugs to blood components to bones and cells

18) The pH of a buffer system can be calculated with the _____.
   a) Noyes - Whitney equation
   b) Henderson - Hasselbalch equation
   c) Michaelis - Menten equation
   d) Stokes equation

19) What is dosage regimen?
   a) The concentration of active agent in the drug formulation
   b) The manner in which the drug is given to old people
   c) The manner in which a drug is taken
   d) The manner in which drug given to child

20) Movement of drug across the membrane is called as _____.
   a) Symport
   b) Antiport
   c) Drug Transport
   d) Absorption

Q.2 Answer Any Seven of the following Questions. **35**

a) What is non-linear pharmacokinetics? Describe various causes of non-linearity.
b) Write a note on “Non-compartment analysis.”
c) Discuss about theories of drug dissolution.
d) Define-
1) Absorption
2) Clearance
3) Distribution of drug
4) Protein binding of drug
5) Chemical Equivalence
e) Write a note on In Vitro-In Vivo Correlation?
f) Explain the non-renal routes of drug excretion.
g) Write a note on Pharmacokinetic models.
h) Explain presystemic metabolism of drug.
i) Enlist the physiological barriers to distribution of drug explain any two physiological barriers.

Q.3 Answer Any Two of the following Questions. **20**

a) Explain one compartment open model I.V Bolus administration. Estimation of pharmacokinetic parameters of I.V bolus administration.
b) Define Pharmacokinetics. Describe the Plasma drug concentration- Time profile.
c) Explain in detail about method for enhancement of bioavailability through enhancement of Dissolution rate.

SLR-JA-27

Seat No.		Set	P

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April-2024
Pharmaceutical Biotechnology (801605)

Day & Date: Friday, 31-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) Which one of the following is not belongs to Ancient Biotechnology?
   a) Vaccination b) Domestication
   c) Fermentation d) Cross breeding of animals

2) Which one of the following properties of enzymes can be enhanced by enzyme immobilization technique?
   a) Protienous nature b) Specificity
   c) Thermal stability d) Catalytic ability

3) Monoclonal antibodies were modified for delivery of a toxin, radioisotope and _____.
   a) Enzymes b) Hormones
   c) Drugs d) Cytokine

4) After the fermentation process, penicillin is recovered as _____.
   a) Penicillin b) Sodium penicillin
   c) Calcium penicillin d) Potassium penicillin

5) Which of the following is not a property of carrier matrices?
   a) Thermal stability b) Stability of the material
   c) Physical strength d) Easily available

6) The biological response of the biosensor is determined by _____.
   a) Biocatalytic membrane b) Physio-chemical membrane
   c) Chemical membrane d) Artificial membrane

7) *Taq polymerase* is a _____ polymerase.
   a) Heat stable b) Buffering
   c) Denaturant d) Large

8) The process of introducing DNA into cells is called as _____.
   a) Blotting b) Conjugation
   c) Transfection d) Conduction

9) Primer used for the process of polymerase chain reaction are _____.
   a) Single stranded DNA oligonucleotide
   b) Double stranded DNA oligonucleotide
   c) Single stranded RNA oligonucleotide
   d) Double stranded RNA oligonucleotide

10) Restriction enzymes are used in genetic engineering because they _____.
   a) can cut DNA at specific base sequence
   b) are proteolytic enzymes which can degrade harmful proteins
   c) are nucleases that cut DNA at variable sites
   d) can join different DNA fragments

11) Which of the following vaccine is a combined vaccine?
a) MMR vaccine b) Small pox vaccine
c) Chicken pox vaccine d) Rotavirus vaccine

12) Which of the following immunoglobulin type have shortest half-life?
a) IgG b) IgM
c) IgA d) IgE

13) At what temperature, Immunological products should be stored?
a) 2-8°C b) 20-25°C
c) 30-35°C d) 15-20°C

14) Which of the following cells is involved in cell-mediated immunity?
a) T-cells b) B-cells
c) Mast cells d) T & B cells

15) Cells involved in innate immunity are _____.
a) Phagocytes b) Macrophages
c) Natural killer cells d) All of the above

16) Which of the following hypersensitivity reaction occurs via IgE antibody?
a) Type IV hypersensitivity b) Type I hypersensitivity
c) Type II hypersensitivity d) Type III hypersensitivity

17) Which of the statement hold true for conjugation?
a) Conjugation is the natural process of transferring DNA from one species to another
b) It is the artificial process in case the cells are not able to take them up naturally
c) The plasmids are transferred from one cell to another by physical contact
d) The plasmids are transferred from one cell to another by chemical means

18) In case of large-scale fermenter, vessel is made up of which material?
a) Stainless steel b) Glass
c) Copper d) All of these

19) Which of the following method are used to avoid contamination in fermentation process?
a) Sterilization of medium b) Sterilization of fermenter
c) Sterilization of air d) All of the above

20) Which of the following is the most common method for citric acid production?
a) Solid state fermentation b) Submerged fermentation
c) Surface fermentation d) Surface adhesion fermentation

Q.2 Answer any seven of the following questions. 35

1) Define Biotechnology. Write applications of Biotechnology with reference to Pharmaceutical Industry.
2) Write a note on Protein Engineering.
3) Define Vector. Write its ideal characteristics.
4) Give the applications of genetic engineering.
5) Write a note on storage conditions of official vaccines.
6) Enlist different types of mutation. Explain any one method with merits and demerits.
7) Draw a neat labelled diagram of Industrial fermenter.
8) Write applications of PCR.
9) Explain production of citric acid by fermentation technology.

Q.3 Answer any two of the following questions. **20**

1) Define Enzyme Immobilization. Explain various types of enzyme immobilization with suitable examples.

2) Discuss production of Hepatitis B vaccine by r-DNA technology.

3) Enlist various Blotting techniques. Explain Southern blotting technique with its applications.

SLR-JA-28

Seat No.		Set	P

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April-2024
Quality Assurance (801606)

Day & Date: Monday, 03-06-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Choose the correct alternatives from the options. **20**

1) Which of the following is correct for TQM?
   a) Quality strategy in TQM emanates from top
   b) TQM is a static process
   c) It is a management approach to short-term success through customer
   d) It is used to improve processes not products

2) The maximum pressure on the paper surface or paperboard in a perpendicular direction, required to rupture the paper is called as _____.
   a) Bursting Strength b) Tensile Strength
   c) Tear Strength d) All of the above

3) A basic requirement for Good Manufacturing Practice is _____.
   a) Records should be maintained
   b) Operators are trained to carry out procedures correctly
   c) SOPs should be followed
   d) All of these

4) The guidelines that describe the Pharmaceutical development _____.
   a) ICH Q2 b) ICH Q1
   c) ICH Q8 d) ICH Q9

5) What does NABL stand for?
   a) National Accreditation Board Limited
   b) National Accreditation Board for Testing and Calibration Laboratories
   c) National Accreditation Board for Laboratories
   d) National Accreditation Board for Law

6) Which of the following option is correct regarding QA and QC?
   a) QA is an integral part of QC
   b) QC may or may not depend on QA
   c) QA and QC are independent to each other
   d) QC is an integral part of QA

7) Q _____ guidelines are foundation of QBD.
   a) Q 8,9 & 10 b) Q1,2 & 4
   c) Q 3A, 3B, 3C & 3D d) Q13, 14 & 15

8) NABL accreditation will be valid for _____.
   a) 1 b) 2
   c) 3 d) 5

9) Significant amendments to the manufacturing process:
   a) should be avoided
   b) should be validated
   c) Should be informed to manager
   d) SOP preparation

10) How many batches should be considered for stress testing under basic conditions testing as per ICH?
   a) At least 3
   b) At least 2
   c) At least 1
   d) At least 5

11) The degree of agreement amongst individual results is termed as?
   a) Specificity
   b) Precision
   c) Accuracy
   d) Sensitivity

12) What is quality control?
   a) Process of recognition of entire manufacturing process
   b) Concerned with the integration of all the efforts in organization
   c) Detection of defects in a product
   d) Minimization of material level

13) Physical dimension of equipment and accessories- comes under which qualification?
   a) Design qualification (DQ)
   b) Installation qualification (IQ)
   c) Operational qualification
   d) Performance qualification (PQ)

14) Regular Soda Lime Glass is _____ glass and releases _____ in comparison to the treated Soda Lime Glass.
   a) Type II and acid
   b) Type II and alkali
   c) Type III and alkali
   d) Type III and acid

15) Providing documented evidence that a method/product does what it intends to do is termed as?
   a) Validation
   b) Qualification
   c) Calibration
   d) Verification

16) Calibration requirements are performed during _____.
   a) Installation qualification
   b) Operational qualification
   c) Performance qualification
   d) All of the above

17) QTPP stands for _____.
   a) Quality Target Product Profile
   b) Quality Testing Product Packaging
   c) Quality Target Planning Product
   d) None of the above

18) In Quality by Design process CMA and CPP stands for _____.
   a) Critical Material Attributes and Critical Process Performance
   b) Critical Manufacturing Attributes and Critical Packaging Parameters
   c) Critical Material Attributes and Critical Process Parameters
   d) Critical Matching Attributes and Critical Planning Parameters

19) P-D-C-A stands for _____.
   a) Proceed-Do-check-Act
   b) Plan-Do-correct-Act
   c) Proceed-Do-correct-Act
   d) Plan-Do-check-Act

20) The lowest amount of analyte in a sample which can be detected and quantified is called as?
   a) Limit of Detection
   b) Accuracy
   c) Limit of Quantitation
   d) Specificity

Q.2 Answer the following. (Any Seven) **35**

1) Write inter-relationship between QA, QC, GMP.
2) Write about calibration of pH meter and importance of calibration.
3) Write note on complaints and evaluation of complaints.
4) Explain QC test for secondary packaging material.
5) Explain elements involved in QbD.
6) Write process of harmonization in ICH and give QSEM guidelines.
7) Define ISO. Explain the principles of ISO.
8) Give ten principles of Good Manufacturing Practices.
9) Enlist in detail all Q series ICH guidelines.

Q.3 Answer the following. (Any Two) **20**

1) Discuss scope and benefits of NABL. Write Procedure for NABL Accreditation.
2) Describe in detail any five quality control tests for Plastic container.
3) Define Validation. Write in detail about types of Process Validation.

SLR-JA-29

Seat No.	

Set P

B. Pharmacy (Semester - VII) (CBCS) Examination: March/April - 2024
Instrumental Methods of Analysis (801701)

Day & Date: Monday, 20-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice questions **20**

1) Which electronic transition has high extinction coefficient?
   a) $n \rightarrow \sigma^*$ b) $\sigma \rightarrow \sigma^*$
   c) $n \rightarrow \pi^*$ d) $\pi \rightarrow \pi^*$

2) Nephelometry is concerned with measurement of _____ light by suspended particles in solution.
   a) Absorbed b) Scattered
   c) Transmitted d) All of the above

3) The number of wavelength units passing through given point in unit time is called as _____.
   a) Wave number b) Frequency
   c) Velocity d) None

4) _____ is In-plane deformation vibration.
   a) Scissoring b) Stretching
   c) Twisting d) Wagging

5) Water molecule has _____ modes of vibration.
   a) 4 b) 2
   c) 3 d) 1

6) Shift of absorption maxima towards shorter wavelength is called as _____.
   a) Hypsochromic shift b) Bathochromic shift
   c) Hyperchromic shift d) Hypochromic shift

7) Which sentence is false about Turbidimetry?
   a) is concerned with the measurement of the intensity of the transmitted light
   b) is concerned with the measurement of the intensity of the scattered light
   c) Intensity of transmitted light is inversely proportional to the concentration of the suspended particle
   d) The intensity of the transmitted light is usually measured at 180° to the incident light

8) _____ technique where separation of sample mixture was carried out by continuous addition of analyte solution.
   a) Elution b) Frontal analysis
   c) Displacement analysis d) All of the above

9) The most commonly used UV radiation source in most UV-VIS spectrophotometer is _____.
   a) Deuterium Lamp b) Tungsten Filament Lamp
   c) Mercury arc Lamp d) All of the above

10) Volume of M.P. required to elute 50% of the compound from the column is defined as _____.
a) Adjusted retention volume b) Retention time
c) Retention volume d) Adjusted retention time

11) Different paths travelled by molecules of particular solute during their passage through the column is called as _____.
a) Eddy diffusion b) Longitudinal diffusion
c) Non Equilibrium mass transfer d) Both b and c

12) Temperature produced in flame photometer by Hydrogen and oxygen mixture is _____.
a) 2700 b) 2900
c) 3100 d) 3500

13) The material used for construction of an incandescent lamp in IR is _____.
a) Tungsten b) Sintered Silicon Carbide
c) Ceramic d) Nichrome

14) The chromatographic method of separating biochemical mixture of compounds, based on highly specific biological interactions is referred to as _____.
a) thin layer chromatography b) ion-exchange chromatography
c) affinity chromatography d) gel permeation chromatography

15) Delayed emission of previously absorbed radiation by a molecule is called as _____.
a) Phosphorescence b) Fluorescence
c) Flame emission d) None of the above

16) Which of the following is not a highly specific biological interaction to be used in affinity chromatography?
a) Antigen-antibody b) Cations-anions
c) Enzyme-substrate d) Receptor-ligand

17) What is the principle of AAS?
a) Absorption of radiation by excited state atoms
b) Absorption of radiation by ground state atoms
c) Emission of radiation by ground state atoms
d) Emission of radiation by excited state atoms

18) IR spectra are plot of _____.
a) % Abs. vs. Wave number b) % T vs. Cone
c) % Abs vs. Conc. d) % T vs. Wave number

19) Which of the following gases is unsuitable for use as a GC carrier gas?
a) Nitrogen b) Helium
c) Oxygen d) All of the above

20) 1 nm = _____.
a) 10^{-9} cm b) 10^{-7} cm
c) 10^{-8} cm d) 10^{-3} cm

Q.2 Answer the following question. (Any Seven) **35**

a) Elaborate plate theory and rate theory in chromatography.
b) Give construction and working of any two flame atomizer.
c) Explain in detail Simultaneous equation method or Vierodt's Method.
d) Give principle and applications of Ion Exchange Chromatography.
e) Write a note on any two pumps used in HPLC.
f) Write a note on instrumentation of Nephelometry.
g) Enlist and explain types of electronic transitions in an organic molecule.
h) Explain in brief instrumentation of Gas Chromatography.
i) Define fluorescence and phosphorescence. Give applications of Fluorimetry.

Q.3 Answer the following question. (Any Two) **20**

a) Give types of IR detectors. Give construction and working of any four detectors.
b) Describe the principle of Atomic Absorption Spectroscopy. Explain interferences in AAS.
c) Explain in detail any four development techniques of paper chromatography. Give its advantages and disadvantages.

SLR-JA-30

Seat No.		Set	P

B. Pharmacy (Semester - VII) (CBCS) Examination: March/April - 2024
Industrial Pharmacy – II (801702)

Day & Date: Wednesday, 22-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions. **20**

1) The filling method of a pharmaceutical liquid depends on the following factors _____.
   a) Viscosity of the liquid
   b) Surface tension of the liquid
   c) Compatibility with the material used in the construction of the filling machine
   d) All the above

2) The, transfer of the technology between site of different companies is called as _____.
   a) Inter-company transfer b) Intra-company transfer
   c) Technology transfer d) Technology transfer protocol

3) For liquid dosage form, which information is provided by SU to RU.
   a) Range of P^H & Viscosity b) Specific gravity
   c) H_2O content d) All of these

4) Pharmacovigilance is a part of _____.
   a) ICH E1 guideline b) ICH E3 guideline
   c) ICH E2 guideline d) ICH E2 (A-F) guideline

5) Guidelines for Environmental performance evaluation are included in _____.
   a) ISO 14004 b) ISO 14001
   c) ISO 14040 d) ISO 14031

6) Approximately what percentage of clinical development studies are conducted by CRO's.
   a) 1-5% b) 10-20%
   c) 25-30% d) 50-75%

7) Place where concepts of 5M's are brought together for manufacturing of product is called as _____.
   a) Pilot Plant b) Plant
   c) QA department d) Production department

8) Which of the following is a multifunctional processor for process of granulation?
   a) FBD b) Sigma blade mixer
   c) Planetary mixer d) Rapid mixer granulator

9) Key components of TQM are _____.
   a) Customer focus b) Continuous improvement
   c) Involvement of employee d) All of these

10) Out of the following what is multiple of batch size at stage of pilot scale ____.
a) Multiple of 1000X b) Multiple of 10X
c) Multiple of 100X d) Multiple of 10000X

11) A measurable term, under which test is considered as acceptable.
a) Bracketing b) Commissioning
c) Acceptance Criteria d) Critical control

12) Currently Centre of APCTT agency in India is located at _____.
a) Bangalore b) New Delhi
c) Mumbai d) Chennai

13) Empty gelatin capsule have recommended storage condition at _____.
a) 15-25°C b) 5-25°C
c) 15-35 °C d) 5-10°C

14) IND stands for _____.
a) Indian New Drug b) International New Drug
c) Investigational New Drug d) None of the above

15) After granting of NABL accreditation to laboratory if remains valid for how many years?
a) 2 years b) 2.5 years
c) 3 years d) 3.5 years

16) Which of the following application form is required by testing laboratories to apply for NABL _____.
a) Form 152 b) Form 180
c) Form 190 d) Form 151

17) Common Technical Document (CTD) is developed by _____.
a) USFDA b) MHLW
c) ICH d) TGA

18) Pharmacy Act comes in existence in year of _____.
a) 1945 b) 1948
c) 1940 d) 1954

19) Format for COPP is recommended by _____.
a) ICH b) WHO
c) CDSCO d) US-FDA

20) Head office of CDSCO is located in which city?
a) New Delhi b) Mumbai
c) Pune d) Bangalore

Q.2 Answer the following questions. (Any Seven) **35**

a) What is signification of pilot plant? Give its applications.
b) Discuss transfer of technology form R&D to Production.
c) What do you mean by RA department? What are its functions?
d) Discuss in detail Pilot plant scale up consideration for solids.
e) What are various elements of validation?
f) Explain various methods of Bioequivalence study.
g) Explain in detail Non-Clinical drug development.
h) Write a note on Investigator brochure.
i) Explain in detail Certificate of Pharmaceutical Product

Q.3 Answer the following questions. (Any Two) **20**

a) Describe in detail Technology Transfer Process & its elements.

b) Explain in detail New drug approval process in India.

c) What is the importance of COPP? Describe the method to obtain COPP.

SLR-JA-31

Seat No.	

Set P

B. Pharmacy (Semester - VII) (CBCS) Examination: March/April-2024
Pharmacy Practice (801703)

Day & Date: Saturday, 25-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) In facilities there should be a separate a room for _____ products preparation.
   a) Sterile b) OTC
   c) Non sterile d) None of these

2) In smaller hospitals of bed strength50, how many pharmacists are required ____.
   a) One b) Two
   c) Three d) None of these

3) Difference in the _____ from different formulations or brands of the drug may also causes the adverse drug reaction.
   a) Bioavailability b) Disintegration
   c) Release pattern d) None of these

4) Pharmacists working in the community practice setting are _____.
   a) Diploma holders b) B. Pharmacy Degree Holders
   c) Both A & B d) None of these

5) Counter checking means checking all the medicines prepared for dispensing against _____.
   a) Billing b) Prescription
   c) Both A & B d) None of these

6) One of the basic services provided by hospital pharmacy department is _____.
   a) Drug storage b) Drug distribution
   c) Drug retention d) None of these

7) The hospital formulary is a list of _____ preparations.
   a) Chemical b) Food
   c) Pharmaceutical d) None of these

8) _____ Is very educative and useful to the members of “Health Care Team”.
   a) Reference Book b) Pharmacopeia
   c) Formulary d) None of these

9) Therapeutic drug monitoring determines the _____ of the dosage regimen.
   a) Safety b) Quality
   c) Efficacy d) None of these

10) _____ means how well the patient follows the instructions of when and how to take the medication.
   a) Description b) Instruction
   c) Compliance d) None of these

11) This definition of adherence assumes that _____ is an active member of the health care team.
a) Patient b) Doctor
c) Pharmacist d) None of these

12) Occurrence of medication errors is strongly associated with inadequate or incomplete _____.
a) Medication history b) Diet information
c) Demographic information d) All

13) Short term finance is raised for a period of less than _____ years.
a) Five b) Two
c) Six d) Seven

14) Which of the following is aspect for material management?
a) Stocking b) Coding
c) Both A & B d) None of these

15) Pharmacy & Therapeutic committee consist of _____.
a) Physicians b) Pharmacists
c) Health professionals d) All

16) Basic Principle of counselling is _____ to patient in the language he understands.
a) Speak b) Communicate
c) Both A & B d) None

17) Preparation of a budget is _____ which calls for the compilation of all relevant facts and figures.
a) Planning b) Forecasting
c) Organizing d) None of these

18) According to FDA regulations, a drug must be sold over the counter _____.
a) Safe b) Ineffective
c) Both A & B d) None

19) The ideal drug store should have _____ entrances.
a) One b) Two
c) Three d) Four

20) Reasons for Increasing Adverse drug Reaction _____.
a) Polypharmacy b) Self-Medication
c) Availability of potent drugs d) All

Q.2 Answer Any Seven of the following Questions. 35

1) Describe the functions and responsibilities of clinical pharmacist.
2) Define Hospital. Write function of Hospital Pharmacy.
3) Explain Pharmacokinetic drug interaction.
4) Explain factors to be considered during therapeutic drug monitoring.
5) Explain the role of healthcare provider in improvement of medication adherence.
6) Discuss internal training programs in Hospital.
7) Write note on Hospital Formulary.
8) Explain in details the various laboratory test used for Urine analysis.
9) Write note on preparation of Budgets.

Q.3 Answer Any Two of the following Questions. **20**

1) Discuss in details the drug distribution system in Hospital.

2) Define pharmacy and therapeutic committee? Explain the roles of Pharmacy and Therapeutic Committee (PTC).

3) What is Inventory Control? Explain various techniques of Inventory Control.

SLR-JA-32

Seat No.	

Set P

B. Pharmacy (Semester - VII) (CBCS) Examination: March/April-2024
Novel Drug Delivery System (801704)

Day & Date: Tuesday, 28-05-2024 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Ideal glass transition temperature for a pressure sensitive adhesive used in transdermal system should be _____.
a) - 20° C to - 40° C b) - 2° C to - 4° C
c) 20° C to 40° C d) 2° C to 4° C

2) Chitosan is a _____ mucoadhesive polymer.
a) Cationic b) Anionic
c) Synthetic d) Non-ionic

3) Progestasert is a _____.
a) Ocusert b) IUD
c) Transdermal patch d) Vaginal implant

4) Which of the following does not constitute an appendageal route?
a) Sweat glands b) Hair follicle
c) Sebaceous gland d) Stratum corneum

5) The major component of niosomes are _____.
a) Phospholipids b) Lipids
c) Polymer d) Non-ionic surfactant

6) Propellant used in aerosol for topical application is _____.
a) Propane b) Oxygen
c) Trichloro-monofluro-methane d) Methane

7) Ocusert system is developed by _____.
a) Alza b) Ciba Geigy
c) Sanofi-Aventis d) Matrix

8) The floating gastro retentive systens are _____.
a) High density b) Low density
c) Expandable d) All of these

9) Which of the following characteristics is suitable for transdermal drug?
a) Large drug dose
b) Large molecular size
c) Drugs with narrow therapeutic indices
d) Drugs which are metabolized in the skin

10) Implantable systems are mainly designed for _____.
a) Conventional drug delivery b) Short term therapy
c) Long term therapy d) All of these

11) Removal of which type of implant is necessary after completion of therapy ____.
a) Biodegradable implant b) Non-Biodegradable implant
c) Both a) and b) d) None of these

12) The nonionic permeation enhancer used in mucoadhesive _____.
a) Oleic acid b) Tween 80
c) Glycerol d) Propylene glycol

13) The polymer is characterized by _____.
a) Molecular weight b) Resistence to erosion
c) Hydrophobicity d) All of these

14) Dose dumping is problem in formulation of _____.
a) Suppository b) Soft gelatin capsule
c) Compressed tablet d) Controlled release system

15) The bioavailability of drugs applied in the form of transparent patches is depend on _____.
a) Therapeutic activity of drug
b) Physicochemical properties of drug
c) Anatomy of skin
d) None of the above

16) In Microencapsulation Wurster process is used in _____ method.
a) Coacervation phase separation
b) Multi orifice centrifugal process
c) Air suspension
d) Polymerization

17) Use of monoclonal antibodies for drug delivery to tumors is _____.
a) Active targeting b) Passive targeting
c) Triggered drug targeting d) Vector targeting

18) To prevent the loss of drug that has migrated into the adhesive layer during storage, this is used _____.
a) Release liner b) Rate controlling membrane
c) Adhesive layer d) Backing membrane

19) Mucosal drug delivery system delivered to the gums is termed as _____.
a) Sublingual delivery b) Buccal delivery
c) Nasal delivery d) Gingival delivery

20) Which of the following is a thermosetting polymer?
a) Polystyrene b) Polyolefins
c) Nylons d) Phenolic resins

Q.2 Answer any seven of the following questions. **35**

a) Write briefly about Nebulizer.
b) Explain in detail about intrauterine drug delivery systems.
c) Discuss the factors affecting permeation of drug through the skin.
d) Describe Alzet Osmotic Pump.
e) Write about the drug candidate selection criteria for developments of controlled release drug delivery systems.
f) Write the advantages and disadvantages of ocuserts.
g) Write the solvent extraction and solvent evaporation methods to prepare microspheres.
h) Classify the polymers used to modify the drug release.
i) Explain the biological factors affecting controlled release drug delivery systems.

Q.3 Answer any two of the following questions. **20**

a) Develop a formula for bio adhesive drug delivery. Give logical reasoning for selection of excipients in the formula.

b) Explain Nanoparticles a carrier system.

c) What are gastro retentive drug delivery system, describe with its various approaches.

SLR-JA-33

Seat No.	

Set P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April - 2024
Biostatistics and Research Methodology (801801)

Day & Date: Monday, 20-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice questions. **20**

1) In measures of central tendency, Z represents _____.
   a) Mean b) Mode
   c) Median d) Grouped average

2) Median divides the given series in _____.
   a) Two equal parts b) Two unequal parts
   c) More than two parts d) Categories

3) For a given series of children's age in years, $2, 4, 6, 2, 5, 2, 7, 2$, mode is _____.
   a) 4 b) 7
   c) 2 d) 6

4) Median for a given series: $3, 5, 7, 8, 4$ is _____.
   a) 7 b) 8
   c) 3 d) 4

5) The line $x = a +$ by represents the regression equation of _____.
   a) X on y b) Y on x
   c) xy d) $2x$

6) The regression coefficients are zero if r is equal to _____.
   a) -1 b) $+1$
   c) 0 d) 2

7) Regression analysis is concerned with _____.
   a) Measuring the extent of association between two variables
   b) Establishing a mathematical relationship between two nvariables
   c) Predicting the value of the dependent variable for a given value of the independent variable
   d) Both B & C

8) If there are two variables x & Y, then the number of regression equation could be _____.
   a) 2 b) 3
   c) 4 d) 8

9) Normal distribution is the distribution of _____.
   a) Discrete variable b) Qualitative variable
   c) Continuous variable d) Class interval

10) Normal distribution is continuous distribution that ranges from _____.
   a) 0 to 1 b) 0 to ∞
   c) -1 to $+1$ d) $-\infty$ to $+\infty$

11) Non-probability sampling includes all of the following except: _____.
   a) Convenience sampling b) Stratified sampling
   c) Purposive sampling d) Quota sampling

12) The total area under normal curve is _____.
   a) 0 b) 1
   c) -1 d) ∞

13) The process of separating experimental units into groups or blocks is known as _____.
   a) Blocking b) Defining
   c) Correlating d) Identification of the variables

14) Experimental design is _____.
   a) Planning b) Designing
   c) Purpose d) Evolution

15) The purpose of randomization is to _____ Bias & other sources of extraneous variables.
   a) Accept b) Remove
   c) Analyze d) Evaluate

16) A complete randomized design is also known as _____.
   a) Two way ANOVA b) One way ANOVA
   c) Schedule d) Random design

17) In Factorial design, the factors are _____.
   a) Independent variables b) Dependent variables
   c) Reaction d) Responses and feedback

18) A part of population selected to know something about the population is called as _____.
   a) Sampling b) Sample
   c) Sampling technique d) All

19) The number of individual selected in a sample is called its _____.
   a) Sampling b) Quantity
   c) Sample size d) Sample height

20) Which one is essential element of a sample?
   a) Representatives b) Independence
   c) Similarity & homogeneity d) All

Q.2 Answer the following questions (Any Seven) **35**

a) Find the regression standard error (S_e) for: $\bar{y} = 0.305 + 1.518x$ & given data is:

X	2	3	5	7	9
Y	4	5	7	10	15

b) Explain properties of normal distribution curve.

c) Discuss about histogram and pie chart.

d) What is sampling? Enlist different types of it.

e) Find the mean using step deviation method for the given data: $20, 40, 60, 80, 100$.

f) Calculate the mode for following data:

Data	8-9	9-10	10-11	11-12	12-13	13-14	14-15
Frequency	8	14	21	25	15	10	7

g) What is 2^3 factorial design? Explain with suitable example.

h) Find the standard deviation for given data.
$3,7,8,9,10.$

i) Define hypothesis. Discuss testing of hypothesis.

Q.3 Answer the following questions. (Any Two) **20**

a) What is sampling? Explain different types of it.

b) Explain blocking & confounding system for two level factorial along with example.

c) A test was conducted for 5 students. The results obtained before training & after training are as follows:

Candidate	A	B	C	D	E
Marks before training	110	120	123	132	125
Marks after training	120	118	125	136	121

Test whether there is any change in the performance after training? (Given Table t value $= 2.776$)

SLR-JA-34

Seat No.		Set	P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April-2024
Social and Preventive Pharmacy (801802)

Day & Date: Wednesday, 22-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice questions. **20**

1) _____ considered health as an absence of disease and someone free from disease.
   a) Ecological concept b) Biomedical Concept
   c) Psychological concept d) Holistic Concept

2) _____ means the feel that lifestyle is meaningful and has a reason.
   a) Social health b) Intellectual health
   c) Emotional health d) Spiritual health

3) _____ consist of actions and measures that inhibit emergence of risk factors.
   a) Primordial prevention b) Primary prevention
   c) Secondary prevention d) Tertiary prevention

4) _____ means to watch over with great attention, authority and with suspicion.
   a) Control b) Surveillance
   c) Monitoring d) Evaluation

5) Malaria is caused by _____.
   a) Clostridium b) Leishmania
   c) Plasmodium d) Entamoeba

6) Counselling on nutrition, hygiene, immunization, essential new born care activities are part of _____.
   a) Antenatal care b) Intra-natal care
   c) Postnatal care d) All of the above

7) _____ provide post graduate course in geriatric medicine
   a) Primary level b) CHC level
   c) Sub center level d) Regional center level

8) Mission Indradhanush covers _____ vaccine preventable disease.
   a) 3 b) 5
   c) 7 d) 9

9) Elephantiasis is caused by _____.
   a) Filarial worm b) Roundworm
   c) Whipworm d) Tapeworm

10) NTCP is the short name of _____ programme.
   a) New Tobacco and Cigarette programme
   b) National Tobacco Cigarette programme
   c) National Tobacco Control programme
   d) New Tobacco Control programme

11) _____ are the front-line community workers, who work for slums / communities.
a) USHA b) ASHA
c) MAS d) AWW

12) First HIV infection was detected in India in _____.
a) 1972 b) 1986
c) 1992 d) 1998

13) Haemorrhagic fever is symptom of the disease _____.
a) SARS b) Dengue
c) Malaria d) Filariasis

14) Incubation period for the leprosy is _____.
a) 5-7 months b) 7-18 months
c) 2-5 years d) 5-7 years

15) Cholera is caused by _____.
a) Protozoa b) Viruses
c) Bacteria d) Worms

16) USHA stands for _____.
a) United Social Health Activist
b) United Social Health Association
c) Urban Social Health Association
d) Urban Social Health Activist

17) India was certified as polio free country in year _____.
a) 2005 b) 2010
c) 2014 d) 2019

18) _____ refers to clean drinking water, adequate treatment and disposal of human excreta and sewage.
a) Hygiene b) Sanitation
c) Public health d) Disinfection

19) Normal range of blood pressure for adult is _____.
a) 80-120 b) 120-80
c) 140-90 d) 160-100

20) Goal of national program for control of blindness is to reduce the prevalence of blindness from 1.4% to _____.
a) 1.1% b) 0.8%
c) 0.6% d) 0.3%

Q.2 Answer the following question. **35**

a) Define health explain impact of urbanization on health.
b) Write a note on HIV/AIDS control programme.
c) Explain symptoms, prevention and treatment of chikungunya.
d) Discuss mother and child healthcare intervention programme.
e) Write goals, strategies and outcome of NUHM.
f) Discuss health promotion and education in school.
g) Explain symptoms and prevention of Dengue.

Q.3 Answer the following questions. (Any Two) **20**

a) Discuss in detail about Malaria.

b) Define health; describe the concept of disease prevention.

c) Discuss in detail about Urban Health care Delivery Model

SLR-JA-35

Seat No.	

Set P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April-2024
Pharmaceutical Marketing Management (801804)

Day & Date: Saturday, 25-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) Rural consumers are _____.
   a) Price sensitive b) Less price sensitive
   c) Quality conscious d) None of these

2) Which of the following is NOT considered a type of reseller?
   a) Wholesaler b) Retailer
   c) Manufacturer d) Distributor

3) Which of the following is NOT an element of the marketing mix?
   a) Distribution b) Product
   c) Target market d) Pricing

4) Which is a key factor of financial investigation _____.
   a) Product mix decision b) Product positioning
   c) Product portfolio d) None

5) The two or more organizations join together for marketing purpose to increase their customer base is called as _____.
   a) Horizontal marketing b) Vertical marketing
   c) Both A & B d) None of the above

6) _____ is the key player of marketing mix that includes '4Ps' i.e product, price promotion and places.
   a) Promotion b) Advertising
   c) Sampling d) Direct mail

7) Vertical market is also known as _____.
   a) Niche market b) Hold market
   c) Harvest market d) Divest market

8) The Consumer Protection Act was enacted in _____.
   a) 1985 b) 1988
   c) 1987 d) 1986

9) Marketing is a process which aims at _____.
   a) Production
   b) Profit-making
   c) The satisfaction of customer needs
   d) Selling Products

10) _____ is the father of Modern Marketing.
   a) Abraham Maslow b) Lester Wunderman
   c) Peter Drucker d) Philip Kotler

11) Selling the same product and using same promotional methods in all countries is called as _____.
a) Globalization b) Adaptation
c) Customization d) None of the above

12) Reasons for growing rural markets are _____.
a) Change in rural consumer behaviour
b) Marketing strategies
c) Promotion strategies
d) Product mix

13) _____ responsible for controlling the prices of pharmaceutical drug in India.
a) National pharmaceutical pricing authority
b) Central drug authority
c) State drug authority
d) None

14) The concept of STP for marketers, STP Stands for _____.
a) Segmentation, Targeting Positioning
b) Selling ,Targeting positioning
c) Segmentation, Targeting, Past selling
d) None of the above

15) The various activities of government and non-government organization to protect the rights of customers are called _____.
a) Vertical market b) Consumerism
c) Advertising d) None of the above

16) Product can be classified on the basis of _____.
a) Durability b) Users
c) Visibility d) All of the above

17) The personal selling aims to make a _____ link with buyer.
a) Familiar b) Good
c) Friendly d) None

18) _____ refers to addition of new product into existing product line at lesser price.
a) Downword stretching b) Upword stretching
c) Two way stretching d) None

19) Marketing is _____.
a) Art b) Science
c) Both A & B d) None

20) The _____ identifies the product or brand.
a) Container b) Label
c) Advertisement d) Warranty

Q.2 Answer Any Seven of the following Questions. **35**

1) Describe the duties of Professional Sales Representatives (PSR).
2) Give a detail note on NPPA.
3) Give Difference between Marketing and selling.
4) Define:
  i) Branding
  ii) Promotion
  iii) Global Marketing
5) Explain Product Life Cycle.
6) Write objectives and importance of Pricing.
7) Write a note on Rural Marketing.
8) Write a detail note on conflict in channels.
9) Give a detail note on Pricing Method.

Q.3 Answer Any Two of the following Questions. **20**

1) Define and Classify Products. Explain Product Layers.
2) What is the importance of consumerism? Discuss in brief Consumer Responsibilities and Consumer Right.
3) What is Global Marketing? Discuss in detail need of Global Marketing.

SLR-JA-36

Seat No.	

Set P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April-2024
Pharmaceutical Product Development (801814)

Day & Date: Saturday, 25-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) Sucralose is approximately _____ times sweeter than sucrose.
   a) 600 b) 300
   c) 900 d) None of these

2) Butylated hydroxy toluene is _____.
   a) An anti-oxidant b) A sweetener
   c) Both a & b d) None of these

3) _____ is a water soluble anti-oxidant.
   a) Ascorbic acid b) Acacia
   c) Both a & b d) None of these

4) _____ is a used as enteric coating material.
   a) Shellac b) Sucrose
   c) Both a & b d) None of these

5) Cellulose acetate phthalate is used as _____ agent.
   a) An enteric coating b) Bulking
   c) Both a & b d) None of these

6) Benzalkonium chloride is used as _____.
   a) Coloring agent b) Preservative
   c) Both a & b d) None of these

7) Cholesterol is used as _____.
   a) Bulking agent b) Emulsifying agent
   c) Both a & b d) None of these

8) Powdered glass test performed to estimate the amount of _____ leached.
   a) Acid b) Alkali
   c) Both a & b d) None of these

9) The internal diameter of the cylindrical glass tube of the disintegrating test apparatus is _____ mm.
   a) 11.5 b) 21.5
   c) 13.5 d) None of these

10) _____ is used to increase the bulk in tablet formulation.
   a) Binder b) Diluent
   c) Preservative d) None of these

11) Hard gelatin capsule shell is composed of _____.
   a) Gelatin b) Plasticiser
   c) Both a & b d) None of these

12) Sodium starch glycolate is used as _____ in tablet formulation.
a) Preservative b) Anti-oxidant
c) Super disintegrant d) None of these

13) Tablet hardness can be tested by using _____ hardness tester.
a) Monsanto b) Pfizer
c) Both a & b d) None of these

14) _____ is a primary packaging material.
a) Glass b) Plastic
c) Both a & b d) None of these

15) Which of the following is not an organoleptic additive?
a) Coloring agent b) Sweetening agent
c) Flavoring agent d) None of these

16) Which of these is a glidant?
a) Acacia b) Gelatin
c) Both a & b d) None of these

17) Highly resistant borosilicate glass is called as type _____ glass.
a) II b) III
c) Both a & b d) None of these

18) Enteric coated tablets should disintegrate in the _____.
a) Stomach b) Intestine
c) Both a & b d) None of these

19) Which quality control test is not performed on collapsible tubes?
a) Breakage test b) Bursting strength test
c) Both a & b d) None of these

20) _____ packaging material does not come in direct contact with the contents of the container.
a) Primary b) Secondary
c) Both a & b d) None of these

Q.2 Answer Any Seven of the following Questions. 35

1) Discuss the weight variation test for tablets as per Indian pharmacopoeia.
2) Explain the quality control tests performed on corrugated boxes used as packaging material.
3) Explain the role of polyethylene glycols in pharmaceutical formulation.
4) Discuss semi solid excipients.
5) Write a note on Preformulation studies.
6) Explain the role of factorial design as optimisation techniques in pharmaceutical product development.
7) Discuss the packaging materials used in tablets packing.
8) Write a note on directly compressible vehicles.
9) Discuss excipients used in aerosol formulation.

Q.3 Answer Any Two of the following Questions. 20

1) Explain quality by design concept. Discuss its role in pharmaceutical product development.
2) Explain the quality control tests for plastic used as packaging material.
3) Discuss Cyclodextrin as a Pharmaceutical Excepients.

SLR-JA-38

Seat No.		Set	P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April-2024
Pharmacovigilance (801806)

Day & Date: Tuesday, 28-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) In 1964, the yellow card was structured by _____.
   a) United States of America b) United Kingdom
   c) India d) Japan

2) Which of the following bodies was NOT involved as a founder member of the International Conference on Harmonisation (ICH)?
   a) United States of America
   b) World Health Organization
   c) European Commission
   d) Japanese Pharmaceutical Manufacturers Association

3) Which of the following is associated with Phase 4 clinical trials?
   a) Post Marketing Surveillance
   b) Therapeutic Exploratory Trial
   c) Therapeutic Confirmatory Trial
   d) Micro- dosing Study

4) _____ drug reactions are dose-dependent.
   a) Type C b) Type E
   c) Type A d) Type D

5) _____ scale is used to assess the severity of adverse drug reactions.
   a) Naranjo b) Hatwig
   c) Global Intospection d) Bayesian

6) ATC 2nd level indicates _____.
   a) Anatomical group
   b) Chemical substance
   c) Chemical, Therapeutic subgroup
   d) Pharmacological subgroup

7) Which of the following drug suppress the lactation?
   a) Paracetamol b) Aspirin
   c) Penicillin d) Levodopa

8) _____ for identifying drug names in spontaneous ADR reporting.
   a) WHO-DD b) WHO-ART
   c) COSTART d) MedDRA

9) _____ is a WHO global individual case safety report database.
   a) VigiAccess b) VigiBase
   c) VigiFlow d) Oracle

10) Sponsor should report serious adverse event to the licensing authority within _____ days.
a) 19 b) 17
c) 14 d) 07

11) Vigi Access was launched by _____.
a) COMPASS b) FDA
c) UMC d) WHO

12) Full form of AEFI is _____.
a) Adverse Event Following Immunization
b) Adverse Effect From Immunization
c) Adverse Event From Immunization
d) Adverse Effect Following Immunization

13) Series of case reports is called as _____.
a) Case report b) Cohort study
c) Case Controlled study d) Case Series

14) _____ form is widely accepted standard for expedited adverse event reporting?
a) Suspected ADR b) CIOMS-II
c) CIOMS-I d) WHO

15) Adolescents age group _____.
a) 0-14 years b) 12-18 years
c) 18-60 years d) 14-18 years

16) _____ is the main regulatory body for regulation of pharmaceuticals, medical devices and clinical trials in India.
a) CDSCO b) CISCO
c) CESCO d) CPECO

17) ICD's first international classification edition was called as _____.
a) International list of drugs
b) International list of death
c) International list of causes of death
d) International list of diseases

18) _____ digits are present in MedDRA numeric code.
a) 9 b) 8
c) 6 d) 7

19) Dear health care provider letter is also called as _____.
a) Dear patient letter b) Dear clinician letter
c) Dear doctor letter d) Dear physician letter

20) Permission to import new drugs is rule _____.
a) 122 C b) 122 A
c) 122 B d) 122 D

Q.2 Answer Any Seven of the following Questions. **35**

1) Explain the Periodic Safety Updated Report.
2) Write in detail the Drug Safety Evaluation Process for a special population.
3) Describe the Vaccine Pharmacovigilance.
4) Discuss establishment of Pharmacovigilance Programme in the Hospital.
5) Give a short note on Causality Assessment Methods.
6) Write a note on schedule Y guidelines.
7) Explain the importance of communication in Drug Safety Crisis Management.
8) Describe the basic Drug Information Resources.
9) Discuss the importance of Safety Monitoring of Medicine.

Q.3 Answer Any Two of the following Questions. **20**

1) Explain in detail the Active and Passive Surveillance Methods.

2) Describe anatomical, therapeutic, chemical classification of Drugs.

3) Discuss CIOMS I to IV working groups.

SLR-JA-39

Seat No.	

Set P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April - 2024
Advanced Instrumentation Techniques (801812)

Day & Date: Tuesday, 28-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice questions. **20**

1) The nuclei having spin quantum number greater than _____ show NMR phenomenon.
   a) 1 b) 2
   c) 3 d) 0

2) _____ is a component of mass instrument.
   a) Detector b) Mass analyzer
   c) A and B d) Radio frequency transmitter

3) _____ peak has mass to charge ratio more than the molecular ion peak.
   a) Isotopic b) Fragment ion
   c) Metastable ion d) All of these

4) _____ is a validation parameter used for analytical method by UV method.
   a) Accuracy b) Precision
   c) A and B d) Roughness

5) No. of signals in NMR spectrum for 1, 3, 5-trimethyl benzene molecule _____.
   a) Two b) Five
   c) Six d) One

6) _____ is not an ion source used in mass spectrometer.
   a) Electron impact b) Quadrupole
   c) Fast atom bombardment d) Field desorption

7) The chemical shift value in the NMR spectrum is denoted by _____
   a) β b) α
   c) μ d) δ

8) _____ study verifies that the response is linearly proportional to the analyte concentration in the concentration range of sample solution.
   a) Selectivity b) Linearity
   c) Sensitivity d) None of these

9) The most intense peak in the mass spectrum is called as _____.
   a) Base peak b) Rearrangement ion peak
   c) Isotope ion peak d) Molecular ion peak

10) Coupling constant for cis protons is _____.
   a) 0-5 Hz b) 11-18 Hz
   c) 6-15 Hz d) 6 Hz

11) _____ ion peak gives information about molecular mass of the analyte.
   a) Molecular b) Fragment
   c) Isotope d) Metastable

12) The wavelength source of NMR spectrometer is _____.
a) Goniometry b) High Voltage generator
c) Radio frequency oscillator d) Globar source

13) In M.S. the magnetic field is expressed in _____.
a) Megacycles per second b) Gauss
c) Cycles per second d) kilo hertz

14) Solvent commonly used in NMR studies is _____.
a) Chloroform b) Carbon tetrachloride
c) Methanol d) Acetone

15) As per Nitrogen rule if a compound has odd number of molecular mass then it contains _____.
a) Odd number of nitrogen atoms b) Even number of nitrogen atoms
c) Even number of carbon atoms d) Odd number of carbon atoms

16) _____ ionization methods may result in disappearance of molecular ion peak.
a) Chemical b) Electron impact
c) MALDI d) Electrospray

17) Range of X rays radiation is _____.
a) 10-400 nm b) 400-800 nm
c) 0.01-10 nm d) None of the above

18) Crystal structure can be studied by using _____.
a) X-ray absorption method b) X-ray diffraction method
c) X-ray fluorescence method d) X-ray emission method

19) The Ti and T_f temperature depends on which of the following factor?
a) Cooling rate b) Mechanical property of the material
c) Thermal expansion coefficient d) Atmosphere above the sample

20) The parameter measurement in DTA is _____.
a) dm/dT vs. temp b) dT vs. temp
c) dH vs. temp d) mass vs. temp

Q.2 Answer any seven of the following questions. **35**

a) Differentiate between TLC and HPTLC.
b) Give principle involved in mass spectroscopy.
c) Draw a neat labeled diagram of NMR spectrometer. Why TMS is used as internal standard?
d) Explain instrumental factors affecting TG curve.
e) How DSC is useful in pharmaceutical industry?
f) Define thermal analysis. Give advantages and disadvantages over other methods of analysis.
g) Give principle and applications of liquid-liquid extraction.
h) What is the range of X ray? Write a note on X Ray Production.
i) What is Shielding and Deshielding? How it affects chemical shift value?

Q.3 Answer any two of the following questions. **20**

a) Explain in detail any five ion sources used in Mass Spectroscopy.
b) Enlist and explain in detail factors affecting DTA curve.
c) Discuss principle, types, procedure and applications of radio-immuno assay.

SLR-JA-40

Seat No.	

Set P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April-2024
Cosmetic Science (801810)

Day & Date: Thursday, 30-05-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) The word 'vanish' means _____.
   a) Spread b) Absorb
   c) Abolish d) None of a, b, c

2) _____ is the most widely used sweetening agent in toothpaste.
   a) Saccharine sodium b) Sucrose
   c) Chloroform d) None of the above

3) Anti-dandruff shampoos are classified under _____ shampoos.
   a) Medicated b) Non-medicated
   c) Both a and b d) None of a and b

4) _____ is the most effective emollient.
   a) Petroleum b) Cetyl alcohol
   c) Palmitate d) Myristate

5) Changes in skin color are checked by _____.
   a) Corneometer b) Mexameter
   c) Sebumeter d) Both a and b

6) Aloe vera belongs to family _____.
   a) Asphodelaceae b) Zingiberaceae
   c) None d) Both a and b

7) Gingivitis is an inflammation of _____.
   a) Teeth b) Gums
   c) Palate d) Tongue

8) Cleansing products contain a relatively high concentration of _____.
   a) Oils b) Protective
   c) Surfactant d) Emulgent

9) In oral care, mostly used herb is _____.
   a) Neem b) Henna
   c) Clove d) Both a and c

10) Sebum levels in skin evaluation are checked by _____.
   a) Corneometer b) Tewameter
   c) Sebumeter d) All of the above

11) According to Fitzpatrick skin types, fair colors is in which types of skin _____.
   a) Type-I b) Type-II
   c) Both a and b d) Type-III

12) Ph of shampoo is in range of _____.
   a) 4-9 b) 5-9
   c) 6-8 d) None of above

13) Following is the example of binding agent in tooth paste.
a) Gum tragacanth b) Polyethylene glycol
c) Starch d) Both a and c

14) _____ is a key ingredient of vanishing creams.
a) Stearic acid b) Polyethylene glycol
c) Starch d) Both a and c

15) Dentifrices are applied to _____.
a) Skin b) Nails
c) Teeth's d) Face

16) SPF stands for _____.
a) sun rays protection factor b) sunburn protection factor
c) sunshine protection factor d) sun protection factor

17) The first combo syndet bar is _____ launched in 1955.
a) Lux b) Jonson
c) Dove d) Lifeboy

18) What is TEWL?
a) Transit water loss b) Trans epidermal water loss
c) Transfusion water loss d) Transit water level

19) The largest organ of human body is _____.
a) Skin b) Nails
c) Lung d) Face

20) _____ provides an ideal environment of microbial growth.
a) Air b) Water
c) Temperature d) Additives

Q.2 Answer the following Questions. (Any Seven) **35**

a) Explain mechanism of action of Antiperspirants and Deodorants.
b) Write a note on PPD based hair dye.
c) Explain Principle, formulation and building blocks of cold cream.
d) Enlist excipients used in cosmetics with examples, add a note on preservatives.
e) Define SPF. Classify sunscreens.
f) Explain Principle and working of sebumeter.
g) Write causes and treatment for Dry skin.
h) Define and classify surfactants.
i) Write a note on Hair growth cycle.

Q.3 Answer the following Questions. (Any Two) **20**

a) Write a detailed note on herbs used in cosmetics.
b) Elaborate on Common problem associated with teeth and gums.
c) Define and classify cosmetics.

SLR-JA-41

Seat No.	

Set P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April-2024
Quality Control and Standardization of Herbals (801807)

Day & Date: Saturday, 01-06-2024 Max. Marks: 75
Time: 02:30 AM To 05:30 PM

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

Q.1 Multiple Choice questions. **20**

1) Which drugs gives positive test for Swelling property.
   a) Liquorices b) Qualia
   c) Rita d) Isapghol

2) The cGMP of Herbal Drugs industry is stands for _____.
   a) Quality performance b) Quality product
   c) Quality Assurance d) Manufacturing

3) Quality control department involves _____ system of the industry.
   a) Cleaning b) Evaluation
   c) Production d) Designing

4) In Stability testing of drug provides _____.
   a) Efficacy b) Potency
   c) Shelf life d) toxicity

5) Analytical Validation comes under _____ guidelines.
   a) Q1 b) Q2
   c) Q3 d) Q4

6) Which chemical test is used to confirm Steroid
   a) Raymonds test b) Dragendroff's test
   c) Libermann-Burchard test d) Benedicts test

7) International Council for Harmonisation was incepted in the year _____.
   a) 1990 b) 1989
   c) 1992 d) 2000

8) Schedule T of D & C act of herbal medicines give guidelines on_____.
   a) GAP b) GMP
   c) GACP d) GLP

9) Monograph of herbal sample is determined by _____ reference.
   a) BP b) USP
   c) IP d) All of the above

10) Definition of crude drug as per Herbal Pharmacopoeia _____.
   a) Plant part used in medicine
   b) Dried part of the medicinal plant
   c) Plant part containing the highest content of the bioactive characteristic compounds
   d) Plant part of its preparations described in the paragraphs of the Pharmacopoeia

11) Which technique not matching with the following?
a) TLC b) HPTLC
c) NMR d) HPLC

12) PIP "stands for _____.
a) Plant incorporated pesticisides b) Plant incorporated pollutant
c) Plant incorporated plant d) Plant incorporated protectants

13) Kava kava interactions are due to inhibition of _____.
a) Cyt.P450 b) MAO
c) COMT d) None

14) Beneficial insects are _____.
a) Lady bugs b) Mice
c) Snake d) Ants

15) The word herb is derived from _____.
a) Herbarium b) Herba
c) Herbaum d) Harba

16) Evolution of the phytosomes is done by _____.
a) Chromatography b) DSC
c) Angle of repose` d) None

17) For long term (real time) stability studies as per ICH guidelines with storage condition as controlled room temperature the testing condition is _____.
a) 25 degree Celsius & 60% RH for 6 month
b) 35 degree Celsius & 75% RH for 6 month
c) 45 degree Celsius & 60% RH for 6 month
d) 55 degree Celsius & 75% RH for 6 month

18) The Randomize approach is _____.
a) Without any criteria b) Based on field observation
c) With criteria d) None

19) The use of Cannabis plant requires specific license under which of the following act _____
a) Medicinal & Toilet Preparations Act
b) Pharmacy act
c) Drugs and Cosmetic Act
d) Narcotic Drug and Psychotropic substance act

20) The study of use of medicinal plant are known as _____.
a) Herb b) Pharmacognosy
c) Herbalism d) Herbarium

Q.2 Answer any seven of the following questions. **35**

a) Write role of markers in evaluation of herbal medicines.
b) ICH guidelines on safety monitoring of herbal medicines.
c) Note on importance of Standardization of herbal medicine.
d) Write the general requirements of GMP as per D&C Act.
e) How do you evaluate the Herbal raw materials intended for formulation?
f) Write the preparation of documents for new drug application and export registration.
g) Write Quality control guidelines of herbal drugs as per ICH.
h) What is meant by monograph analysis as per Pharmacopoeia?
i) Write short note on Quality assurance in herbal industry.

Q.3 Answer any two of the following questions. **20**

a) Explain stability testing of herbal medicines and its importance.

b) Write in detail WHO Guidelines on cGMP for herbal medicines.

c) Explain various General legal Regulatory requirements for Herbal preparation in India.

SLR-JA-42

Seat No.	

Set P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April-2024
Pharmaceutical Regulatory Science (801805)

Day & Date: Saturday, 01-06-2024 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

Q.1 Multiple Choice Questions. **20**

1) Which of the following is a part of the Abbreviated New Drug Application (ANDA) Review?
   a) Review of preclinical trial results
   b) Determination of safety in human use
   c) Authorization to ship across the state lines
   d) Bioequivalence study

2) How many healthy volunteers are used in Phase II of a clinical trial?
   a) No humans are used in Phase II of a clinical trial
   b) 20-100
   c) 20-300
   d) 300-3000

3) How long does a drug patent last?
   a) 5 Years b) 10 Years
   c) 20 Years d) Patent does not expire

4) What is the main purpose of phase II of a clinical?
   a) To initially assess its effectiveness and to further study its safety
   b) Tests the safety and how well a new treatment works compared with a standard treatment
   c) Studies the side effects caused over time by a new treatment after it has been approved and is on the market
   d) All of the above

5) How many volunteers are in Phase III trials?
   a) 100-300 b) 300-500
   c) 500-700 d) 300-3000

6) Bioequivalence study is part of which application process _____.
   a) IND b) NDA
   c) ANDA d) All of the Above

7) As per ANDA requirements the bioequivalence of test to reference formulation is _____.
   a) 70-130 % b) 80-120 %
   c) 100-150 % d) 70-80 %

8) In US the New Chemical Entity Exclusivity last for _____ years.
   a) 8 b) 7
   c) 6 d) 5

9) CTD stands for _____.
   a) Common Technical Document
   b) Chemical Technique for Drug
   c) Common Transfer Device
   d) None of the above

10) The first step in the generic drug development process is _____.
   a) Target Identification
   b) Drug candidate selection
   c) Lead Optimization
   d) Target Validation

11) Lists of FDA-licensed biological products and their associated IPR is available in _____.
   a) Orange book
   b) Black book
   c) Red book
   d) Purple book

12) Select the responsibility/s of RA personnel.
   a) To analyze the content of the active ingredient in the formulation
   b) Work with federal, state and local governing agencies to get the approval for drug
   c) To undertake stability studies of the drug products
   d) To supervise the production of the formulation

13) Identify the relevant regulatory body in India for approval of drugs.
   a) BLA
   b) CBER
   c) CDSCO
   d) CDER

14) CTD is divided into _____ modules.
   a) 6
   b) 5
   c) 4
   d) 3

15) Which of the following is regulatory authority of Japan?
   a) Pharmaceutical and Medical Devices Agency
   b) Therapeutic Goods Administration
   c) Ministry of Health, Labor and Welfare (MHLW)
   d) Central Drug Standard Control Organization

16) Which of the following is drug regulatory authority of UK?
   a) Medicines and Healthcare Products Regulatory Agency
   b) US-Food and Drug Administration
   c) Central Drugs Standard Control Organization
   d) European Medicines Agency

17) The objective of US FDA is _____.
   a) To ensure the safety, quality, and effectiveness of medical products and food produced in India for export to the United States
   b) Approval of medical products for marketing in India
   c) Protecting and promoting public health
   d) Manufacture of drugs in USA for the purpose of export to India

18) BLA stands for _____.
   a) Biologics License Application
   b) Biosimilar License Application
   c) Bioavailability License Application
   d) Both B and C

19) Hatch-Waxman Act framework includes _____.
   a) Approve manufacturing of sutures and ligatures
   b) Streamlining the process for branded pharmaceutical products
   c) Approve medical devices
   d) Streamlining the process for generic pharmaceutical approvals

20) _____ product does not require a BLA.
   a) Vaccine
   b) Serum
   c) Blood, blood component or derivative
   d) Glucagon

Q.2 Answer any seven of the following questions. **35**

a) Discuss the stages of Drug Discovery in short.
b) Give organizational structure of CDSCO. Enlist types of applications submitted to CDSCO.
c) What is the importance of regulatory affairs?
d) Explain in detail investigators brochure.
e) What are the levels of changes in SUPAC guidance?
f) Give responsibilities and functions of Institutional Review Board.
g) What is eCTD? Elaborate modules of eCTD.
h) Explain in detail types of applications submitted to US FDA.
i) What is “Orange Book”? Write its history and contents?

Q.3 Answer any two of the following questions. **20**

a) Discuss in detail stages of generic drug product development.
b) What is NDA? Give types of NDA. Explain in detail contents of NDA.
c) What is clinical trial? Give types of clinical trial. Explain in detail phases of clinical trial.