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**B. Pharmacy (Semester - I) (CBCS) Examination: Oct/Nov-2023
Human Anatomy and Physiology – I (801101)**

Day & Date: Friday, 05-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice Questions 20

- 1) The Cartilage is Composed of cells called
 - a) Chondrocytes
 - b) Chondroblasts
 - c) Lacuna
 - d) None
- 2) How the cells are arranged in Epithelial Tissue
 - a) Closely packed in continuous sheet
 - b) Loosely packed
 - c) Arranged in discontinuous form
 - d) Both a and c
- 3) Simple Cuboidal epithelium is found in
 - a) Thin bronchioles
 - b) Choroid of eye
 - c) Sweat gland
 - d) All of above
- 4) Which of following is not function of skin?
 - a) Calcium Production
 - b) Protection
 - c) Excretion of wastes
 - d) Temperature Regulation
- 5) The largest bone in human body is
 - a) Skull
 - b) Spine
 - c) Femur
 - d) Tibia
- 6) What does axial skeleton consist of?
 - a) Skull
 - b) Vertebral column
 - c) Ribs & Sternum
 - d) All of above
- 7) What is the major function of Sudoriferous gland
 - a) Give skin texture
 - b) Gives skin healthy color
 - c) Protect skin's elasticity
 - d) Helps to regulate body temperature
- 8) Which of following is largest organ of body?
 - a) Brain
 - b) Intestine
 - c) Skin
 - d) Lung
- 9) Hinge joint is present between
 - a) Femur & ulna
 - b) Humerus & ulna
 - c) Femur & Pectoral girdle
 - d) Femur & Pelvic girdle
- 10) A lymphocyte is type of
 - a) White blood cell that is a part of immune system.
 - b) Red blood cell that is part of immune system
 - c) Platelets that is a part of immune system
 - d) None of these

- 11) In ABO blood group system, blood group 'O' is characterized by the
- Presence of antigen O
 - Presence of both antigens A and Antigen B
 - Absence of both antigens A and Antigen B
 - Presence of antigen A and absence of antigen B
- 12) Absence of which clotting factor leads to Haemophilia-A
- Factor VII
 - Factor VIII
 - Factor IX
 - Factor X
- 13) Which of following vitamin is essential for blood clotting?
- Vitamin K
 - Vitamin A
 - Vitamin B
 - Vitamin C
- 14) Preganglionic fiber neurotransmitter in sympathetic division is
- Adrenalin
 - Acetyl choline
 - Nor-Adrenalin
 - None
- 15) Which one of the following prevents internal reflection of light inside the eye?
- Retina
 - Cornea
 - Both A & B
 - Choroid
- 16) Which part of ear is shaped like snail shell?
- Cochlea
 - Stapes
 - Semi-Circular canals
 - None of above
- 17) Sense of smell is perceived by which part of brain
- Cerebrum
 - Pituitary
 - Hypothalamus
 - Olfactory cortex
- 18) The taste is also known as
- Olfaction
 - Gustation
 - Audition
 - None of these
- 19) P wave on the electrocardiogram corresponds /represents
- Arterial depolarization
 - Ventricular depolarization
 - Both a and b
 - none of above
- 20) Which portion of the heart receives oxygenated blood
- Left atrium
 - Left Ventricle
 - Right Atrium
 - Right Ventricle

Q.2 Answer any seven of the following questions

35

- Explain role of renin-angiotensin system in regulation of blood pressure.
- Write a note on nervous and connective tissues.
- Write the composition and functions of lymph.
- Describe general principles of cell communication.
- Define Anatomy and physiology. Give scope of anatomy and physiology.
- Define joint and explain types of joint movements.
- Write a note on blood grouping system. Describe erythroblastosis fetalis.
- Give the organization of skeletal muscle, explain physiology of muscle contraction.
- Give the difference between sympathetic and parasympathetic nervous system.

Q.3 Answer any two of the following questions.

- a)** Describe in detail anatomy of heart. Give brief about cardiac cycle.
- b)** Discuss anatomy and physiology of Eye.
- c)** What is homeostasis? Explain in detail about positive feedback system and negative feedback system with example.

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**B. Pharmacy (Semester - I) (CBCS) Examination: Oct/Nov-2023
Pharmaceutical Analysis - I (801103)**

Day & Date: Monday, 08-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions

20

- 1) Calibration of instruments and apparatus reduces _____ error.
 - a) Operational
 - b) Instrumental
 - c) Method
 - d) Personal
- 2) _____ Used as titrant in non aqueous titration
 - a) EDTA
 - b) Perchloric acid
 - c) Sodium nitrite
 - d) Silver nitrite
- 3) Digestion is step of _____ Method.
 - a) Gravimetric
 - b) Complexometric
 - c) Diazotization
 - d) Precipitation
- 4) Benzene is _____ solvent.
 - a) Protogenic
 - b) Protophilic
 - c) Aprotic
 - d) Amphoteric
- 5) Asssay of sodium benzoate is based on
 - a) Non aqueous titration
 - b) acid base titration
 - c) Complexometric titration
 - d) Precipitation titration
- 6) Which titration is known as the argentimetric titration
 - a) Precipitation titration
 - b) Diazotization titration
 - c) Non aqueous titration
 - d) Complexometric titration
- 7) Which method of precipitation titration is based on use of adsorption indicator _____.
 - a) Fajan's method
 - b) Mohr's method
 - c) Volhard's method
 - d) None of these
- 8) Which masking agents is used for masking aluminum and iron _____.
 - a) Thioglycerol
 - b) Aluminium fluoride
 - c) Potassium cyanide
 - d) Triethanolamine
- 9) KMnO_4 is ____ agent.
 - a) Oxidising agent
 - b) Reducing agent
 - c) Both a and b
 - d) None of the above
- 10) Degree of agreement between measured value and accepted true value is _____.
 - a) Accuracy
 - b) Precision
 - c) Average deviation
 - d) Range
- 11) Number of equivalent weight of solute per 1000 ml of solvent is defined as _____.
 - a) Molality
 - b) Molarity
 - c) Formality
 - d) Normality

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**B. Pharmacy (Semester - I) (CBCS) Examination: Oct/Nov-2023
Pharmaceutics - I (801105)**

Day & Date: Wednesday, 10-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions

20

- 1) Lozenges are _____ type of dosage forms.
 - a) Semisolid
 - b) Liquid
 - c) Solid
 - d) Gaseous
- 2) The first edition of British Pharmacopoeia was published in _____.
 - a) 1864
 - b) 1964
 - c) 1955
 - d) 1885
- 3) _____ is the potentiation of pharmacological response by simultaneous use of two drugs.
 - a) Antagonism
 - b) Synergism
 - c) Allergy
 - d) Idiosyncrasy
- 4) 160 fluid ounces is equal to _____ gallon.
 - a) 2
 - b) 3
 - c) 4
 - d) 1
- 5) _____ solution refers to two solutions having the same osmotic pressure across a semipermeable membrane.
 - a) Hypertonic
 - b) Hypotonic
 - c) Isotonic
 - d) None of the above
- 6) _____ are single doses of powdered drugs individually wrapped in cellophane, metallic foil or paper.
 - a) Dusting powder
 - b) Bulk powder
 - c) Divided powder
 - d) Effervescent powders
- 7) Buffering agents are added in liquid formulations to prevent changes in _____.
 - a) Solubility
 - b) pH
 - c) Absorption
 - d) Metabolism
- 8) _____ are added in suspensions to reduce interfacial tension between solid particles and dispersion liquid.
 - a) Wetting agents
 - b) Buffering Agent
 - c) Coloring Agent
 - d) Flavoring Agent
- 9) Which one of the following is used as Humectant.
 - a) Water
 - b) Glycerin
 - c) Ethanol
 - d) Glucose
- 10) Particles exist as separate entity in _____.
 - a) Flocculated Suspension
 - b) Deflocculated Suspension
 - c) Both a and b
 - d) Emulsion
- 11) In O/W emulsion oil is _____.
 - a) Dispersed phase
 - b) Dispersion medium
 - c) Flavoring agent
 - d) Emulsifying agent

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**B. Pharmacy (Semester - I) (CBCS) Examination: Oct/Nov-2023
Pharmaceutical Inorganic Chemistry (801107)**

Day & Date: Friday, 12-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions.

20

- 1) In Bronsted Lowry concept acid is _____.
 - a) Proton donor
 - b) Electron donor
 - c) Proton acceptor
 - d) Electron acceptor
- 2) Limit test are _____ test designed to identify and control small quantities of impurities.
 - a) Qualitative
 - b) Quantitative
 - c) Imperative
 - d) All of these
- 3) Alum is assayed by _____ method.
 - a) Oxidation reduction
 - b) Complexometric
 - c) Precipitation
 - d) Gravimetric
- 4) When cyanide poisoning treated with sodium, it convert blood haemoglobin to
 - a) Oxyhemoglobin
 - b) Haemoglobin
 - c) Carboxyhaemoglobin
 - d) Methemoglobin
- 5) The standard and test solution used for limit are prepared in _____.
 - a) Nessler's cylinder
 - b) Cooper cylinder
 - c) Wet cylinder
 - d) All of these
- 6) Which of following is free from organic and inorganic impurities?
 - a) Soft water
 - b) Tap water
 - c) Distilled water
 - d) None
- 7) First edition of B.P. Published in _____.
 - a) 1945
 - b) 1864
 - c) 1948
 - d) 1955
- 8) In the limit test of arsenic _____ apparatus used.
 - a) Gutzeit
 - b) Dissolution
 - c) Disintegration
 - d) None of above
- 9) The pH value of urine is _____.
 - a) 7.4 to 7.5
 - b) 5.4 to 7.5
 - c) 4.6 to 8.0
 - d) 2.0 to 4.0
- 10) To prevent dental caries toothpaste containing _____ should be used.
 - a) Sodium fluoride
 - b) Sodium iodide
 - c) Both a and b
 - d) Sodium hydroxide
- 11) Oral rehydration salts contain _____.
 - a) Sodium chloride
 - b) Potassium chloride
 - c) Glucose
 - d) All of these

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**B. Pharmacy (Semester - II) (CBCS) Examination: Oct/Nov-2023
Pathophysiology (801209)**

Day & Date: Friday, 12-01-2024
Time: 02:30 AM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple choice question.

20

- 1) Decrease in size and number of parenchymal cell is called as-
 - a) Dystrophy
 - b) Atrophy
 - c) Atopy
 - d) Metaplasia
- 2) In the cardinal signs of inflammation, calor refers to _____.
 - a) Redness
 - b) Swelling
 - c) Pain
 - d) Temperature
- 3) More frequent onset of angina pain of prolonged duration even at rest is observed in _____.
 - a) Stable Angina
 - b) Prinzmetal Angina
 - c) Variant Angina
 - d) Crescendo Angina
- 4) Impaired ciliary movement is a major cause of _____.
 - a) Chronic bronchitis
 - b) Emphysema
 - c) Bronchial asthma
 - d) Bronchiectasis
- 5) Abnormal increase in Blood Urea Nitrogen and Creatinine is termed as _____.
 - a) Uraemia
 - b) Uricemia
 - c) Azotaemia
 - d) Hematuria
- 6) The appearance of RBC in iron deficiency anemia is _____.
 - a) Macrocytic, Normochromic
 - b) Normocytic, Hypochromic
 - c) Microcytic, Hyperchromic
 - d) Microcytic, Hypochromic
- 7) Which of the following is a clinical feature of hypothyroidism?
 - a) Heat intolerance
 - b) Cold intolerance
 - c) Wet skin
 - d) drowsiness
- 8) Main clinical feature of Parkinson's disease is _____.
 - a) Pre-senile dementia
 - b) Down's syndrome
 - c) Sensory loss
 - d) Abnormalities of posture and movement
- 9) Which of the following type of cell in GIT is responsible for secretion of HCl?
 - a) Chief cell
 - b) Parietal cell
 - c) Goblet cell
 - d) Peptic cell
- 10) Which of the following is a clinical feature of AIDS?
 - a) Wasting syndrome
 - b) Dementia complex
 - c) Opportunistic infection
 - d) All of the above

- 11) Rheumatoid factor (Anti-IgG antibody) in Rheumatoid arthritis is released by ___.
 - a) T-Cells
 - b) B-Cells
 - c) Endothelial cells
 - d) Cartilage
- 12) Which of the following is/are the characteristic of benign tumor?
 - a) Encapsulated
 - b) Retention of basal polarity
 - c) Compression of surrounding organ
 - d) All of the above
- 13) *S.typhi* is spread by _____.
 - a) Water
 - b) Air
 - c) Sexual contact
 - d) Mosquito
- 14) Which of the following is Not a route of transmission of HIV?
 - a) Sexual contact
 - b) Sharing needles and syringes
 - c) Sharing utensils
 - d) Perinatal transmission
- 15) In chronic renal failure, deposition of urea on skin after evaporation of sweat is termed as _____.
 - a) Uremic cloud
 - b) Uremic mist
 - c) Uremic frost
 - d) Uremic froth
- 16) Which of the following is the main clinical feature of Alzheimer's disease?
 - a) Convulsions
 - b) Progressive dementia
 - c) Cerebral ataxia
 - d) Abnormalities of posture
- 17) Which of the following type of Hepatitis is spread by faeco-oral route?
 - a) Hepatitis A
 - b) Hepatitis B
 - c) Hepatitis C
 - d) Hepatitis D
- 18) Dark black coloration in gangrene is due to production of ____ pigment.
 - a) Hydrogen sulfide
 - b) Iron nitrite
 - c) Iron sulfide
 - d) Acid hematin
- 19) Cretinism is a result of _____.
 - a) Hyperthyroidism
 - b) Hypothyroidism
 - c) Thyrotoxicosis
 - d) Hypoparathyroidism
- 20) Distended air sacs are main histological characteristic in _____.
 - a) Emphysema
 - b) Bronchiectasis
 - c) Tuberculosis
 - d) Chronic bronchitis

Q.2 Long answers. (Any Two)

20

- a) Describe the etiopathogenesis of hypertension.
- b) Write a note on classifications, symptoms, and clinical complications of Diabetes Mellitus.
- c) Describe the causes, pathogenesis and classification of Epilepsy.

Q.3 Short answers. (Any Seven)

- a)** Describe the process of emigration of leucocytes in inflammatory condition.
- b)** Define cell injury. Enlist the causes of cell injury.
- c)** Write a note on types, causes and risk factors of bronchial asthma and chronic bronchitis.
- d)** Describe the clinical complications of Chronic Renal Failure.
- e)** Describe the classification of Anemia.
- f)** Explain the risk factors for development of Peptic ulcers and inflammatory bowel disease.
- g)** Describe the causes and clinical manifestations of gout.
- h)** Write a note on etiology of cancer.
- i)** Write a note on the causative organism, mode of transmission and symptoms of Tuberculosis.

- 12) In comparison between aniline and N, N-dimethyl aniline, which compound is more basic?
 a) N, N-dimethyl aniline b) Aniline
 c) Both A & B d) None of the above
- 13) _____ Is an electrophile in bromination reaction of benzene.
 a) Br- b) Br+
 c) Br.+ d) Br.-
- 14) _____ value is a measure of the amount of unsaturation in the given oil or fat.
 a) Sap b) Iodine
 c) Ester d) Acid
- 15) Aniline on bromination with Br₂/H₂O gives.
 a) 2,4-dibromoaniline b) 2,6-dibromoaniline
 c) 4-bromoaniline d) 2,4,6-tribromoaniline
- 16) Which of following is Resonance energy of benzene is _____ Kcal/mol.
 a) -28.6 b) -36
 c) +55.4 d) +36
- 17) Stability of cycloalkanes is not influenced by _____ factor.
 a) Torsional strain b) Steric strain
 c) Angle strain or Baeyer strain d) Vanderwaals strain
- 18) Acetophenone is prepared by reaction of benzene with _____ by using AlCl₃.
 a) Benzyl chloride b) Acetyl chloride
 c) Benzoyl chloride d) Acetoacetic acid
- 19) Baeyer proposed any deviation of bond angle from ideal bond angle value (109.5°) produces a _____ in a molecule.
 a) Strain b) Baeyer effect
 c) Steric effect d) Vanderwaals effect
- 20) Iodine number is the number of grams of iodine needed for iodination of _____ gram/grams of oil or fat?
 a) 1 b) 5
 c) 50 d) 100

Q.2 Short Answer Question. (Solve any seven).**35**

- Write the structures & uses of DDT and Saccharin.
- How alkyl substituted benzene is ortho and Para director? Explain.
- Write on different methods of preparation of anthracene.
- Write in detail on Coulson Moffitts modification.
- Elaborate on Aromaticity of benzene.
- Write with suitable examples on acidity of aromatic carboxylic acids.
- Discuss on Baeyer's strain theory.
- Discuss in detail on Acid Value.
- Write on synthesis & reactions of phenanthrene.

Q.3 Long Answer Question. (Solve any two).**20**

- Discuss method of preparation and reactions of Naphthalene.
- Elaborate on orientation of monosubstituted benzene towards electrophilic substitution reaction with suitable examples.
- What are Fats & oils? Elaborate on Saponification value and Iodine value.

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**B. Pharmacy (Semester - III) (CBCS) Examination: Oct/Nov-2023
Pharmaceutical Microbiology (801303)**

Day & Date: Tuesday, 09-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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 disease was used as the basis for Koch's postulates?
 - a) Anthrax
 - b) TB
 - c) AIDS
 - d) Syphilis
- 2) 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
- 3) Which of the following is a differential staining technique?
 - a) Simple
 - b) Spore
 - c) Gram
 - d) Flagella
- 4) Fungi used for production of citric acid and gluconic acid is _____.
 - a) *Penicillium notatum*
 - b) *Aspergillus niger*
 - c) *C. albican*
 - d) *S. cerevisiae*
- 5) Viruses are best grown in _____.
 - a) Blood agar
 - b) Enriched media
 - c) Liquid media with Serum
 - d) Media with living cells
- 6) Phenol coefficient indicates the _____ of disinfectant.
 - a) Quantity
 - b) Efficiency
 - c) Purity
 - d) Activity
- 7) 'H' stands in HEPA filter is _____.
 - a) High
 - b) Heavy
 - c) Hot
 - d) Hold
- 8) Test based on the rise of body temperature of rabbits is _____.
 - a) Sterility testing
 - b) MIC
 - c) Pyrogen testing
 - d) None
- 9) Temperature needed for Autoclave is _____.
 - a) Above 100° C
 - b) Exact 100° C
 - c) Below 100° C
 - d) None of above
- 10) A three dimensional picture is commonly observed by _____.
 - a) SEM
 - b) TEM
 - c) Both a and b
 - d) None
- 11) _____ is counter stain used in Gram staining.
 - a) Safranin
 - b) Iodine
 - c) Crystal violet
 - d) None

- h)** Define the terms with suitable examples:
 - i) Disinfectant
 - ii) Pathogen
 - iii) Antiseptic
 - iv) Bacteria
 - v) Sanitization
- i)** What are Microbiological assay? How will you perform assay of antibiotic by Cup plate method.

- 12) Material Used as Lining material _____.
 - a) Plastic
 - b) Latex
 - c) Iron
 - d) Glass
- 13) Cyclone Separator is based on the principle of _____.
 - a) Centrifugal force
 - b) Hydrogen force
 - c) Internal Force
 - d) None of these
- 14) The transfer of thermal heat is transfer from hot place to cold place in same material is _____.
 - a) Conduction
 - b) Convection
 - c) Radiation
 - d) Evaporation
- 15) Heat sensitive or easily oxidizable materials are dried by _____.
 - a) Flash dryer
 - b) Drum dryer
 - c) Fluidized bed dryer
 - d) Rotary dryer
- 16) Evaporation takes place at _____.
 - a) All temperature
 - b) Freezing Point
 - c) Melting Point
 - d) Boiling Point
- 17) The enzyme, vitamins, glycoside and alkaloids are extracted by _____.
 - a) Steam Distillation
 - b) Flash Distillation
 - c) Vacuum distillation
 - d) Distillation under reduce pressure
- 18) Which of the following is not a filter aid _____?
 - a) Diatomaceous earth
 - b) Perlite
 - c) Cellulose
 - d) Cotton
- 19) Which of the following factors influence rate of filtration _____?
 - a) Surface area
 - b) Viscosity of filtrate
 - c) Pressure drop
 - d) All of above
- 20) Which of the following evaporator is also known as Rising Film Evaporator?
 - a) Horizontal tube evaporator
 - b) Steam jacked kettle
 - c) Climbing film evaporator
 - d) Forced circulation evaporator

Q.2 Answer any seven of the following questions.

35

- a) Define evaporation and Distillation. Write their objective and application.
- b) Write the mechanism of heat transfer.
- c) Define size reduction and write the factors affecting of size reduction.
- d) Write the types of corrosion and there prevention.
- e) Write the objective, principle and application of centrifugation.
- f) Write the principle and working of fluidized bed dryer.
- g) Explain about Climbing Film evaporator in brief.
- h) Explain Cyclone Separator with diagram.
- i) Explain Reynolds experiment.

Q.3 Answer any two of the following questions.

20

- a) Write the objective, principle, construction, working and pharmaceutical use of Ball mill.
- b) Write long note on:
 - i) Double Cone Blender
 - ii) Flash distillation
- c) Explain Bernoulli's theorem with its diagram and application.

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**B. Pharmacy (Semester - IV) (CBCS) Examination: Oct/Nov-2023
Pharmaceutical Organic Chemistry – III (801401)**

Day & Date: Tuesday, 16-01-2024
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions

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- 1) _____ Isomerism is not a type of structural isomerism.
 - a) Chain
 - b) Positional
 - c) Stereoisomerism
 - d) Functional
- 2) _____ reaction involves migration of aryl group.
 - a) Dakin
 - b) Beckmann
 - c) Schmidt
 - d) Claisen-schmidt
- 3) Birch reduction does not involves the use of _____ as reducing agent as catalyst.
 - a) Na/liq ammonia & alcohol
 - b) K/Liq ammonia & Ethanol
 - c) Li in liq. Ammonia/Butanol
 - d) Na/Na₂S₂O₃ /alcohol
- 4) Electrophilic aromatic substitution in pyrimidine takes place at _____ position.
 - a) 2
 - b) 4
 - c) 5
 - d) 6
- 5) Oxidation of acridine with alkaline KMnO₄ gives _____.
 - a) Quinoline-2,3-dicarboxylic acid
 - b) Quinoline-3,4-dicarboxylic acid
 - c) Quinoline-2,4-dicarboxylic acid
 - d) Quinoline-5,3-dicarboxylic acid
- 6) _____ reaction is the conversion of carboxylic acid to amine or amide in presence of azide with expulsion of nitrogen gas.
 - a) Schmidt
 - b) Beckmann
 - c) Curtius
 - d) Claisen-schmidt
- 7) Pyrrole behaves as a _____.
 - a) weak acid
 - b) neutral
 - c) weak base
 - d) strong acid
- 8) Electrophilic aromatic substitution in imidazole takes place at _____ position.
 - a) 4
 - b) 5
 - c) Both A & B
 - d) 3
- 9) _____ Are methods of preparation of isoquinoline.
 - a) Pomeranz-Fritz
 - b) Bischler-Napieralski
 - c) Picket-Spengler
 - d) All of the above
- 10) Conversion of benzophenone oxime to benzanilide in presence of PCI₅ is _____ rearrangement reaction.
 - a) Hoffmann
 - b) Schmidt
 - c) Beckmann
 - d) Claisen
- 11) Benzaldehyde when treated with Zinc amalgam /HCl gives _____.
 - a) Toluene
 - b) Benzene
 - c) Benzyl alcohol
 - d) Benzophenone

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**B. Pharmacy (Semester - IV) (CBCS) Examination: Oct/Nov-2023
Medicinal Chemistry – I (801402)**

Day & Date: Thursday, 18-01-2024
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) Identification of a new chemical entity as a potential therapeutic agent (From Hit to Lead) is known as _____.
 - a) Drug discovery
 - b) Drug development
 - c) Both
 - d) None of them
- 2) Who is founder of modern medicine?
 - a) Hippocrates
 - b) Clark
 - c) Charak
 - d) Henry's
- 3) Physicochemical properties are Studied by _____.
 - a) Darwin
 - b) Ferguson
 - c) E.J. Ariens
 - d) Hippocrates
- 4) Following are the Phase I reactions except _____.
 - a) Oxidative reactions
 - b) Hydrolytic reactions
 - c) Reductive reactions
 - d) Sulphides reactions
- 5) Which enzyme is important in the Phase II reactions?
 - a) Esterase
 - b) Amidases
 - c) Transferase
 - d) Aldo-keto-reductase
- 6) Addition of polar group in a drug increases its interaction with _____.
 - a) Water
 - b) Lipid
 - c) Both A & B
 - d) None of these
- 7) Beta-2 receptors specifically found in _____.
 - a) Heart
 - b) Bronchi
 - c) Liver
 - d) Kidney
- 8) 3,4-dihydroxy benzene is _____.
 - a) Phenol
 - b) Benzhydrol
 - c) Resorcinol
 - d) Catechol
- 9) _____ is the prodrug of Colterol.
 - a) Albuterol
 - b) Bitolterol
 - c) Isoproterenol
 - d) Salbutamol
- 10) The basic ring to study the SAR of sympathomimetic agents is _____.
 - a) Phenyl propyl amine
 - b) Phenyl methyl amine
 - c) Phenyl ethyl amine
 - d) Phenyl butyl amine
- 11) Adrenaline, noradrenaline, dopamine belongs to class _____.
 - a) Phenylethylamines
 - b) Diphenylamines
 - c) Catecholamines
 - d) None of these

- 12) Prazosin contains _____.
 a) Quinazoline ring
 b) Piperazine ring
 c) Acyloxy group
 d) All of the above
- 13) _____ commercially used for insecticide.
 a) Atropine
 b) Salbutamol
 c) Parathion
 d) Methadone
- 14) Parasympathetic system is mainly concern with _____.
 a) Motility
 b) Secretion
 c) Flight
 d) Both A & B
- 15) _____ is the tropic ester of atropine.
 a) Procyclidine
 b) Hyoscine
 c) Biperidine
 d) Acetylcholine
- 16) Hypnotics are often referred as _____.
 a) Sleeping Pills
 b) Adrenergic drug
 c) Cholinergic drug
 d) Psychotic drug
- 17) IUPAC name for Phenytoin is _____.
 a) 5,5'-dimethyl hydantoin
 b) 5,5'-diphenyl hydantoin
 c) 5,5'-diethyl hydantoin
 d) 5,5'-dipentyl hydantoin
- 18) _____ anti-motility agent.
 a) Loperamide
 b) Naloxone
 c) Methadone
 d) Heroin
- 19) COX is _____.
 a) Cycloperoxidase
 b) Cyclohydrogenase
 c) Cyclooxygenase
 d) None of these
- 20) _____ inhalational anesthetics.
 a) Ketamine
 b) Thiobarbiturate
 c) Fentanyl
 d) Nitrous oxide

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

- a) What are hypnotics and sedatives? Discuss the SAR of hydantoin derivatives.
 b) Give the biosynthesis of norepinephrine with enzyme involve in biosynthesis.
 c) Describe the SAR of Anthranillates.
 d) Discuss the SAR of Barbiturates with suitable examples.
 e) Draw the structures of Desflurane, Isoflurane Enflurane, Halothane, Ketamine.
 f) Draw the structure of propranolol give its synthesis.
 g) Discuss the chemistry of morphine molecule.
 h) Discuss the class 2-arylimidazoline as a sympathomimetic agent.
 i) Add a note on narcotic antagonist.

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

- a) Explain the SAR of sympathomimetic agents.
 b) Discuss the SAR of morphine.
 c) What are hypnotic and sedative? Discuss the SAR of benzodiazepine.

Seat No.	
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B. Pharmacy (Semester - IV) (CBCS) Examination: Oct/Nov-2023
Physical Pharmaceutics – II (801403)

Day & Date: Saturday, 06-01-2024
 Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions

20

- 1) The particle size of dispersion from 1 nm to 0.5 μm is comes under _____
 a) Molecular dispersion b) Colloidal dispersion
 c) Course dispersion d) None of the above
- 2) The stability of colloidal system is depends on _____
 a) Magnitude b) Charges
 c) Both a & b d) Sign of Charge
- 3) _____ is the forcing a liquid to flow through a plug or bed of particles creates the potential.
 a) Zeta potential b) Sedimentation potential
 c) Electro-kinetic Potential d) Streaming potential
- 4) _____ method is commonly used for destruction of colloid.
 a) Addition of electrolyte b) Condensation
 c) Dialysis d) Filtration
- 5) Which of the following is an association colloid?
 a) Protein b) Sol of gold
 c) Soap d) Starch
- 6) Which is the stability zone for UK?
 a) Zone-I b) Zone-II
 c) Zone-III d) None of the above
- 7) Which of the following correct guideline for stability study?
 a) ICH Q3 b) ICH Q8
 c) ICHQ10 d) ICH QI
- 8) How many batches should be considered for Photostability testing as per ICH?
 a) at least 2 b) at least 3
 c) at least 4 d) at least 5
- 9) Which of the following is the half-life equation for first order reaction?
 a) $t_{1/2} = A_0/2K$ b) $t_{1/2} = 0.693/k$
 c) $t_{1/2} = 0.693/2k$ d) $t_{1/2} = 2k$
- 10) Accelerated stability testing is done to _____.
 a) Predict shelf life of formulation b) Predict dissociation constant
 c) Predict diffusion constant d) Determine activation energy
- 11) _____ method is used for determination of particle volume.
 a) Optical microscopy b) Sedimentation
 c) Sieving d) Coulter Counter

Seat No.	
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**B. Pharmacy (Semester - IV) (CBCS) Examination: Oct/Nov-2023
Pharmacology - I (801404)**

Day & Date: Tuesday, 09-01-2024
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions

20

- 1) Disulfiram inhibits _____ enzyme.
 - a) Alcohol dehydrogenase
 - b) Aldehyde dehydrogenase
 - c) Acetaldehyde dehydrogenase
 - d) All of these
- 2) Which of the following is not a metabotropic receptor?
 - a) Enzyme linked receptor
 - b) G-protein coupled receptor
 - c) Ion channel receptor
 - d) Nuclear receptor
- 3) _____ used for infantile spasm.
 - a) Valproate
 - b) Vigabatrin
 - c) Gabapentin
 - d) None of the above
- 4) _____ is a selective serotonin reuptake inhibitor.
 - a) Bupropion
 - b) Sertraline
 - c) Desipramine
 - d) Duloxetine
- 5) Identify newer non benzodiazepine drug?
 - a) Pentobarbitone
 - b) Diazepam
 - c) Thiopentone
 - d) Zopiclone
- 6) Which of the following drug is used as an opioid antagonist?
 - a) Picrotoxin
 - b) Bicuculline
 - c) Naloxone
 - d) Amantadine
- 7) Graded dose response curve measured on _____.
 - a) Continuous scale
 - b) All or none response
 - c) Safety level
 - d) All of the above
- 8) _____ assigned by United States adopted council.
 - a) Chemical name
 - b) Proprietary name
 - c) Nonproprietary name
 - d) None of the above
- 9) _____ is an ability to bind to the receptor.
 - a) Efficacy
 - b) Intrinsic activity
 - c) Affinity
 - d) Potency
- 10) Acidic drugs bind to _____.
 - a) Albumin
 - b) Globulin
 - c) Fibrinogen
 - d) None of the above
- 11) Muscarinic receptors are belonging to _____.
 - a) Ion channel receptor
 - b) Enzyme linked receptor
 - c) G-protein coupled receptor
 - d) Intracellular receptor
- 12) _____ is a rapid development of tolerance.
 - a) Tolerance
 - b) Cumulation
 - c) Allergy
 - d) Tachyphylaxis

Seat No.	
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**B. Pharmacy (Semester - IV) (CBCS) Examination: Oct/Nov-2023
Pharmacognosy and Phytochemistry - I (801405)**

Day & Date: Thursday, 11-01-2024
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions. (MCQ)

20

- 1) Who is known as Father of Homeopathy?
 - a) Hippocrates
 - b) Aristotle
 - c) Robert Koch
 - d) Samuel Hahnemann
- 2) Select the unorganized crude drug used as a perfume in the formulation of cosmetic products.
 - a) Turmeric
 - b) Sandalwood
 - c) Musk
 - d) Aloe
- 3) In short term droughts, percentage of sennoside A and B in the senna will be _____.
 - a) Increases
 - b) Decreases
 - c) Remains constant
 - d) Highly reduced
- 4) _____ gm of powdered crude drug is weighed for the determination of Extractive Value according to official text.
 - a) 1
 - b) 1.5
 - c) 2.5
 - d) 5
- 5) Select the crude drug used in the treatment of leprosy.
 - a) Cassia
 - b) Beeswax
 - c) Olive oil
 - d) Chaulmoogra oil
- 6) Select the true statement for the cultivation of medicinal and aromatic plants.
 - a) Cultivation ensures irregular supply of crude drugs.
 - b) Cultivation bears low cost compared to wild sources.
 - c) Cultivation of medicinal plants leads to small scale industry.
 - d) Cultivation ensures poor quality along with less yield of crude drugs
- 7) All of the following are exogenous factors affecting cultivation technology except _____.
 - a) Altitude
 - b) Temperature
 - c) Rainfall
 - d) Soil Fertility
- 8) _____ should be packed in the goat skin.
 - a) Colophony
 - b) Aloe
 - b) Asafoetida
 - d) All of the above
- 9) When the vegetative part of the plant is used for the cultivation of medicinal plants, then it is known as _____ method of propagation.
 - a) Sexual
 - b) Aseptic
 - c) Micropropagation
 - d) Asexual

Q.2 Answer any Seven of the following questions.

- a) Write a note on Pharmacological System of Classification.
- b) Brief account on different sources of drugs of natural origin with suitable examples.
- c) Define Cultivation. Write its merits and demerits.
- d) Write a note on Drying of drugs of natural origin.
- e) Elaborate nutritional requirements useful for the growth of plant tissue culture.
- f) Explain Homeopathic System of Medicine.
- g) What are volatile oils? Write its physicochemical properties.
- h) Write source, chemical constituents and uses of Hydnocarpus oil and Honey.
- i) Write source, method of preparation and uses of Papain.

Q.3 Answer any Two of the following questions.

- a) Discuss quantitative microscopy with reference to Leaf Constants. How does stomatal number differentiate from stomatal index?
- b) Define Alkaloids. Classify with suitable examples. Write qualitative chemical tests used for detection of alkaloids.
- c) Write the pharmacognostic scheme of Acacia and Agar.

- 12) Mechanism of action of Sotalol is _____.
 a) Blocks Na⁺ channel b) Blocks Ca⁺ channel
 c) Blocks K⁺ channel d) β - blockers
- 13) Diabetes is an _____ diseases.
 a) Endocrinochronic b) Infectious
 c) Bacterial d) Microbial
- 14) Which of the following antibody is responsible for allergic phenomenon _____.
 a) IgG b) IgM
 c) IgA d) IgE
- 15) One of the following is HMG-CoA reductase inhibitor.
 a) Lovastatin b) Clofibrate
 c) Colestipol d) None of above
- 16) Chlorobucil is an eg of _____.
 a) Nitrosourea b) Nitrogen mustard
 c) Aziridines d) Arylsulphonate
- 17) Protains C & S are dependent on which vitamin for synthesis _____.
 a) Vitamin C b) Vitamin B
 c) Vitamin E d) Vitamin K
- 18) Mechanism of action of Digitalis is _____.
 a) Decrease in Ca⁺ uptake b) Increase in ATP synthesis
 c) Modification of actin molecules d) Increase in intracellular Ca⁺ level
- 19) Bumetanide belongs to which class _____.
 a) Loop diuretics b) Osmotic diuretics
 c) Potassium sparing diuretics d) Carbonic anhydrase diuretics
- 20) Mechanism of action of furosemide is _____.
 a) Osmotic diuretics b) Inhibits Na⁺/K⁺/2Cl⁻-symport
 c) Carbonic anhydrase diuretics d) Competitive inhibit aldosterone

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

- a) Give the synthesis & uses of Nitroglycerine, Isosorbide dinitrate.
- b) What are calcium channel blockers in anti-arrhythmic agent.
- c) Write the SAR of H₂ receptor antagonist.
- d) Comment on oral anticoagulants.
- e) What are positive inotropic agents give their mechanism of action.
- f) Write a note on carbonic anhydrase inhibitors.
- g) Write a note on Sex hormones.
- h) Write a note on cardiac glycoside used in CHF.
- i) Discuss in details of class II drug.

Q.3 Answer the following questions.**20**

- a) Discuss in detail MOA & SAR of Fibrates with e.g.
- b) Describe in details of Antimetabolites and explain any two drugs in this category.
- c) Discuss numbering & stereochemistry of Steroids.

Seat No.	
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**B. Pharmacy (Semester - V) (CBCS) Examination: Oct/Nov-2023
Industrial Pharmacy – I (801502)**

Day & Date: Friday, 05-01-2024
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) The ability of compound to exist in more than one crystalline form is known as
 - a) Crystallization
 - b) Amorphous formation
 - c) Polymorphism
 - d) None of the above
- 2) If the solvent present within a crystal lattice of the drug is other than water then it is known as _____.
 - a) Solvates
 - b) Hydrates
 - c) Clathrates
 - d) Adduct
- 3) Flow property of powder can be determined by _____.
 - a) Angle of repose
 - b) Friability
 - c) Hardness tester
 - d) Screw gauge
- 4) Distribution of an unionised drug between the organic phase and aqueous phase at equilibrium is known as _____.
 - a) Partition law
 - b) Henderson Hasselbalch
 - c) Rault's law
 - d) None of the these
- 5) Among the following which has higher solubility.
 - a) Crystalline form of drug
 - b) Amorphous form of drug
 - c) Both [a] and (b)
 - d) None of the these
- 6) The diameter of mesh aperture of disintegration test apparatus as per I.P is _____.
 - a) 2.00 mm
 - b) 4.00 mm
 - c) 1.00 mm
 - d) 1.50 mm
- 7) Name of the equipment/s used to measure hardness of tablet.
 - a) Pfizer tester
 - b) Strong Cobb tester
 - c) Erweka tester
 - d) All of the above
- 8) Pre-formulation is about ensuring.
 - a) Stability
 - b) Safety
 - c) Efficacy
 - d) All of the above
- 9) A super disintegrant in tablet formulation is _____.
 - a) Sodium starch glycolate
 - b) Starch
 - c) PVP
 - d) Mg-Aluminum silicate
- 10) Slugs are prepared in which kind of granulation techniques?
 - a) Wet granulation
 - b) Dry granulation
 - c) Stem granulation
 - d) Melt granulation
- 11) The moisture content of capsules ranges between _____% w/w.
 - a) 12-16
 - b) 20-25
 - c) 30-40
 - d) 50-60

- 12) A hypotonic solution may induce
 a) Shrinking of blood cells b) Haemolysis
 c) Fever d) All of the above
- 13) _____ is the largest capsule size.
 a) 1 b) 2
 c) 000 d) 00
- 14) Which one of the following is used as isotonicity adjuster?
 a) Dextrose b) Boric acid
 c) NaCl d) All of the these
- 15) The dip tube in the aerosol container is made from one of the following.
 a) Polypropylene b) Aluminum
 c) Glass d) Stainless steel
- 16) Filling of aerosols with liquefied propellants is done by _____.
 a) Cold fill process b) Pressure fill process
 c) Both (a) and (b) d) None of the above
- 17) Method used for finishing the capsules _____.
 a) Pan polishing b) Cloth dusting
 c) Brushing d) All of these
- 18) HLB system is used to classify _____.
 a) Surfactants b) Preservative
 c) Antioxidants d) Sequestering agent
- 19) In which type of packaging system the product is in direct contact with packaging material?
 a) Primary Package b) Secondary Package
 c) Tertiary Package d) All of the above
- 20) Elixirs are _____ solution.
 a) Aqueous b) Alcoholic
 c) Hydroalcoholic d) None of the above

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

- a) What is pre-formulation? Give the objectives and physicochemical parameters of pre-formulation.
- b) What is polymorphism? add a note on polymorphism.
- c) Define and classify tablets with suitable examples.
- d) What is enteric coating? Write the rationality behind the development of enteric coating.
- e) What are emulsifying? Classify emulsifying agent with suitable examples.
- f) Explain the importance of isotonicity in parenterals.
- g) Discuss LAL (Limulus amoebocyte lysate) test for parenteral products.
- h) Write the principle and procedure involved in the preparation of vanishing cream.
- i) What is bloom strength? Explain how is it determined?

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

- a) Discuss quality control tests for aerosol.
- b) Discuss different quality control tests for tablets.
- c) Discuss different quality control tests of hard gelatine capsules.

- 12) Streptokinase is obtained from _____. Beta hemolytic streptococci
 - a) Group A
 - b) Group B
 - c) Group C
 - d) Group D
- 13) Canrenone is an active metabolite of aldosterone antagonist called _____.
 - a) Spironolactone
 - b) Triamterene
 - c) Amiloride
 - d) None of these
- 14) The most important adverse effect of thiazides is _____.
 - a) Hypokalaemia
 - b) Hyperuricaemia
 - c) Hyperlipidemia
 - d) All of these
- 15) Treatment and general measures of atropine poisoning includes _____.
 - a) gastric lavage
 - b) physostigmine 1-3 mg
 - c) artificial respiration
 - d) all of above
- 16) _____ is called an inodilator.
 - a) Amrinone
 - b) Milrinone
 - c) Dobutamine
 - d) Other than A, B and C
- 17) _____ is not a thiazide and related Diuretics.
 - a) Xipamide
 - b) Indapamide
 - c) Metolazone
 - d) Acetazolamide
- 18) Most common adverse effect of ACE inhibitors in susceptible individuals is _____.
 - a) Cough
 - b) Hyperuricemia
 - c) Bleeding
 - d) All of these
- 19) The drug of choice for an ongoing attack of angina pectoris is _____.
 - a) Oral nitroglycerine
 - b) Sublingual nitroglycerine
 - c) Oral Amlodipine
 - d) Other than A, B and C
- 20) Which of the following class of drugs is first choice in Hypertensives with Type-2 Diabeters _____.
 - a) β -Blockers
 - b) ACE inhibitors
 - c) Vasodilators
 - d) Diuretics

Q.2 Answer any seven of the following questions.

35

- a) What is digoxin toxicity and give its management?
- b) Give classification of anti coagulants add note on pharmacology of heparin.
- c) Describe the mechanism of action of aspirin.
- d) Write a note on uterine muscle relaxants.
- e) Enlist the therapeutic uses and adverse effects of antihistaminic drugs.
- f) What are laxatives? Classify them with examples.
- g) What is hypoglycemia? Give the contra indications and adverse effects of hypoglycemic drugs.
- h) Define the Autacoids, give detail classification of autocooids.
- i) Define ischemia, angina pectoris, silent angina, congestive cardiac failure and shock.

Q.3 Answer any two of the following questions.

20

- a) Classify antiarrhythmic drugs. Discuss the mechanism of action, uses and adverse effects of quinidine.
- b) Describe general principles of treatment of poisoning. Write about symptoms and treatment of arsenic poisoning.
- c) Enumerate drugs used in the treatment of asthma with examples. Add a note on corticosteroids as anti-asthmaticus.

Seat No.	
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**B. Pharmacy (Semester - V) (CBCS) Examination: Oct/Nov-2023
Pharmacognosy and Phytochemistry – II (801504)**

Day & Date: Wednesday, 10-01-2024
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) Steroidal saponins are biosynthesized via _____.
a) Shikimic acid Pathway b) Kreb's Pathway
c) Aceto acetate Pathway d) Mevalonic acid Pathway
- 2) _____ is extracted with alcohol and to the extract, add water, milky white solution is formed.
a) Benzoin b) Myrrh
c) Colophony d) Guggul
- 3) All of the following phytoconstituent are the classes of alkaloids except _____.
a) Curcumin b) Vincristine
c) Yohimbin d) Reserpine
- 4) _____ acts as a precursor for the synthesis of steroidal compounds.
a) Diosgenin b) Sennoside
c) Amygdalin d) Podophyllin
- 5) Number of isoprene units found in Hexaterpene are _____.
a) 4 b) 6
c) 12 d) 24
- 6) Which of the following method is mainly used for the separation of charged particles?
a) HPTLC b) PAGE
c) TLC d) HPLC
- 7) Solvents used in chromatography can be _____.
a) Gas / Liquid b) Solid / Liquid
c) Only solid d) Only liquid
- 8) Quinine and quinidine shows _____ colour with Thalleoquine test.
a) Orange b) Emerald Green
c) Brown d) Pink
- 9) *Prunus amygdalus* belongs to _____ family.
a) Rosaceae b) Liliaceae
c) Solanaceae d) Apocynaceae
- 10) When _____ is treated with 2-3 ml of ethanol and few drops of concentrated H₂SO₄, shake well, add 0.5 gm of magnesium turnings, then it produces _____ colour.
a) Rutin, Pink b) Curcumin, Yellow
c) Atropine, Green d) Digoxin, Red
- 11) _____ belongs to Umbelliferae family.
a) Fennel & Coriander b) Coriander & Dill
c) Asafoetida & Fennel d) All of the above

- 11) What is Schedule M _____?
 - a) Good Manufacturing Practice
 - b) Only Registered practitioner
 - c) only license
 - d) Standard for disinfectant
- 12) India appointed a drug inquiry committee under the chairmanship of _____.
 - a) Rosalind Franklin
 - b) Louis Pasteur
 - c) Colonel R.N. Chopra
 - d) none of above
- 13) Left hand top corner of the label of schedule X drugs contains symbol _____.
 - a) XRx
 - b) Rx
 - c) RMP
 - d) TDS
- 14) The non-bonded laboratory shall be inspected by the excise officer _____.
 - a) Twice a two year
 - b) Once in year
 - c) once in a six months
 - d) Once in four year
- 15) Licence for the retail sale of schedule C and C1 drugs is given in form.
 - a) 18
 - b) 19
 - c) 21
 - d) 22
- 16) Penalty for use of Government analyst report for advertisement is _____.
 - a) Rs. 5,000
 - b) Rs. 2,500
 - c) Rs. 1,000
 - d) Rs. 500
- 17) Which schedule is related to standard for cosmetics?
 - a) O
 - b) U
 - c) T
 - d) S
- 18) Biological and biological products belongs to schedule.
 - a) E
 - b) C
 - c) H
 - d) D
- 19) Charas as per the Narcotic drugs and Psychotropic Substances Act means
 - a) Resin in a crude or purified form obtained from cannabis plant
 - b) Flowering and fruiting tops, leaves and seed of Cannabis sativa
 - c) Roots of Cannabis sativa
 - d) All parts of Cannabis Sativa
- 20) A magic remedies act was passed in _____ year.
 - a) 1930
 - b) 1949
 - c) 1945
 - d) 1954

Q.2 Answer the following (Any Seven)

35

- a) Give an account of the constitutions and functions of Pharmacy Council of India.
- b) What are the offences and penalties under the Narcotics drugs and psychotropic substances act?
- c) Define the following terms under Drugs and Magic Remedies (Objectionable Advertisement Act):
 - i) Advertisement
 - ii) Magic remedy
- d) Write the constitution and function of DTAB as per D and C Act.
- e) Define the terms Misbranded, Adulterated and Spurious drug.
- f) What are the objectives of Pharmacy act and write offences and penalties under the Pharmacy act 1948?
- g) Give an account of Pharmaceutical legislation of India?
- h) Write a note to the Animal Ethics committee.
- i) What are the types of Intellectual property right?

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

- 1) Write the qualification, duties and powers of drug inspector. Explain in brief inspection procedure.
- 2) Give an account of cultivation and production of poppy straw, manufacture, sale and export of opium?
- 3) What are the objectives of Narcotics drugs and Psychotropic substances Act? Discuss manufacture, possession and sale of Narcotic and Psychotropic drugs.

Seat No.	
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**B. Pharmacy (Semester - VI) (CBCS) Examination: Oct/Nov-2023
Medicinal Chemistry - III (801601)**

Day & Date: Monday, 01-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) Tick the drug, a bezimidazole derivative.

a) Praziquantel	b) Mebendazole
c) Suramin	d) Pyrantel
- 2) Antibiotics act by inhibition of nucleic acid metabolism.

a) Beta lactam antibiotic	b) Glycopeptides
c) Tetracycline	d) Griseofulvin
- 3) Amphotericin B comes under which class of drug _____.

a) Anti TB	b) Antifungal
c) Antiviral	d) Anthelmintic
- 4) All of the following Anti-malarial drugs are 4-quinoline derivatives, except _____.

a) Chloroquine	b) Mefloquine
c) Primaquine	d) Amodiaquine
- 5) Tick the drugs for the treatment of an intestinal form of amebiasis.

a) Metronidazole & diloxanide	b) Diloxanide & streptomycine
c) Diloxanide & iodoquinol	d) Emetine & metronidazole
- 6) Drug which is used for leprosy _____.

a) Sulphamethizole	b) Sulphapyridine
c) Trimethoprim	d) Dapsone
- 7) Select the drug that acts by inhibiting HIV protease enzyme _____.

a) Zalcitabine	b) Efavirenz
c) Stavudine	d) Nelfinavir
- 8) Prodrugs with two active compounds are known as _____.

a) Mixed type prodrugs	b) Pro-prodrugs
c) Bioprecursors	d) Mutual prodrug
- 9) Hammetts constant used to find which parameter _____.

a) Hydrophilic	b) Electrophilic
c) Steric	d) Lipophilic
- 10) Which parameter is used to find steric property?

a) Freewilson	b) Hanch analysis
c) Tafts steric constant	d) Hammatt constant
- 11) _____ is a piperazine derivative.

a) Mebendazole	b) Piperazine citrate
c) DEC	d) Pyrantel pamoate

- 12) Chemically tetracyclin is a derivative of _____.
 a) Pyrimidine derivative
 b) Purin derivative
 c) Octahydro naphthacene derivative
 d) Phenanthrene derivative
- 13) Tolnaftate is synthesis from _____.
 a) 2-naphthol
 b) phenol
 c) Catechol
 d) Benzil
- 14) Pyrimethamine act by inhibit the enzyme _____.
 a) Folate reductase
 b) Transaminase
 c) Peptidase
 d) Amylase
- 15) Idodquinol is a _____.
 a) Quinolone
 b) Hydroxychloroquine
 c) Diiodohydroxyquine
 d) Iodochloroquine
- 16) Chemically INH is a _____.
 a) Isonicotinic acid hydrazide
 b) Acid hydrazide
 c) Nicotinic acid
 d) Nicotinic hydrazine
- 17) Select the drug that is active against both HIV & herpatitis B virus.
 a) Lamivudine
 b) Indinavir
 c) Didanosine
 d) Efavirenz
- 18) 'Cascade lantentiation' concept takes into account which kind of prodrug.
 a) Mixed type prodrugs
 b) Pro-prodrugs
 c) Bioprecursors
 d) Carrier linked prodrugs
- 19) The basic ring structure for all sulphonamides are _____.
 a) Sulphanilamide
 b) Benzoic acid
 c) Purine
 d) Pteridine
- 20) Which is basic ring present in sulphamethoxazole _____.
 a) Oxazole
 b) Isoxazole
 c) Thiazole
 d) None of the above

Q.2 Answer the following questions (Any Seven)

35

- Write SAR & MOA of Sulphonamide.
- Write synthesis Diethyl carbamazine citrate, Metronidazole & Mebendazole.
- Write a note on azoles derivative.
- Write a note on combination treatment of Tuberculosis.
- Define & classify Anti-protozoal Agents with eg.
- Write SAR & MOA of 4-amino Quinoline with eg.
- Write in details of different types of prodrugs with eg.
- Write SAR & MOA oi Ethambutol.
- What is Sulphonamide & Classify with eg.

Q.3 Answer the following question (Any Two)

20

- Write a note on Reverse transcriptase inhibitors with eg.
- Discuss in details of different approaches used in drug design.
- Write SAR & MOA Of Penicillin & cephalosporin.

Seat No.	
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**B. Pharmacy (Semester - VI) (CBCS) Examination: Oct/Nov-2023
Pharmacology – III (801602)**

Day & Date: Wednesday, 17-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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) B₂ 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 the following questions. (Any Seven)

35

- a) Explain mechanism of action, adverse effect and therapeutic uses of selective Beta 2 agonist.
- b) What are laxative and purgative? Classify them with example.
- c) Discuss about the mode of action of tetracyclines and its drawbacks.
- d) Write down the drug regime as per recommendation of WHO guidelines for Multi Drug Resistant tuberculosis.
- e) Comment on current & new drugs used in malaria therapy.
- f) Explain recent advances in treatment of fungal infections.
- g) Describe in detail drug used in urinary tract infection.
- h) Explain the term chronopharmacology. Write significance of chronopharmacology.
- i) Write note on cotrimoxazole.

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

20

- a) Classify antiamoebic agents with examples. Write MOA, adverse effect and uses of metronidazole.
- b) Give the general principle of treatment of poisoning. Add note on lead, arsenic and mercury poisoning.
- c) Classify penicillin. Explain in detail pharmacology of penicillin.

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**B. Pharmacy (Semester - VI) (CBCS) Examination: Oct/Nov-2023
Herbal Drug Technology (801603)**

Day & Date: Friday, 05-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) General requirements necessary for the factory premises _____.
 - a) Building
 - b) waste disposal
 - c) water supply
 - d) All of the above
- 2) Select the natural non excipient crude drug from the following _____.
 - a) karaya gum
 - b) acacia
 - c) guar gum
 - d) neem powder
- 3) The ultimate goal of GMP is _____.
 - a) entire manufacturing process should be maintained standards
 - b) safe guarding the health of the patient
 - c) product should be acceptable quality.
 - d) all the above
- 4) Natural sweeteners like Stevia powder are used in _____ formulation.
 - a) Chuma
 - b) Syrups
 - c) Face cream
 - d) Lotions
- 5) Stability test is useful in determination of _____.
 - a) Packing material test
 - b) dosage
 - c) Shelf life
 - d) physical status
- 6) Standard sample used for determination of bitterness value as per WHO guideline is _____.
 - a) Gentiopicrocin
 - b) Sweretin
 - c) Quinine
 - d) Tannic acid
- 7) Herbal drug should be stored at _____.
 - a) Cool place
 - b) Cool & dry place
 - c) Dry place
 - d) Moist & cool place
- 8) The residue remaining after incineration is called as _____.
 - a) Ash
 - b) Residue
 - c) Waste material
 - d) Foreign matter
- 9) Karl Fischer method is used in the determination of _____.
 - a) Water content
 - b) Ash content
 - c) Bitterness content
 - d) Chemical residue content
- 10) The use of Indian hemp herb requires specific license under which of the following act _____.
 - a) Medicinal & Toilet Preparations Act.
 - b) Drugs & Magic Remedies Act.
 - c) Drugs and Cosmetic Act.
 - d) Narcotic Drug and Psychotropic substance Act.

- 11) Iodine value, Acid value are employed as Quality control for _____.
 - a) Hair Colorant
 - b) Hair Oil
 - c) Hair Gel
 - d) Hair Fixer
- 12) Important documents in GMP as per guidelines is _____.
 - a) Manuals
 - b) Protocols
 - c) Policies
 - d) All
- 13) As per Drug & Cosmetic Rules 1945, no 161(3), which of the following product is allowed to contain high content of alcohol _____.
 - a) Drakshasava
 - b) Dasmularisth
 - c) Mahadrakshasava
 - d) Pancharistha
- 14) Pharmacovigilance means to know about _____.
 - a) Quality testing
 - b) Chemical testing
 - c) Biological testing
 - d) Adverse effect prevention
- 15) Factors affecting stability of herbal medicine.
 - a) Physical instability
 - b) chemical instability
 - c) Environmental factors
 - d) All of the above
- 16) Schedule T relates with _____ of herbal medicines.
 - a) GAP
 - b) GMP
 - c) GACP
 - d) GLP
- 17) _____ What is the full form of ICH.
 - a) International conference on harmonization.
 - b) International council of harmonization.
 - c) Intermittent council on harmonization.
 - d) intermittent conference on harmonization.
- 18) Trade Mark of product in market helps in _____.
 - a) Identify Products
 - b) Increase Turnover
 - c) Reduce Cost
 - d) Improve Quality
- 19) Which of the following tool used for Efficacy of herbal medicine?
 - a) Behavior studies
 - b) side effect
 - c) Clinical Trials
 - d) Therapeutic Data
- 20) Alkaloids are confirmed from the following chemical test _____.
 - a) Molischs test
 - b) Mayers test
 - c) Liebermann-Burchard test
 - d) Benedicts test

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

- 1) Define Bhasma Explain their method of preparation with evaluation parameters.
- 2) Explain the source of herbal raw material.
- 3) Write importance and role of Standardization.
- 4) Write Bio dynamic Agriculture method in production of Herbs.
- 5) Write a note on Herbal -food, herbal-drug interaction.
- 6) What are cosmetics. Write any skin product preparation and evaluation methods.
- 7) Write ICH guidelines for assessment of herbal drugs.
- 8) write in brief account of plant based institution involved in work on medicinal and aromatics Plants in India.
- 9) Explain in short with case study on patenting aspects of natural products.

Q.3 Answer any two of the following questions.

- 1) What are Nutraceuticals? Classify and write their role.
- 2) Write a note on
 - i) Ashwagandha
 - ii) Amla
 - iii) Pepper
 - iv) Kava-kava
- 3) What are Asava & Arista. Write the method of preparation and evaluation.

- 11) The volume of distribution (V_d) is _____.
 a) Total body volume
 b) Indication of patient total body volume
 c) Indication of patient total fluid volume
 d) The hypothetical Volume of body fluid into which a drug is dissolved or distributed.
- 12) Which is correct order for dissolution of different solid forms of drugs?
 a) Amorphous > Metastable > Stable
 b) Amorphous < Metastable > Stable
 c) Amorphous > Metastable < Stable
 d) Amorphous < Metastable < Stable
- 13) Bioavailability is _____ of unchanged form of drug from its dosage form.
 a) Rate of drug absorption
 b) Rate of drug distribution
 c) Rate of drug elimination
 d) Rate and extent of absorption
- 14) Which one of the following blood protein is having large drug binding capacity?
 a) Human serum albumin
 b) Lipoproteins
 c) Haemoglobin
 d) Alpha-1 Globulin
- 15) Drug metabolism is _____ Process.
 a) Toxic
 b) Detoxification
 c) Degradation
 d) Dehydration
- 16) First binding site on human serum albumin is _____.
 a) Diazepam binding site
 b) Warfarin binding site
 c) Digitoxin binding site
 d) Tamoxifen binding site
- 17) The term open indicates that the input and output are _____ and that the drug can be eliminated from the body.
 a) Bidirectional
 b) Multidirectional
 c) Unidirectional
 d) Both a and b
- 18) Drugs with molecular weight _____ excrete mainly in urine.
 a) Below 300 Daltons
 b) Above 500 Daltons
 c) Between 300 to 500 Daltons
 d) Above 1000 Daltons
- 19) _____ gives rate and extent of absorption or the amount of drug that reaches the Circulation.
 a) AUC
 b) T_{max}
 c) C_{max}
 d) MEC
- 20) Hydrates and Solvates are _____.
 a) Polymorphs
 b) Monotropic polymorphs
 c) Enantiotropic polymorphs
 d) Pseudopolymorphs

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) Define Pharmacokinetics. Describe the Pharmacokinetic parameters.
 d) Define
 1) Therapeutic range
 2) Bioavailability
 3) Biotransformation
 4) MSC
 5) MEC

- e) Explain concept of Enterohepatic cycling of drug.
- f) Explain the factors affecting renal excretion.
- g) Give difference between Compartment modelling and Physiological modelling.
- h) Explain carrier-Mediated transport mechanism.
- 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 in detail about methods for enhancement of bioavailability of drug.
- b) Explain in detail one compartment open model I.V Bolus administration.
- c) Enlist the factors influencing GI absorption of a drug. Discuss in detail Pharmaco- technical factors.

Seat No.	
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**B. Pharmacy (Semester - VI) (CBCS) Examination: Oct/Nov-2023
Pharmaceutical Biotechnology (801605)**

Day & Date: Wednesday, 10-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) _____ proposed an idea that separate X and Y chromosomes determine sex.
 - a) Louis Pasteur
 - b) Fleming
 - c) Wilson and Stevens
 - d) Earnst Seyler
- 2) The most important discovery that lead to the development of rDNA technology was _____.
 - a) Discovery of Watson & crick helix DNA model
 - b) Discovery of restriction endonuclease
 - c) Discovery of ligase
 - d) Discovery of tissue culture cloning
- 3) _____ developed BCG vaccine in 1908.
 - a) Chain Weizmann
 - b) Selman Waksman
 - c) William Kolhe
 - d) Calmette and Guerin
- 4) Identify the purine base present in DNA.
 - a) Adenine
 - b) Cytosine
 - c) Guanine
 - d) Both a & c
- 5) Sparger is used in fermentation for addition of _____.
 - a) Antifoaming agent
 - b) Antimicrobial agents
 - c) Sterile air
 - d) Sterile medium
- 6) *Agrobacterium tumefaciens* is soil borne _____ bacteria.
 - a) Gram positive
 - b) Gram negative
 - c) Both a & b
 - d) None of these
- 7) Identify the strains used for commercial production of vitamin B₁₂ _____.
 - a) *Streptomyces olivaceus*
 - b) *Streptomyces griseus*
 - c) *Streptomyces albidoflavus*
 - d) All of these
- 8) An enzyme that cleaves DNA at specific site is called _____.
 - a) Restriction ribonuclease
 - b) Restriction endonuclease
 - c) Trypsin
 - d) *E. coli* DNA ligase
- 9) _____ does not require aeration during their production by fermentation technology.
 - a) Penicillin
 - b) Streptomycin
 - c) Dextran
 - d) Cobalamine
- 10) PCR is useful in the diagnosis of _____.
 - a) HIV
 - b) Fever
 - c) Diabetes
 - d) None of these
- 11) Northern blotting technique is used for the confirmation of _____.
 - a) DNA
 - b) RNA
 - c) Both DNA & RNA
 - d) Proteins

- 12) Taq Enzyme utilized in PCR is _____.
 - a) DNA without 3' to 5' proofreading exonuclease activity
 - b) DNA with 3' to 5' proofreading exonuclease activity
 - c) DNA without 5' to 3' proofreading exonuclease activity
 - d) DNA with 5' to 3' proofreading exonuclease activity
- 13) Shotgun method used in _____.
 - a) DNA sequencing
 - b) Gene mapping
 - c) Gene transformation
 - d) Genomic library creation
- 14) _____ extract is most commonly used for growth of animal cells and it's substituted by mixture of amino acids.
 - a) Chick embryo
 - b) Liver
 - c) Spleen
 - d) Bone marrow
- 15) The extra-chromosomal circular DNA found in the E.coli is _____.
 - a) Plasmid
 - b) DNA ligase
 - c) Vector
 - d) Cytokinin
- 16) _____ discovered cholera and typhoid vaccine in 1896.
 - a) Phoebus Levene
 - b) Rous
 - c) Guarine
 - d) Wilhelm Kolle
- 17) Temperature needed for DNA strand separation in PCR is _____.
 - a) 74°C
 - b) 45°C
 - c) 100°C
 - d) 95°C
- 18) Taq polymerase is used in PCR because of its _____.
 - a) low thermal stability
 - b) high fidelity
 - c) high speed
 - d) high thermal stability
- 19) Southern blotting technique is used for specific identification of _____.
 - a) RNA
 - b) Proteins
 - c) DNA
 - d) Lipids
- 20) DSP is carried out to _____.
 - a) Separate cells and cell debris
 - b) remove insoluble matter
 - c) Get pure product
 - d) All of these

Q.2 Answer any seven of the following questions.

35

- 1) Discuss future scope of biotechnology in pharmaceutical industry.
- 2) Explain construction of conventional fermenter with neat labeled diagram.
- 3) Write a note on cryopreservation technique with their applications.
- 4) Add a note on electroporation with their merits and demerits.
- 5) Explain plasmid as a vector.
- 6) Add a note on restriction endonucleases and DNA ligase.
- 7) Discuss the methods of enzyme immobilization.
- 8) Describe the structure of immunoglobulins.
- 9) Write the working and applications of biosensors.

Q.3 Answer any two of the following questions.

20

- 1) Describe Western and Southern blotting techniques with their applications.
- 2) Discuss insulin production by r-DNA technology.
- 3) Describe the production of penicillins and citric acid.

Seat No.	
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**B. Pharmacy (Semester - VI) (CBCS) Examination: Oct/Nov-2023
Quality Assurance (801606)**

Day & Date: Friday, 12-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions.

20

- 1) _____ Is also called as premarket Validation.
 - a) Retrospective Validation
 - b) Prospective validation
 - c) Concurrent Validation
 - d) Revalidation
- 2) A type complaint does not include _____.
 - a) Purity and safety
 - b) Potency
 - c) Product Stability
 - d) extraneous contamination mix-ups.
- 3) Treated soda lime glass is _____.
 - a) Type 1
 - b) type 2
 - c) Type 3
 - d) type 4
- 4) Highest air pressure is maintained in _____.
 - a) Clean room
 - b) Gowning area
 - c) factory hallway
 - d) None
- 5) Which of the following is for Environmental Management?
 - a) ISO 9000
 - b) ISO 1400
 - c) ISO 26000
 - d) ISO 31000
- 6) Accreditation to a laboratory shall be valid for a period of _____ Years.
 - a) Five
 - b) Three
 - c) Six
 - d) Two
- 7) ICH Q3 Guideline is for _____.
 - a) Impurities
 - b) Raw materials
 - c) API
 - d) Product Development
- 8) Concept of QbD is based on _____.
 - a) Validation
 - b) Calibration
 - c) Quality risk management
 - d) None of these
- 9) Good distribution practices is part of _____.
 - a) Quality Control
 - b) Quality Assurance
 - c) IPQC
 - d) None of these
- 10) Premises should be of suitable sizes and construction to facilitate _____.
 - a) Cleaning
 - b) Storage
 - c) Maintenance
 - d) All
- 11) Calibration of an instrument involves adjusting its _____ so that its readings come in accordance with the established standard.
 - a) Accuracy
 - b) Precision
 - c) Both A&B
 - d) None of these

Seat No.	
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**B. Pharmacy (Semester - VII) (CBCS) Examination: Oct/Nov-2023
Instrumental Methods of Analysis (801701)**

Day & Date: Tuesday, 16-01-2024
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions

20

- 1) _____ is a column packing technique used in adsorption column chromatography.
 - a) Wet Method
 - b) Dry method
 - c) Both A & B
 - d) Semi-dry method
- 2) In bending vibration, if both atoms move to one side of plane such type is called as _____.
 - a) Wagging
 - b) Scissoring
 - c) Rocking
 - d) Twisting
- 3) A hollow cathode lamp is used in the production of _____.
 - a) Similar wavelength radiation
 - b) Different wavelength radiation
 - c) Specific wavelength radiation
 - d) Constant wavelength radiation
- 4) Which type of the chromatographic technique used for demineralization of water?
 - a) Gel chromatography
 - b) Ion exchange chromatography
 - c) Adsorption chromatography
 - d) Gas chromatography
- 5) Which of the major chemical components present in Whatman filter paper?
 - a) Alpha cellulose
 - b) Beta Cellulose
 - c) Ash
 - d) Pentosan
- 6) The intensity of the transmitted light is usually measured at which angle?
 - a) 80°
 - b) 180°
 - c) 90°
 - d) 100°
- 7) Flame ionization detectors _____ is measured.
 - a) Resistance
 - b) Melting point
 - c) Current
 - d) Absorbance
- 8) An isocratic elution in HPLC is one in which the composition of solvent _____.
 - a) Remains constant
 - b) Changes continuously
 - c) Changes in a series of steps
 - d) Increases continuously
- 9) Which of the following stationary phase is not used in gel chromatography?
 - a) Sephadex
 - b) Sephacryl
 - c) Bio-Gel
 - d) Resin beads
- 10) The columns in ion exchange chromatography is operated by _____.
 - a) Elution development
 - b) Frontal analysis
 - c) Displacement analysis
 - d) All of these

- 11) PH changing of the fluorescence substance to produce _____.
 - a) Collisional quenching
 - b) Static Quenching
 - c) Chemical Quenching
 - d) Concentration Quenching
- 12) Nernst glow rod is heated to produce IR radiation at _____.
 - a) 1500°C
 - b) 2000°C
 - c) 3000°C
 - d) 5000°C
- 13) Turbidimetry deals with measurement of intensity of _____.
 - a) Scattered light
 - b) Transmitted light
 - c) Both A and B
 - d) None of these
- 14) Which is the easy and convenient method to prepare the TLC glass plate?
 - a) Pouring
 - b) Dipping
 - c) Spraying
 - d) Spreading
- 15) Which of the major chemical components present in Whatman filter paper?
 - a) Alpha cellulose
 - b) Beta Cellulose
 - c) Ash
 - d) Pentosan
- 16) Give an example of free electrophoresis technique _____.
 - a) Gel electrophoresis
 - b) Paper electrophoresis
 - c) Cellulose acetate electrophoresis
 - d) Moving Boundary electrophoresis
- 17) Non- reciprocating pump is also called as _____.
 - a) Constant pressure pump
 - b) Constant flow pump
 - c) Syringe type pump
 - d) Single head pump
- 18) Diffraction grating is consist of a _____.
 - a) Glass
 - b) Quartz
 - c) Alkyl halide
 - d) All of the above
- 19) Which spectroscopy is measure intensity of the FLUORESCENCE of molecule?
 - a) IR
 - b) NMR
 - c) Flurometry
 - d) All of the above
- 20) Which material are used to prepare rod of global source?
 - a) Silicon dioxide
 - b) Silicon carbide
 - c) Silicon oxide
 - d) All of the above

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

35

- a) Write in detail about electronic transitions of UV- Visible spectroscopy.
- b) What is fluorescence? Explain in brief energy level diagram of photoluminescence molecule.
- c) Write the modes of vibrations when a molecule interacts with IR radiation.
- d) Explain the burner used in flame photometer.
- e) What is AAS? Write radiation source used in AAS.
- f) Explain development technique used in thin layer Chromatography.
- g) Describe the preparation of plate and adsorbent used in TLC.
- h) Write a note on columns used in gas chromatography.
- i) Write a brief note on principle involved in ion exchange chromatography.

Q.3 Answer the following question. (Any Two)

- a) Draw a neat diagram of HPLC. Explain pumps and Bulk property detector used in HPLC.
- b) Write various development technique and spot detecting method used in paper chromatography.
- c) Write in detail Monochromator and detector used in UV-Spectroscopy.

Seat No.	
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**B. Pharmacy (Semester - VII) (CBCS) Examination: Oct/Nov-2023
Industrial Pharmacy – II (801702)**

Day & Date: Thursday, 18-01-2024
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) _____ is crucial link between company, products and regulatory authorities.
 - a) Regulatory department
 - b) Laboratories
 - c) Government
 - d) Financial authorities
- 2) Therapeutic Goods Administration is Regulatory Authority in _____.
 - a) America
 - b) Brazil
 - c) India
 - d) Australia
- 3) Head office of CDSCO is located in _____.
 - a) Patna
 - b) Mumbai
 - c) New Delhi
 - d) Hyderabad
- 4) Six Sigma is developed by _____ in 1986.
 - a) Motorola
 - b) Sony
 - c) Samsung
 - d) Crown
- 5) Out of specification (OOS) means the _____ result that falls outside the specifications or acceptance criteria.
 - a) Test
 - b) Experiment
 - c) Laboratory
 - d) Field
- 6) GLP is a formal regulation that was created by the FDA in _____.
 - a) 1977
 - b) 1878
 - c) 1978
 - d) 1877
- 7) _____ is the Father of six sigma.
 - a) Sir Bill Sam
 - b) Sir Bill Knith
 - c) Sir Albert Smith
 - d) Sir Bill Smith
- 8) MHRA is regulatory authority of _____.
 - a) US
 - b) UK
 - c) South Africa
 - d) Canada
- 9) MFC stand for _____.
 - a) Master formality card
 - b) Master formula card
 - c) Manufacturing formula card
 - d) Management formula card
- 10) What is SUPAC?
 - a) scale-up and Post approval changes
 - b) scale-up and Post approval chances
 - c) scale-up and Pre approval changes
 - d) scale-up and Production approval changes
- 11) _____ gives guidelines for TT.
 - a) Government
 - b) FDA
 - c) WHO
 - d) Canada

Seat No.	
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**B. Pharmacy (Semester - VII) (CBCS) Examination: Oct/Nov-2023
Pharmacy Practice (801703)**

Day & Date: Saturday, 06-01-2024

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 medication history is the part of the patient interview that provides the _____ opportunity to utilize his or her expertise by precisely collecting each component
 - a) Nurses
 - b) Pharmacist
 - c) Physicians
 - d) All
- 2) Ambulatory patient are _____
 - a) Required emergency treatment
 - b) Required to admit in ward for treatment
 - c) Required to go home after taking treatment
 - d) Both A and B
- 3) A Hospital formulary usually consists of listing therapeutic agents by their _____
 - a) Synthetic name
 - b) Biological names
 - c) Generic names
 - d) None of these
- 4) The function of hospital pharmacy were controlled by hospital?
 - a) Pharmacist
 - b) Physicians
 - c) Management
 - d) All
- 5) Unit dose drug distribution system have significantly reduced the occurrence of. _____
 - a) Side effect
 - b) Medication errors
 - c) ADR's
 - d) None of these
- 6) Presence of ketone bodies in urine indicates _____
 - a) Kidney dysfunction
 - b) Nephrosis
 - c) Hypoglycaemia
 - d) Mushroom poisoning
- 7) Short term finance is raised for a period of less than _____ or more
 - a) 1 to 3 month
 - b) 2 to 5 year
 - c) 7 to 9 year
 - d) 10 year
- 8) _____ example of external training programs.
 - a) Mock Drills
 - b) Induction
 - c) On job training
 - d) None
- 9) Non-Adherence is a very _____ and common problem
 - a) Complicated
 - b) Simple
 - c) Re-occurring
 - d) None

- 10) The _____ is responsible to the institute and the principal investigator for seeing that procedures for control of the investigational drug
 - a) Physician
 - b) Nurse
 - c) Pharmacist
 - d) None
- 11) The drug store should be preferably located on the
 - a) Middle floor
 - b) Ground floor
 - c) Top floor
 - d) None of these
- 12) DIC can provide information regarding
 - a) Poisoning
 - b) Toxicity
 - c) Treatment
 - d) All
- 13) PTC set policy for the automatic discontinuation of all medication prescription after _____ hours for sedative any hypnotics drug
 - a) 12
 - b) 18
 - c) 24
 - d) 48
- 14) Community pharmacy is often referred
 - a) Retail pharmacy
 - b) Retail drug outlet
 - c) Both A and B
 - d) None of these
- 15) A ward round is visit made by
 - a) Pharmacist
 - b) Nurse
 - c) Medical practitioner
 - d) None of these
- 16) Basic principle of counselling is _____ to patient in the language he understands.
 - a) Speak
 - b) Communicate
 - c) Both a and b
 - d) Listen
- 17) Prescription and medication order are primary means by which prescriber communicate with _____
 - a) Doctors
 - b) Pharmacists
 - c) Nurses
 - d) None
- 18) Budget preparation is an important task of _____ department of any hospital and requires all factors into consideration.
 - a) Administrative
 - b) Pharmacy
 - c) Both A and B
 - d) None
- 19) Sample timing in TDM is based on
 - a) Route of administration
 - b) Dosage form
 - c) Dosage regimen
 - d) All of the above
- 20) Meeting of the PTC committee should be at list _____ times per year.
 - a) Three
 - b) Two
 - c) Six
 - d) Eight

Q.2 Answer any seven of the following questions.

35

- a) Explain various techniques of inventory control.
- b) Write the organization and function of pharmacy and therapeutic committee.
- c) Explain the role of healthcare provider in improvement of medication adherence.
- d) Define and classify adverse drug reaction.
- e) Write short note on patient medication history interview.
- g) Discuss in detail the role of pharmacist in community health education.
- h) Explain the steps for effective Patient counselling.
- i) Explain in details the various laboratory test used for Urine analysis.
- j) Explain factors affecting the therapeutic drug monitoring.

Q.3 Answer any two of the following questions.

20

- a) Define Hospital? Discuss various types of classification of hospital and write organizational structure of hospital.
- b) Discuss in details the drug distribution system for in-patient and out-patient department.
- c) What is clinical Pharmacy? Describe the functions and responsibilities of clinical pharmacist

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**B. Pharmacy (Semester - VII) (CBCS) Examination: Oct/Nov-2023
Novel Drug Delivery System (801704)**

Day & Date: Tuesday, 09-01-2024
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) A non-ionic surfactant based multilamellar or unilamellar vesicular structure _____.
 - a) Microspheres
 - b) Liposome
 - c) Niosome
 - d) Nanoparticle
- 2) Which of the following is a non- erodible insert?
 - a) Ocusert
 - b) Collagen shield
 - c) NODS
 - d) SODI
- 3) Which of the following does not constitute an appendageal route?
 - a) Sweat glands
 - b) Hair follicle
 - c) Sebaceous gland
 - d) Stratum corneum
- 4) The size of particles in a parenteral suspension should be _____.
 - a) 10 to 20 μm
 - b) Less than 10 μm
 - c) 100 to 200 μm
 - d) 50 to 100 μm
- 5) An advantage of Novel Drug Delivery Systems is _____.
 - a) It causes fluctuation of blood levels
 - b) It cannot be target specific.
 - c) It increases toxicity of the drug.
 - d) It reduces side effects of the drug.
- 6) Drug release from osmotic drug delivery systems depends on _____.
 - a) Osmotic pressure
 - b) Ionic strength
 - c) Osmotic pressure & ionic strength
 - d) Osmotic pressure & environment in git.
- 7) Excipient to increase density of GRDDS is _____.
 - a) Zinc oxide
 - b) Talc
 - c) Sodium bicarbonate
 - d) Calcium carbonate
- 8) _____ is a dispersed matrix system.
 - a) Nanospheres
 - b) Nanoparticles
 - c) Nanocapsules
 - d) Nanopolymers
- 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) Tablets that are placed under the skin are _____.
 - a) Enteric coated-tablets
 - b) Implants
 - c) Film Coated tablets
 - d) Sublingual tablets

- 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) Device containing pilocarpine and alginic acid in drug reservoir is used in _____.
 a) Tuberculosis therapy b) Ocular therapy
 c) Diabetes therapy d) Dental therapy
- 13) Water insoluble mucoadhesive polymer is _____.
 a) Carbopol b) PEG
 c) Both a and b d) PVP
- 14) The force required to remove an adhesion coating from test substrate is determined by _____.
 a) Peel adhesion test b) Shear adhesion test
 c) Rolling ball tack test d) Probe tack test
- 15) A prominent structure for ocular absorption of drugs _____.
 a) Conjunctiva b) Choroid
 c) Sclera d) Cornea
- 16) Microspheres are prepared by coacervation by using _____ method.
 a) Non-solvent b) Trituration
 c) pH modification d) pressure
- 17) What are the characteristics of matrix diffusion-controlled release systems?
 a) Release the drug along entire GI length.
 b) Drug disperse in an insoluble matrix of rigid hydrophobic materials.
 c) Release only at a specific drug.
 d) Employ waxes to control the rate of dissolution.
- 18) The diameter of small unilamellar vesicle is _____.
 a) 20nm-100nm b) 200nm-100nm
 c) 10nm-100nm d) 100nm-400nm
- 19) In-situ gelling system is formed by _____ mechanism.
 a) Change in pH b) Change in glucose level
 c) Change in electric field d) Change in ion concentration
- 20) In Microencapsulation Wurster process is used in _____ method.
 a) Coacervation phase separation b) Multi orifice centrifugal process
 c) Air suspension d) Polymerisation

Q.2 Answer any seven of the following questions.

35

- a) Write briefly about metered dose inhalers.
 b) Define polymer; explain its types with their applications in pharmaceuticals.
 c) Discuss briefly about intrauterine drug delivery systems.
 d) Describe osmotically regulated implants as new drug delivery system.
 e) Write short note on Gastroretentive floating drug delivery system.
 f) Discuss in detail about reservoir and matrix type of controlled release formulations.
 g) Write in details about types of ocular inserts.
 h) Enlist different techniques of microencapsulation and explain any one in detail.
 i) Describe the Niosomes with its applications.

Q.3 Answer any two of the following questions.

20

- a) Discuss basic components of TDDS explain factors affecting permeation of drug through skin.
- b) Describe the various physicochemical and pharmaceutical factors to be considered in selection of a drug candidate for controlled delivery formulations.
- c) Explain Liposome as a carrier system.

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**B. Pharmacy (Semester - VIII) (CBCS) Examination: Oct/Nov-2023
Biostatistics & Research Methodology (801801)**

Day & Date: Saturday, 30-12-2023
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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 the most comprehensive source of population data?
 - a) Census
 - b) National Family Health Surveys
 - c) National Sample Surveys
 - d) Demographic Health Surveys
- 2) Blood group is an example of _____.
 - a) Ordinal scale data
 - b) Categorical data
 - c) Interval scale data
 - d) None of these
- 3) Calculate the median from the following values: 1.9, 1.9, 1.9, 2.1, 2.4, 2.5, 2.5 & 2.9
 - a) 1.9
 - b) 2.5
 - c) 2.25
 - d) 1.2
- 4) Objective of the research can be enhanced _____.
 - a) by making it more impartial
 - b) by making it more reliable
 - c) by making it more valid
 - d) All of these
- 5) Quantitative data can be compared by _____.
 - a) Histogram
 - b) Pie chart
 - c) Pictograph
 - d) Spot map
- 6) In normal distribution curve _____.
 - a) Mean > Mode
 - b) Median > Mean
 - c) Mode > Mean
 - d) Distribution of data is symmetrical
- 7) _____ is not a measure of central tendency.
 - a) Mode
 - b) Standard deviation
 - c) Median
 - d) Mean
- 8) What does the correlation coefficient of 0.5 indicate?
 - a) The confidence interval of 95%
 - b) Weak association
 - c) Not statistically significant
 - d) Good association
- 9) Following are the measures of dispersion all except _____.
 - a) Correlation and regression
 - b) Mean or average deviation
 - c) Range
 - d) Standard deviation
- 10) The Student's t-test is a _____.
 - a) test for comparing variances
 - b) parametric test
 - c) test for comparing averages
 - d) nonparametric test

- 11) A regression line is a straight line which _____.
 a) is located as close as possible to all the points of a scatter chart
 b) is defined by an equation having 2 parameters: the slope and the intercept
 c) is parallel to one of the coordinate axes
 d) provides an approximate relationship between the values of two parameters
- 12) Sample size depends on _____.
 a) Resources available b) Required precision
 c) Type of problem investigated d) All of these
- 13) Which one of these statistics is unaffected by outliers?
 a) Interquartile range b) Standard deviation
 c) Mean d) Range
- 14) The cumulative frequency for a particular class is equal to 23. The cumulative frequency for the next class will be _____.
 a) less than 23 b) equal to 77
 c) 23 plus d) none of these
- 15) Which of the following is true for a positively skewed distribution?
 a) Mean < median < mode b) Mode = median = mean
 c) Mode < median < mean d) Median < mode < mean
- 16) A large collection of data may be condensed by constructing _____.
 a) class limits b) a frequency polygon
 c) classes d) a frequency distribution
- 17) Appropriate statistical method to compare two proportions is _____.
 a) Odds ratio b) Student's t-test
 c) Chi-square test d) Correlation coefficient
- 18) All of the following statements are true except _____.
 a) alpha is the maximum tolerable probability of type-I error
 b) beta is the probability of type -II error
 c) P-value can be more or less than alpha
 d) when the Null hypothesis is true but is rejected it is Type -II error
- 19) For testing the statistical significance of the difference in heights of college students _____ test is used.
 a) Student's t-test b) One way ANOVA
 c) Chi-squared test d) Paired t-test
- 20) Non-parametric test in biostatistics are better than parametric tests because they _____.
 a) are useful for skewed data
 b) are more powerful
 c) involve more accurate calculations
 d) require less data

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

- 1) Write a note on normal distribution of data.
- 2) Classify and give examples of types of research.
- 3) Define type-I and type-II errors, level of significance and p-value. Give their examples.
- 4) Describe the various types of measures of dispersion with their significance.
- 5) Explain the different phases of clinical trials.
- 6) Explain how histograms, scatter plots and logarithmic plots are useful in presenting the data.
- 7) What is linear regression? Explain its usefulness in pharmaceutical sciences by giving example.
- 8) Write a note on descriptive statistics.
- 9) Explain the types of correlations and give its suitable examples. Define correlation coefficient.

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

- 1) Giving relevant examples, describe the process of a research process.
- 2) Explain different methods of describing data using the measures of central tendency.
- 3) Classify and explain the tests used for hypothesis testing of non-parametric data.

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**B. Pharmacy (Semester - VIII) (CBCS) Examination: Oct/Nov-2023
Social and Preventive Pharmacy (801802)**

Day & Date: Tuesday, 16-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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 diseases is caused by the deficiency of niacin?
 - a) Scurvy
 - b) Rickets
 - c) Pellagra
 - d) pernicious anemia
- 2) Macronutrients involve _____.
 - a) Protein
 - b) Carbohydrate
 - c) Fat
 - d) All of the above
- 3) Which of the following factors affects health?
 - a) Personal
 - b) Social
 - c) Environmental
 - d) All of the above
- 4) _____ is an infectious disease causes severe watery diarrhoea.
 - a) Cholera
 - b) Pneumonia
 - c) Flu
 - d) Ebola
- 5) Mosquito responsible for Chikungunya transmission _____.
 - a) Aedes aegypti
 - b) Aedes albopictus
 - c) Anopheles
 - d) Both a and b
- 6) Most common symptom of diabetes mellitus _____.
 - a) Thirst
 - b) Polyuria
 - c) Blurring of Vision
 - d) All of the above
- 7) The BCG vaccines protect from which disease?
 - a) Malaria
 - b) Typhoid
 - c) Tetanus
 - d) Tuberculosis
- 8) NLEP was launched in _____.
 - a) 1983
 - b) 1990
 - c) 1980
 - d) 1985
- 9) Severe acute respiratory syndrome (SARS) is a serious form of _____.
 - a) Pneumonia
 - b) cancer
 - c) AIDS
 - d) Blindness
- 10) WHO established on which year?
 - a) 1947
 - b) 1948
 - c) 1949
 - d) 1955
- 11) A 24/7 call center receive disease alerts all across the country on a toll-free number is _____.
 - a) 1075
 - b) 108
 - c) 1096
 - d) 100

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

- a)** Add a note on mode of transmission and preventive measures for controlling of Dengue and SARS.
- b)** Write a note on National Urban Health Mission.
- c)** Explain main provisions of Tobacco control Act 2003, and add a note on objective of National tobacco control programme.

Q.2 Answer any Seven of the following questions.

- a) Describe the duties of Professional Sales Representatives (PSR).
- b) Give a detail note on NPPA.
- c) Write a detail note on Consumerism?
- d) Define.
 - 1) Product
 - 2) Promotion
 - 3) Marketing
- e) Explain product life cycle.
- f) Define Pricing? Write its objectives?
- g) Write a detail note on conflict in channels.
- h) Write short note on Rural Marketing?
- i) Give difference between Marketing and Selling.

Q.3 Answer any Two of the following questions.

- a) Classify products. Explain in detail about product layers.
- b) What are the roles of advertising? How is it advantageous?
- c) What is global marketing? Discuss in detail need of global marketing.

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**B. Pharmacy (Semester - VIII) (CBCS) Examination: Oct/Nov-2023
Pharmaceutical Product Development (801814)**

Day & Date: Thursday, 18-01-2023
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) Sodium cyclamate is _____ sweetener.
 - a) an artificial
 - b) a natural
 - c) Both a & b
 - d) None of these
- 2) Tartrazine is _____ in color.
 - a) blue
 - b) yellow
 - c) green
 - d) None of these
- 3) _____ is an anti-oxidant.
 - a) Starch
 - b) Acacia
 - c) Ascorbic acid
 - d) None of these
- 4) _____ is a super disintegrant.
 - a) Cross carmellose
 - b) Calcium carbonate
 - c) calcium chloride
 - d) None of these
- 5) _____ is used as chelating agent.
 - a) Lactose
 - b) Disodium edetate
 - c) Both a & b
 - d) None of these
- 6) Magnesium stearate is used as _____ in tablet formulation.
 - a) Colorant
 - b) coating agent
 - c) Lubricant
 - d) None of these
- 7) _____ is used as anti-foaming agent.
 - a) Simithicone
 - b) Saccharin
 - c) Sucralose
 - d) None of these
- 8) Starch paste is used as _____ in tablet formulation.
 - a) coating agent
 - b) binder
 - c) Preservative
 - d) None of these
- 9) Vanillin is a _____.
 - a) Coloring agent
 - b) binding agent
 - c) flavoring agent
 - d) None of these
- 10) Enteric coated tablets should disintegrate in the _____.
 - a) mouth
 - b) stomach
 - c) both a & b
 - d) None of these
- 11) HLB system is used to classify _____.
 - a) coloring agents
 - b) flavoring agents
 - c) both a & b
 - d) None of these
- 12) The cylindrical glass tubes of the disintegrating test apparatus is _____ mm long.
 - a) 55.7
 - b) 60.7
 - c) 65.7
 - d) 77.5

- 13) Type II glass is also called as _____.
 a) Treated soda lime glass b) Soda lime glass
 c) both a & b d) None of these
- 14) Tartrazine is used as a _____ agent in tablet formulation.
 a) flavoring b) coloring
 c) sweetening d) None of these
- 15) Water attack test is performed on _____.
 a) Whole glass container b) powdered glass
 c) both a & b d) None of these
- 16) Sodium metabisulfite is a water _____ anti-oxidant.
 a) insoluble b) soluble
 c) both a & b d) None of these
- 17) Fructose is a _____ sweetener.
 a) Caloric b) non-caloric
 c) both a & b d) None of these
- 18) _____ test is applicable to closures intended to be pierced by hypodermic needle.
 a) Collapsibility b) Fragmentation
 c) both a & b d) None of these
- 19) Glass ampoule is a _____ packaging material.
 a) primary b) secondary
 c) both a & b d) None of these
- 20) Bursting strength is performed on _____.
 a) ampoules b) corrugated boxes
 c) both a & b d) None of these

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

- a) Enumerate the objectives of pharmaceutical product development. Discuss formulation development of immediate release tablets.
- b) Explain the role of Cyclodextrin in pharmaceutical formulation.
- c) Discuss emulsifiers used in pharmaceutical formulation.
- d) Explain the role of directly compressible vehicles in pharmaceutical formulation.
- e) Write a note on preformulation studies.
- f) Discuss plastic as packaging material.
- g) Write a note on Aluminium as pharmaceutical packaging material.
- h) Explain weight variation test for tablets as per Indian pharmacopoeia.
- i) Write the quality control tests for enteric coated tablets.

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

- a) Give a detailed account of stability testing of solid dosage forms.
- b) Discuss the excipients used in the formulation of novel drug delivery systems.
- c) Explain the optimisation techniques utilised in pharmaceutical product development.

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**B. Pharmacy (Semester - VIII) (CBCS) Examination: Oct/Nov-2023
Experimental Pharmacology (801811)**

Day & Date: Thursday, 18-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) CPCSEA is a statutory Committee established under Chapter 4, Section 15(1) of _____.
 - a) Ministry of Forest.
 - b) Animal Welfare board.
 - c) Supervision on Animal Experiments.
 - d) Prevention of Cruelty to Animal Act
- 2) The biological name of rats is _____.
 - a) Mus norvegicus
 - b) Mus musculus
 - c) Rattus musculus
 - d) Rattus norvegicus
- 3) An experimental animal, a frog belong to the family _____.
 - a) Moderidae
 - b) Muridae
 - c) Leporidae
 - d) Discroglossidae
- 4) Which of the following animal belong to the family Muridae?
 - a) Mouse
 - b) Guinea pig
 - c) Frog
 - d) Rabbit
- 5) Among the following which animal's life span is more?
 - a) Mouse
 - b) Rat
 - c) Guinea pig
 - d) Rabbit
- 6) Which of the following blood collection techniques does not require anaesthesia in animals?
 - a) Tail snip in mice
 - b) Orbital sinus in rats & mice
 - c) Cardiac puncture in rats, mice, guinea pigs & rabbit.
 - d) Dorsal pedal vein in rat & mice.
- 7) The technique of separation of skull and brain from the spinal cord by applying pressure posteriorly to the base of skull is known as:
 - a) Cervical dislocation
 - b) Pithing
 - c) Stunning
 - d) Maceration
- 8) How much volume of injection is recommended at each site by intradermal drug administration in animals.
 - a) <0.5 ml/site
 - b) >0.5 ml/site
 - c) Up to 0.8 ml/site
 - d) 1-2 ml/site
- 9) Recommended volume for oral administration to guinea pigs is _____.
 - a) Up to 5 ml/kg
 - b) 1-10 ml/kg
 - c) 5-10 ml/kg
 - d) Up to 15 ml/kg

- 10) Which of the following techniques is used in terminal blood collection in animals?
- a) Tarsal vein puncture
 - b) Tail vein puncture
 - c) Cardiac puncture
 - d) Marginal ear vein puncture
- 11) Which of the following methods is not a physical method of euthanasia?
- a) Stunning
 - b) Cervical dislocation
 - c) Pithing
 - d) Overdose of inhalant anaesthetics.
- 12) Radiant heat, physical pressure and irritant chemicals are used to induce _____.
- a) Inflammation in the animals
 - b) Convulsion in the animals
 - c) Pyrexia in the animals
 - d) Pain in the animals
- 13) Which of the following methods is NOT used for screening central analgesic activity?
- a) Tail flick or other radiant heat methods
 - b) Tail immersion test
 - c) Randall-Selitto test
 - d) Hotplate method
- 14) The convulsive effect of PTZ is considered to be analogous with _____.
- a) Absence seizures
 - b) Tonic seizures
 - c) Atonic seizures
 - d) Myoclonic seizures
- 15) Identify the GABA-synthesis inhibitor used to induce convulsion in animals.
- a) Pentylenetetrazole
 - b) Isoniazid
 - c) Strychnines
 - d) Maximal Electro-shock
- 16) A plethysmometer is a simple apparatus designed to measure _____.
- a) Small change in the volume of organs
 - b) Degree CNS stimulation
 - c) Degree of analgesia
 - d) Degree of muscle relaxation.
- 17) Which of the following drugs produces Miotic action on the Eye pupil?
- a) Atropine
 - b) Phenylephrine
 - c) Tropicamide
 - d) Pilocarpine
- 18) Shay rats are used in screening drugs for _____ actions.
- a) Antidepressant
 - b) Anti-inflammatory
 - c) Anti-ulcer
 - d) Analgesic
- 19) Rota rod apparatus is used for screening _____ properties of drugs.
- a) Analgesic
 - b) Local anaesthetic
 - c) Skeletal muscle relaxant
 - d) Sedative and hypnotic
- 20) Which apparatus is used for screening central nervous system stimulant activity?
- a) Rota rod apparatus
 - b) Actophotometer
 - c) Eddy's hot plate
 - d) Plethysmometer

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

- a) Write the recommendations of CPCSEA in selecting animals for the preclinical study.
- b) Explain the different techniques of blood sample collection from experimental animals.
- c) Describe the methods used for screening skeletal muscle relaxant activity of drugs.
- d) What are models used for screening antiepileptic drugs?
- e) Write a note on rat as an experimental animal.
- f) Give the procedure for testing the mydriatics and miotics effect of drugs on rabbit eyes.
- g) Write the screening models used for anti-inflammatory drugs.
- h) Preclinical screening model for diuretic activity.
- i) Explain any one screening model used for centrally acting analgesic activity.

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

- a) Write the preclinical screening models for antiulcer activity.
- b) Explain the different screening models used for antidiabetic activity.
- c) CPCSEA guidelines for sanitation and cleanliness for laboratory animal facilities.

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**B. Pharmacy (Semester - VIII) (CBCS) Examination: Oct/Nov-2023
Pharmacovigilance (801806)**

Day & Date: Saturday, 06-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) Pharmacovigilance course is continued throughout the _____.
 - a) Pre marketing Surveillance
 - b) Post marketing Surveillance
 - c) Both A & B options
 - d) Only B option
- 2) Which of the following condition is most at risk of suffering from an adverse drug reaction?
 - a) A 22-year-old patient with asthma receiving prescriptions for inhalers to relieve and prevent their asthma
 - b) An 8-month year old infant receiving a prescription for an antibiotic.
 - c) A 48-year-old patient who has hypertension and receives a prescription for an ACE inhibitor.
 - d) A 68-year-old patient who has oedema receiving a prescription for a diuretic.
- 3) _____ is applied to spontaneous reporting system.
 - a) Blue Card Scheme
 - b) Green Card Scheme
 - c) Yellow Card Scheme
 - d) Orange Card Scheme
- 4) _____ is a web-based individual case safety report (ICSR) management system.
 - a) WHODD
 - b) VigiBase
 - c) VigiAccess
 - d) VigiFlow
- 5) _____ is the process to make antibodies against antigens of pathogens.
 - a) Vaccination
 - b) Immunization
 - c) Attenuation
 - d) None of the above
- 6) _____ is a genetically determined adverse drug reactions.
 - a) Teratogenicity
 - b) Carcinogenicity
 - c) Both A and B options
 - d) None of the above
- 7) The initiation of ICH took place with representatives of regulatory agencies of _____.
 - a) Japan, Australia, US
 - b) Europe, Australia, US
 - c) US, Europe, India
 - d) US, Europe, Japan
- 8) _____ assigned by United States adopted council.
 - a) Chemical name
 - b) Proprietary name
 - c) Nonproprietary name
 - d) None of the above

- 9) _____ is a statistical measure of drug consumption.
- Daily defined dose
 - Essential drug concept
 - Anatomical therapeutic classification
 - Adverse events following immunization process
- 10) Which of the following guideline is used in electronic transmission of individual case safety reports?
- ICH E2B (R₃)
 - ICHE2B(R₂)
 - ICH E1
 - ICHE3
- 11) _____ is used to identify common indications for drug-drug interactions.
- Daily defined dose
 - Essential drug concept
 - Anatomical therapeutic classification
 - Adverse events following immunization process
- 12) The purpose of preclinical testing is _____.
- To undergo preliminary testing in healthy humans to monitor the effects of the drug.
 - To create a basic outline for the larger scale future tests on a widespread population
 - To develop method of drug analysis
 - To verify that a drug is sufficiently safe and effective to be tested in humans
- 13) _____ drug is usually avoided with breastfeeding.
- Ibuprofen
 - Methotrexate
 - Propranolol
 - Naproxen
- 14) _____ is an example of latent adverse drug reactions.
- Tardive dyskinesia
 - Severe bronchoconstriction
 - Serum sickness
 - Antibiotic-associated diarrhea
- 15) WHO-ART has _____ level hierarchical structure.
- 5
 - 7
 - 11
 - 4
- 16) Indian Pharmacovigilance system is regulated by _____.
- Council of Scientific and Industrial Research
 - Central Drugs Standard Control Organization
 - Indian Council of Medical Research
 - National Institutes of Health
- 17) Which of the following is type of comparative observational study?
- Case control study
 - Cohort study
 - Cross-sectional study
 - Crossover study
- 18) To date, there are _____ CIOMS working groups.
- XI
 - XII
 - XIII
 - X
- 19) Type E adverse drug reaction is _____.
- An unexpected failure of therapy reaction
 - A withdrawal reaction
 - A dose-related reaction
 - An expected failure of therapy reaction

- 20) Naranjo scale method of causality assessment is _____.
a) Global introspection b) Algebraic Method
c) probabilistic method d) Algorithmic method

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

- 1) Give an exhaustive account of the Periodic safety updated report.
- 2) Write a note on the anatomical, therapeutic, and chemical classification of drugs.
- 3) Define Adverse drug reaction, discuss the causality assessment methods.
- 4) Discuss the adverse events following immunization process
- 5) Summarize good clinical practice in pharmacovigilance studies.
- 6) Explain the drug safety evaluation process in pregnancy and lactation.
- 7) Describe the schedule Y guidelines.
- 8) Differentiate cross-sectional study and case-control study.
- 9) Discuss management of adverse drug reactions.

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

- 1) Explain in detail WHO-DD and MedDRA dictionary.
- 2) Discuss CIOMS I to VI Working groups and their contribution to pharmacovigilance.
- 3) Describe active and passive surveillance methods.

Seat No.	
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**B. Pharmacy (Semester - VIII) (CBCS) Examination: Oct/Nov-2023
Cosmetic Science (801810)**

Day & Date: Tuesday, 09-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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 bacteria associated with dental cavities?
 - a) *Streptococcus mutans*
 - b) *Lactobacilli*
 - c) *Streptococcus Sobrinus*
 - d) All of above
- 2) Cyclomethicone is example of _____.
 - a) Surfactant
 - b) Emollient
 - c) Preservative
 - d) None of these
- 3) Prickly Heat is also known as _____.
 - a) Miliaria rubra
 - b) Hot Heat
 - c) Moist Heat
 - d) Acne
- 4) Following is not the preservative.
 - a) Methyl paraben
 - b) Phenol
 - c) Butyl paraben
 - d) Magnesium stearate
- 5) Syndet bars are cleansing bars that contain soap _____.
 - a) Less than 25%
 - b) Less than 30%
 - c) Less than 10%
 - d) None of the above
- 6) TEWL stands for _____.
 - a) Tetraethylene water loss
 - b) Total level of water loss
 - c) Transepidermal water loss
 - d) All of above
- 7) Causes of Hair loss are, _____ except.
 - a) Excessive shedding
 - b) Thyroid gland
 - c) Alopecia areata
 - d) High protein diet
- 8) _____ gland is also called as Scent gland.
 - a) Eccrine gland
 - b) Apocrine gland
 - c) Both a and b
 - d) None
- 9) Following country has a specific category of products that are in between cosmetics and drugs called quasi drugs.
 - a) India
 - b) Russia
 - c) Japan
 - d) Turkey
- 10) Body odour is due to presence of _____ type of acid.
 - a) Formic acid
 - b) Propionic acid
 - c) Both a and b
 - d) None
- 11) The Bureau of Indian Standards Act was passed by the Parliament in the year ____
 - a) 1992
 - b) 1986
 - c) 1948
 - d) 1952

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**B. Pharmacy (Semester - VIII) (CBCS) Examination: Oct/Nov-2023
Quality Control and Standardization of Herbals (801807)**

Day & Date: Thursday, 11-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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 hemolytic property.
 - a) Liquorice
 - b) Qualia
 - c) Rita
 - d) All of the above
- 2) The cGMP of Herbal Drugs is a Part of _____.
 - a) Quality
 - b) Quality Control
 - c) Quality Assurance
 - d) Manufacturing
- 3) Quality systems involves _____ system of the following?
 - a) Cleaning
 - b) Designing
 - c) Production
 - d) Evaluation
- 4) Stability testing drug is necessary to determine _____.
 - a) Effectiveness
 - b) Potency
 - c) Drug interaction
 - d) Shelf life
- 5) Analytical Validation comes under _____ guidelines.
 - a) Q1
 - b) Q2
 - c) Q3
 - d) Q4
- 6) _____ What is the full form of ICH.
 - a) International conference on harmonization
 - b) international council of harmonization
 - c) Importent counters of harmonization
 - d) Internal conference on harmony
- 7) Test parameters used in evaluation of herbal products and cosmetics are _____.
 - a) Micro biological testing
 - b) Dissolution test
 - c) Test for heavy metal
 - d) All of the above
- 8) Schedule T relates with _____ of herbal medicines.
 - a) GAP
 - b) GMP
 - c) GACP
 - d) GLP
- 9) Purity of herbal sample is determined by _____.
 - a) Boiling point
 - b) Assay
 - c) Spectroscopy
 - d) None
- 10) ICH was incepted in the year _____.
 - a) 1990
 - b) 1991
 - c) 1992
 - d) 1993
- 11) Which is not chromatographic technique ____?
 - a) TLC
 - b) HPTLC
 - c) Mass
 - d) HPLC

- 12) Definition of crude drug in the pharmacopoeia _____.
a) Plant part used in medicine
b) Plant part containing the highest content of the bioactive characteristic compounds.
c) Dried part of the medicinal plant.
d) Plant part of its preparations described in the paragraphs of the Pharmacopoeia
- 13) Which licensing authority grant permission to manufacture of new phytopharmaceutical in India.
a) Ministry of health and family welfare
b) ministry of Human resource development
c) Drug Controller General of India
d) Ministry of AYUSH
- 14) Labeling of Herbal preparation should contain the following information.
a) Date of manufacture and batch no
b) Name of drug and quantity
c) The name, address of manufacture and license
d) All of the above
- 15) The principle of separation of HPTLC is _____.
a) Adsorption
b) Absorption
c) Attraction
d) None
- 16) which of the following technique is most useful in standardization?
a) NMR
b) Adsorption
c) Gel chromatography
d) HPTLC
- 17) Palisade ratio is _____.
a) Total number of palisade cells beneath each upper epidermal cell
b) Total number of palisade cells beneath mesophyll
c) Average number of palisade cells beneath each upper epidermal cell
d) None
- 18) Which chemical test is used to confirm Glycoside _____?
a) Raymonds test
b) Dragendroff's test
c) Libermann-Burchard test
d) Benedicts test
- 19) The use of Opium plant requires specific license under which of the following act _____.
a) Medicinal & Toilet Preparations Act
b) Drugs & Magic Remedies Act
c) Drugs and Cosmetic Act
d) Narcotic Drug and Psychotropic substance act
- 20) Optical rotation is measured by _____.
a) Viscometer
b) Opticometer
c) Polarimeter
d) Microtome

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

- a) Write the role of chemical and biological markers in evaluation of herbal medicines.
- b) Brief the guidelines on safety monitoring of herbal medicines.
- c) Note on importance of Pharmacovigilance system in herbal medicine.
- d) Write the general requirements of GMP as per D&C Act.
- e) How do you evaluate the commercial herbal raw materials intended for medicinal use?
- f) Write the Research guidelines for evaluating the safety of herbal medicines.
- 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.
- b) Write in detail WHO Guidelines on GACP for medicinal plants.
- c) Explain various Regulatory requirements for Herbal medicines in India.

Seat No.	
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**B. Pharmacy (Semester - VIII) (CBCS) Examination: Oct/Nov-2023
Pharmaceutical Regulatory Science (801805)**

Day & Date: Thursday, 11-01-2024
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple Choice questions. 20

- 1) Biological Products are licensed exclusivity rights for the period of _____ years.
 - a) 12
 - b) 13
 - c) 14
 - d) 15
- 2) Manufacture for sale and distribution application to CDSCO made through form _____.
 - a) 24
 - b) 44
 - c) 46
 - d) 40
- 3) The concept of generic drug includes _____.
 - a) Line Extension
 - b) Retargeting
 - c) New Product
 - d) All of the above
- 4) Orphan drug exclusivity lasts for _____ years.
 - a) 20
 - b) 11
 - c) 12
 - d) 07
- 5) Numbers of volunteers used in phase I clinical trials are _____.
 - a) 20-100
 - b) 20-300
 - c) 300-3,000
 - d) 25-30
- 6) Japanese regulatory body is / are _____.
 - a) MHLW
 - b) PMDA
 - c) Both A and B
 - d) None of the Above
- 7) EDMF or ASMF Consist of _____ parts.
 - a) 4
 - b) 5
 - c) 3
 - d) 2
- 8) Common Technical Document was developed by _____.
 - a) WHO
 - b) ICH
 - c) CDSCO
 - d) FDA
- 9) To export Pharmaceutical Products to other countries, an exporter has to apply to.
 - a) Drug Controller General of India
 - b) Health Ministry
 - c) State Licensing Authority
 - d) Director General of Foreign Trade
- 10) Document mandatory to enrol subjects/ Volunteers in clinical research study is _____.
 - a) Protocol
 - b) Informed Consent
 - c) Case report Form
 - d) none of the above

- 11) Which of the following Country is not part of ASEAN-CTD?
 - a) Vietnam
 - b) Bangladesh
 - c) Cambodia
 - d) Singapore
- 12) The _____ series of 21 CFR involves everything from labeling to research of cosmetics.
 - a) 500
 - b) 600
 - c) 700
 - d) 800
- 13) Contents of orange book include _____.
 - a) Pharmaceutical Equivalent
 - b) Bioequivalent drug product
 - c) Therapeutic Equivalent
 - d) All of the above
- 14) Australian regulatory body is _____.
 - a) TGA
 - b) MHRA
 - c) EMA
 - d) CDSCO
- 15) As per ANDA requirements the bioequivalence of test to reference formulation is _____.
 - a) 80-120%
 - b) 100-150%
 - c) 70-130%
 - d) 70-80%
- 16) Animal Studies and Clinical Trials are part of which applications?
 - a) IND
 - b) NDA
 - c) Both A and B
 - d) None of the Above
- 17) Initial Screening identifies a potential target. What is the next phase?
 - a) Target Validation
 - b) Lead Optimization
 - c) Pre-clinical trials
 - d) Non-clinical trials
- 18) When does a company seek permission to market a product in the US?
 - a) Following the completion of Phase 1
 - b) Following the completion of Phase 2
 - c) Following the completion of Phase 3
 - d) Following the completion of Phase 4
- 19) Purple book contains which type of product?
 - a) Bio similar
 - b) Interchangeable biological products
 - c) Both A and B
 - d) None
- 20) Import of new drug application made through form _____.
 - a) 44
 - b) 24
 - c) 43
 - d) 46

Q.2 Answer any seven of the following questions.

35

- a) Explain in brief about chapters of CFR title 21.
- b) Add a note on Preclinical research in drug development process.
- c) Describe the organizational structure of CDSCO.
- d) What is IEC number? What are the different requirements to obtain IEC number?
- e) What is DMF? Elaborate parts of DMF.
- f) Discuss safety monitoring in clinical trials.
- g) What is GCP Obligations? List them.
- h) Explain in detail requirement for registration of Indian drug in overseas market.
- i) Differentiate between Innovators and generic drug product.

Q.3 Answer any two of the following questions.

- a)** What are the stages of drug discovery? Discuss them in detail.
- b)** What is CTD? Explain in detail modules of CTD.
- c)** Discuss in detail Clinical Trial Protocol along with its applications.