Seat No.	

Set P

B. Pharm. (Semester - III) (New) (CBCS) Examination: March/April – 2025
Pharmaceutical Organic Chemistry - II (801301)

Day & Date: Friday, 23-05-2025 Max. Marks: 75
Time: 2:30 PM To 05:30 PM

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

Q.1 Multiple choice question: **20**

1) Electrophilic aromatic substitution reaction of Phenanthrene takes place at ____ position.
a) Beta b) Alpha
c) 9,10 d) Gamma

2) Which of following substituent decreases the basicity of aromatic amines?
a) COOH b) NO_2
c) CHO d) All of the above

3) Benzene on birch reduction by using ____ gives 1,4-dihydrobenzene (partial reduction).
a) Na/liq ammonia, ethanol b) Na/ethanol
c) H_2/Ni d) Al/ liq Ammonia

4) ____ theory explain about nonplanar puckered conformations of cycloalkanes.
a) Baeyer strain b) Sachse Mohr's
c) Coulson Moffitt d) Raman

5) Which of the following functional group is an electron donating group?
a) OR b) OH
c) CH_3 d) All of the above

6) According to the Huckel rule, 'n' value for naphthalene ring is ____.
a) 1 b) 2
c) 3 d) 4

7) Salicylaldehyde is produced from phenol by ____ reaction.
a) Kolbe b) Fries
c) Reimer Tiemann's d) Cumene

8) Diazonium salt is prepared at ____ °C.
a) 30-35 b) 0-5
c) 25-30 d) 20-25

9) Benzoic acid on treatment with ethanol in presence of mineral acid produce ____.
a) Ethyl benzoate b) ethyl Toluene
c) ethyl Xylene d) Methyl benzoate

10) Benzene on birch reduction gives _____.
a) Cyclohexane b) Cyclohexatriene
c) 1,4 dihydrobenzene d) 1,2-dihydrobenzne

11) Cyclopropames are prepared from ____.
a) Esters of dicarboxylic acids
b) Dihalogen compounds
c) Dickemann reaction
d) All of the above

12) ____ explained about angle strain that affect the stability of the ring.
a) Baeyer b) Coulson & Moffitt
c) Sachse-Mohr d) Kekule

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

14) Aromatic amines are less basic than ____.
a) Aliphatic amine b) Ammonia
c) Both a & b d) HNO_3

15) Find incorrect statement about oils from the following options.
a) Saturated triglycerides b) Low M.P.
c) Liquid at R.T. d) Unsaturated triglycerides

16) 9,10 Phenanthraquin one on treatment with base undergo rearrangement reaction.
a) Hoffmann b) Beckmann
c) Benzilic acid d) Fries

17) Acid value of given oil is determined by ____ formula.
a) 28.05/(b-a) b) 5.61n/w
c) 1.269/(b-a) d) 28.05n/w

18) Which of the following group is not deactivating group?
a) NH_2 b) OH
c) R d) All of the above

19) Which of the following are an example of unsaturated fatty acids?
a) Linolenic acid b) Linoleic acid
c) Oleic acid d) All of the above

20) Naphthalene on treatment with chromium trioxide/acetic acid gives ____.
a) 1,4-Naphthaquinone b) Phthalic acid
c) 1,2-Naphthaquinone d) Phthalic anhydride

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

a) Give an account on Acetyl Value.
b) Write the structures & uses of BHC and 1-Naphthol.
c) Discuss activating & deactivating groups of benzene.
d) Write methods of synthesis of Phenanthrene.
e) Write a note on acidity of phenols with suitable examples.
f) Elaborate on Naphthalene undergo electrophilic aromatic substitution reaction in alpha position.
g) Write reactions of fats & oils.
h) Elaborate on Sachse Mohrs Theory.
i) Write any three methods of preparation of aromatic carboxylic acids. Discuss with suitable examples on acidity of aromatic carboxylic acids.

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

a) Discuss in detail on Iodine value. Write on method of preparations of Cycloalkanes.
b) Write on methods of preparation & reactions of Anthracene.
c) Elaborate on electrophilic aromatic substitution reactions of benzene with its mechanism.

SLR-AE-2

Seat No.	

Set P

B. Pharmacy (Semester - III) (CBCS) Examination: March/April 2025
Physical Pharmaceutics – I (801302)

Day & Date: Tuesday, 27-May-2025 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) Ethanol is added to increase the solubility of poorly soluble drugs by acting as _____.
a) Solvent b) Co-solvent
c) Surfactant d) Solubiliser

2) In Bragg's equation $n\lambda = 2d \sin\theta$, 'n' represents _____.
a) The number of moles
b) The Avogadro's number
c) The principal quantum number
d) The order of reflection

3) If Dissolution of solid in liquid involves positive heat of solution (endothermic), then rise in temperature leads to _____ in solubility.
a) Increases b) Decreases
c) Stops d) Remain constant

4) What kind of liquid crystal consists of parallel molecules in layers?
a) Cholesteric b) Nematic
c) Smectic d) All of these

5) The energy required to break the attraction between the unlike molecules is known as _____.
a) Work of cohesion b) Work of adhesion
c) Surface free energy d) None of above

6) Surface tension decreases with _____ the Temperature.
a) Remain constant
b) Increases
c) Decreases
d) First increases and then decreases

7) Wetting ability of Vehicle can be determined by observing the _____.
a) Critical Angle b) Angle of Repose
c) Interfacial Angle d) Contact Angle

8) The Spreading agents usually have an HLB value in the Ranges _____.
a) 6-9 b) 9-12
c) 7-9 d) 8-18

9) Solubility curve is a curve drawn between _____.
a) Solubility and temperature
b) Solubility and mole fraction
c) Solubility and pressure
d) None of the above

10) Colligative properties are the properties of the solution that depends upon _____.
a) Nature of molecules b) Quality
c) Physical properties d) Number of molecules

11) Normal pH of blood is _____.
a) 7.0 b) 7.2
c) 7.1 d) 7.4

12) Buffer Capacity is the maximum at _____.
a) pKa = pH b) pKa < pH
c) pka = Concentration d) pka > pH

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

14) The substance which rotates plane of polarization of light towards right or clockwise direction are called _____.
a) Levorotatory b) Dextrorotatory
c) Molar refraction d) specific rotation

15) EDTA is example of _____.
a) Unidentate ligand b) Bnidentate ligand
c) Tetradentate ligand d) Hexadentate ligand

16) Protein binding _____ distribution of drugs.
a) Increases b) Prevents
c) Decreases d) None of these

17) Beta cyclodextrin increases the solubility of poorly soluble drug by _____.
a) Cosolvency b) Solubilisation
c) Inclusion complexation d) Chemical modification

18) A liquid boils when its vapour pressure becomes equal to _____.
a) Zero b) Very high
c) Very low d) One atmospheric pressure

19) The occurrence of the same substance in more than one crystalline forms is called as _____.

a) Polymorphism b) Isomerism
c) Recemisation d) None of these

20) HLB range for lipophilic surfactants is _____.

a) 2-9 b) 9-16
c) 16-20 d) Above 20

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

a) Explain the factors affecting on solubility of drug.
b) How does the protein binding influence drug action? Explain with help of two examples.
c) Define and Classify Complexation with suitable example.
d) Enumerate the applications of surfactants in pharmacy.
e) Define pH. Explain Sorensen pH scale.
f) What is Kinetic Molecular Theory? Give its assumptions for Kinetic Molecular Theory.
g) Define refractive Index. Explain the principle and working of Abbe's refractometer.
h) Explain the HLB scale and give its utility in pharmacy.
i) Define polymorphism. Give its applications.

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

a) State and derive Nernst distribution law with its limitations and applications.
b) What is liquefaction of gases? Explain the different methods of liquefaction of gases.
c) Define surface tension and interfacial tension. Enlist different methods for determination of surface and interfacial tension. Explain the method for determination of only surface tension.

SLR-AE-3

Seat No.	

Set P

B. Pharmacy (Semester - III) (CBCS) Examination: March/April - 2025
Pharmaceutical Microbiology (801303)

Day & Date: Thursday, 29-May-2025 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) A facultative anaerobic is _____
a) Only grow anaerobically
b) Only grow in the presence of 02
c) Ordinarily an anaerobe but can grow with 02
d) Ordinarily an aerobe but can grow in absence of 02

2) Temperature required for pasteurization is ____
a) Above 150 °C b) Below 100°C
c) 110 ^{0} C d) None of these

3) Which of the following method of sterilization has no effect on spores?
a) Drying b) Hot air oven
c) Autoclave d) None of these

4) Viruses can be cultivated in _____
a) Lab media b) Broth
c) Living cells d) None of these

5) Optimum growth temperature is greater than 45 °C is _____
a) Mesophiles b) Thermophiles
c) Psychrophiles d) None of these

6) Vitamin B12 can be estimated and determined by using organism _____
a) Lactobacillus sps b) Lactobacillus Leichmanni
c) Bacillus subtiiis d) E.Coli

7) Surface sample method using sterile cotton swab tip to sample location is _____
a) Rodac plate test b) Swab rinse test
c) Biotest d) None of above

8) The order of stains in Gram-staining procedure is _____
a) Crystal violet, Iodine solution, Alcohol, Saffranin
b) Iodine solution, Crystal Violet, Saffranine, Alcohol
c) Alcohol, Crystal Violet, Iodine solution, Saffranin
d) All of these

9) When finite cell line under goes transformation & acquires the ability to divide indefinitely _____
a) Continuous cell line
b) Discontinues cell line
c) Infinite cell line
d) Both b) & c)

10) Flagella consists of _____ Protein
a) Alanine
b) Flagellin
c) Filamentin
d) Pillin

11) The media in which nutritional environment is provided in such a way that growth of certain bacteria is enhanced than other is called _____
a) Sugar media
b) Transport media
c) Enriched media
d) Enrichment media

12) A fully assembled infectious virus is called as _____
a) Micron
b) Prion
c) Virion
d) None of above

13) Citrate utilization test is usually performed on _____
a) Chocolate agar
b) Simmon's citrate agar
c) Nutrient agar
d) MacConkey agar

14) In Electron Microscope source of electrons is from _____
a) Mercury lamp
b) Tungsten metal
c) Both a) and b)
d) None of these

15) Which part of the compound microscope helps in gathering and focusing light rays on the specimen to be viewed?
a) Condenser lens
b) Magnifying lens
c) Objective lens
d) Eyepiece lens

16) Royce Sachet is suitable indicator for _____
a) Formaldehyde
b) B-propiolactone
c) Isopropyl alcohol
d) Ethylene oxide

17) The most accurate method for microbial assay of antibiotics?
a) Measuring Zone of inhibition
b) Measuring Zone of Growth
c) Measuring turbidity
d) Measuring absorbance

18) In Rideal-Walker Test, the strain used is _____
a) Escherichia coli
b) Streptococcus pyogenes
c) Clostridium tetani
d) Salmonella typhi

19) Glycerol may be used as preservative up to a percentage of _____

a) 15 b) 50
c) 10 d) 1

20) Mycology is study of ____

a) Fungi b) Virus
c) Bacteria d) Rickettsia

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

a) Classify disinfectants. Write the mechanism of action and uses of phenolic disintectants.
b) What are the main sources of contamination of an aseptic room? How will you prevent it?
c) How will you validate HEPA filter?
d) Write applications of cell culture.
e) Explain IMVIC tests used for identification of bacteria.
f) Discuss any one method of microbiological assay of antibiotics
g) Discuss contribution of Louis Pasteur in the development of Microbiology.
h) Differentiate between gram positive and Gram negative cell wall.
i) Define Fungi. Classify it on the basis of morphology.

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

a) Define sterilization. Classify different methods of sterilization. Explain moist heat sterilization.
b) Describe steps involved in replication of virus.
c) Describe bacterial growth curve. Add a note on physical factors affecting growth of bacteria.

Seat No.	

Set P

B. Pharmacy (Semester - III) (CBCS) Examination: March/April - 2025
Pharmaceutical Engineering (801304)

Day & Date: Monday, 02-06-2025 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 question: **20**

1) What is the operating mode of size reduction in a roller mill?
a) Attrition b) Compression
c) Impact d) Tearing

2) Fluidized state is NOT used in one of the following equipment
a) Air separator b) Elutriation tank
c) Cyclone separator d) FBD

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

4) The ability of metal surface to withstand repeated cycles of corrosion is called as ____.
a) Cavitation erosion b) Corrosion fatigue
c) erosion d) Stress corrosion cracking

5) Corrosion is high in one of the following media ____.
a) Acidic b) Alkaline
c) Neutral d) Non aqueous

6) Air-tight sealed containers are used for one of the following
a) Capsules b) Injections
c) Ointments d) Tablets

7) In cathodic protection, one of the following effects is suppressed
a) Dissolution of anode b) Dissolution of cathode
c) Dissolution of oxide film d) electric current

8) If a given material is fibrous, which mill is preferred?
a) Rotary cutter mill b) Colloidal mill
c) Fluid energy mill d) Hammer mill

9) Which one of the following bodies radiates maximum amount of energy at a given temperature?
a) Black body b) Gary body
c) Light gray body d) Polished black body

10) What is the purpose of vent in the evaporator?
a) Escape of non-condensable gases
b) Feeding the steam
c) Removing the concentrated product
d) Removing the condensate

11) Raoult's law is applicable in one of the following types of distillation ___
a) Flash distillation
b) Fractional distillation
c) Molecular distillation
d) Simple distillation

12) In clarification process which factor is more important?
a) Depth of the media
b) Pore size of the filter media
c) Surface area of the filter
d) Volume of slurry

13) Which of the following gives direct reading of flow of fluids?
a) Orifice meter
b) Pitot tube
c) Rotameter
d) Venturi meter

14) Phenolic plastics are one of the following types
a) Cement
b) Flexible
c) Metallic
d) Rigid

15) Which filter is known as edge filter?
a) Cartidge filter
b) Filter leaf
c) Filter press
d) Meta filter

16) Which liquid substance distill first among the following?
a) Benzene
b) Glycerin
c) Phenol
d) Toluene

17) The rate of evaporation decreases with increasing:
a) Atmospheric pressure
b) Surface area
c) Temperature
d) None of the above

18) Beyond the equilibrium moisture content, the drying rate is equals to:
a) One
b) Two
c) Three
d) Zero

19) In which dryer, final container such as single dose multi dose vials are dried?
a) Fluidized bed dryer
b) Freez dryer
c) Tray Dryer
d) Vacuum dryer

20) What is the unit of pressure energy in hydraulics?
a) Joules
b) Kgm/s^2
c) Meter
d) Pascal

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

1) Describe physical factors influencing selection of materials for plant construction
2) Give pharmaceutical applications of centrifugation
3) Define the terms: - Black body, Clarification, Fluid flow, Raoult's law, Calandria
4) Draw well labeled diagram of Multiple effect evaporator (MEE)
5) Write a note on cyclone separator
6) Explain mechanism of solid-solid mixing
7) Describe the specifications of standard sieves as per I.P.
8) Give applications of heat transfer
9) Write merits and demerits of double cone blender.

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

1) Give construction and working of FBD with suitable diagram.
2) Write principle of Flash Distillation. Discuss its construction and working with Diagram.
3) Derive Bernoulli's equation stating its assumptions.

Seat No.	

Set **P**

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April 2025
Pharmaceutical Organic Chemistry – III (801401)

Day & Date: Saturday, 24-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Dakin reaction involves migration of _____ Group.
a) Alkyl b) Hydroxy
c) Aryl d) Ester

2) _____ is defined as molecules having same molecular formula but different physical and chemical properties.
a) Isomerism b) Enantiomerism
c) Diastereorism d) Optical isomerism

3) _____ Isomerism is defined as spatial arrangement of atom or groups about carbon carbon double bond.
a) Functional b) Structural
c) Geometrical d) Positional

4) Optically active molecule which rotate plane polarized light in clockwise direction is _____.
a) Levorotatory b) R-Configuration
c) Dextrorotatory d) S-Configuration

5) Count the number enantiomers for 2-bromo-3-hydroxybutanedioic acid molecule.
a) One b) Two
c) Three d) four

6) Conversion of benzophenone oxime to benzanilinde in presence of PCI5 is _____ Rearrangement reaction.
a) Hoffmann b) Beckmann
c) Schmidt d) Claisen-schmidt

7) The final product of a _____ reaction depends on the stereochemistry of the reactant.
a) Stereospecific b) Stereoselective
c) Regioelective d) Opticalspecific

8) 1,3-dicarbonyl compound on treatment with _____ In presence of acid catalyst gives pyrazole.
a) Thiourea b) Urea
c) Amide d) Hydrazine

9) Skraup synthesis is not used for synthesis of _____.
a) Isoquinoline b) Quinoline
c) Indole d) Both a & b

10) The d & 1 configuration is used to designate _____ of a chiral molecule.
a) specific rotation b) optical rotation
c) Both A & B d) None of the above

11) The group with highest priority in according to CIP rules _____.
a) -CBr3 b) -C ≡ O
c) -C = N d) None

12) Which of the following instrument is not used to determine the optical rotation of the substance.
a) Conductometer b) Refractometer
c) Potentiometer d) All of the above

13) The complete saturated form of Pyrrole is known as _____.
a) Pyrroline b) Dihydropyrrole
c) Pyrrolidine d) None of the Above

14) Which of the following is not a method of resolution of Racemic mixture _____.
a) Mechanical separation b) Biochemical Method
c) Chemical method d) Steric method

15) 1-propanol & 2-propanol is an example of _____ isomerism.
a) Functional b) Positional
c) Metamer d) Stereoisomer

16) Electrophilic Substitution reaction occurs in isoquinoline at _____.
a) Position 2 and 4 b) Position 3 and 5
c) Position 5 and 8 d) Position 4 and 6

17) If movement of the priority order given for atoms or groups i.e. 1,2,3,&4 is clockwise, configuration assigned to the molecules is _____.
a) R b) S
c) D d) L

18) _____ are the different conformations of cyclohexane.
a) Chair b) Boat
c) Twist boat & half chair d) all of the above

19) Pyrrole shows electrophilic substitution reaction mainly at _____.

a) Position 4 or 6 b) Position 2 or 5
c) Position 1 or 3 d) None of above

20) Which of the following heterocylic compounds undergo Diels-Alder reaction.

a) Furan b) Oxazole
c) Both A & B d) Pyrrole

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

a) Elaborate on method of preparations of Quinoline.
b) Elaborate on LiAlH4 and Birch reduction reaction.
c) Discuss conformational isomers in n-Butane.
d) Write any two methods of synthesis of Thiazole. Write any three reactions of it.
e) Write a note on any three methods of resolution of racemic mixture.
f) Explain reaction and mechanism of Schmidt rearrangement.
g) Write synthesis, reaction and medicinal uses of Furan.
h) Write synthesis, reaction and medicinal uses of Imidazole.
i) Define terms Enantiomers & Diastereomers with suitable example.

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

a) Explain Beckmann rearrangement and Oppenaeur oxidation with mechanism.
b) Discuss with suitable examples different methods of determination of geometrical isomers. Describe R&S nomenclature of enantiomers with suitable examples.
c) Write synthesis, reactions and medicinal uses of Acridine.

SLR-AE-6

Seat No.	

Set P

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April - 2025
Medicinal Chemistry –I (801402)

Day & Date: Monday, 26-05-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice question: **20**

1) Accumulation of ionized drug in the compartment of body is known as ____.
a) Ion Tapping b) Molar refractivity
c) Isomerism d) Complexation

2) Which of the following enzyme is involved in glucoronidation reaction _____.
a) UDP glucoronyl transferase b) UDP-G pyrophosphate
c) Glucoronidase d) All of the above

3) Which of the following reaction is not a Phase -I reaction ____.
a) Reduction of Ketones b) Conjugation to alcohol
c) Oxidation of alkyl group d) Ester hydrolysis

4) ____ is chemical messenger in adrenergic receptor.
a) Acetyl choline b) Noradrenaline
c) Serotonin d) All of above

5) Propranolol is useful in ____.
a) Asthma b) Anesthesia
c) Atropine poison d) Ventricular Tachycardia

6) ____ is an direct acting drug.
a) Noradrenaline b) Adrenaline
c) Isoprenaline d) All of above

7) ____ amino acid require for the synthesis of Noradrenaline.
a) Phenyalanine b) Valine
c) Lucine d) All of the above

8) ____ is an α - adrenergic blocker drug.
a) Tolazoline b) Noradrenaline
c) Adrenaline d) Propranolol

9) ____ is an β - adrenergic locker drug.
a) Atenolol b) Adrenaline
c) Clonidine d) Tolazoline

10) The main site of metabolism is ____.
a) Liver b) Lung
c) Intestine d) Kidney

11) ____ act as long-acting barbiturate.
a) Phenobarbital b) Pentobarbital
c) Secobarbital d) Thiopentone

12) Antionvulsant drug open ____ channels and produce action.
a) Na^+ b) CI^-
c) K^+ d) All of above

13) ____ contain phenanthrene nucleus.
a) Morphine b) Codeine
c) Noscapine d) a & b

14) Morphine has higher affinity towards ____ receptor.
a) μ_1 b) k
c) μ_2 d) ɗ

15) ____ is volatile liquid anesthetic drug.
a) Ether b) Nitrous oxide
c) Cuclopropane d) All of above

16) ____ is 1st morphine antagonistic agent.
a) Nalorphine b) Heroin
c) Etorphine d) Ethylmorphine

17) ____ changes in morphine nucleus to produce heroin.
a) Phenolic OH b) phenolic & Alcoholic OH
c) Alcoholic OH d) None of above

18) Barbiturates are a derivative of ____
a) Urea b) Ethyl alcohol
c) Opium d) None of these

19) ____ is pheno thiazine derivative.
a) Promazine b) Chiorpromazime
c) Trflupromazine d) All of the above

20) ____ selechive cox-2 inhibitors.
a) Indomethacin b) Aspirin
c) Sulindac d) Celecoxid

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

a) Classify NSAID and explain salicylic acid derivative drug.
b) Write a note on β- blocker drugs.
c) Classify hypnotic & sedative drug and explain MOA of it.
d) Explain in detail various physicochemical properties related to drug action.
e) Classify Sympathomimetic agents and explain SAR of Direct acting agents.
f) Note on choline esterase inhibiter drugs.
g) Write synthesis and uses of Diazepam and Dicyclomine Hcl.
h) Write in detail adrenoreceptor.
i) Classify general anesthetic drug explain with any two examples.

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

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

Seat No.	

Set P

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April - 2025
Physical Pharmaceutics –II (801403)

Day & Date: Friday, 30-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice question. **20**

1) The presence of the double layer in colloids accounts for
a) kinetic properties b) electrical properties
c) optical properties d) stability of colloids

2) A maximum sedimentation volume will be obtained when zeta potential is _____.
a) negative b) positive
c) neutral d) zero

3) The _____ the gold number of hydrophilic colloids, the greater is its protective power.
a) Higher b) Lower
c) Constant d) none of the above

4) A true density of powder can be determined by using _____.
a) Helium displacement method
b) liquid displacement method
c) both a and b
d) Coulter counter

5) Thixotropic behavior is shown by the gel _____.
a) Bentonite b) Pectin
c) Silica d) Starch

6) Stokes' law cannot be used, if Reynolds number is more than _____.
a) 2 b) 20
c) 1 d) 18.0

7) In antithixotropy, the down-curve is frequently positioned to: (with respect to up- curve)
a) Left b) Origin
c) Superimposable d) Right

8) Breaking of emulsion is _____.
a) Irreversible b) Reversible
c) partially reversible d) both a and b

9) Viscosity of liquid is a measure of
a) repulsive forces between the liquid molecules
b) frictional resistance
c) intermolecular forces between molecule
d) none of the above

10) Which of the following is NOT a method for determination of order of reaction?
a) graphic method
b) substitution method
c) Doppler's method
d) Half-life method

11) Flocculated suspension exhibits the flow of a type
a) Dilatant
b) Newtonian
c) Plastic
d) Pseudoplastic

12) Andersen apparatus consists of
a) Balance
b) Electrode
c) Pipette
d) Hydrometer

13) Which of the following reaction is observed in the degradation of ampicillin?
a) Decarboxylation
b) Hydrolysis
c) Oxidation
d) Racemization

14) _____ particles per second can be counted by coulter counter apparatus
a) 400
b) 800
c) 4000
d) 8000

15) The curve for a plastic material in rheogram _____
a) starts at the origin
b) do not start at the origin
c) starts at a top
d) all of the above

16) An emulsion within an emulsion is designated as
a) o/w/w
b) w/o/o
c) w/o/w
d) w/o/o/w

17) Under ultramicroscope colloid particles appear as
a) Bright specks against dark background
b) concentric ring
c) Dark speaks against bright background
d) fluorescent specks

18) The sol of ferric chloride moves to the negative electrode then the colloidal particles carry
a) No charge
b) positive charge
c) negative charge
d) none of these

19) _____ is the concentration of globules at the top or bottom of the emulsion.

a) Creaming b) Cracking
c) phase inversion d) Coalescence

20) The continuous rapid zig-zag movement executed by a colloidal particle in a dispersion medium is called

a) Tyndall effect b) Brownian movement
c) Electrophoresis d) Peptization

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

1) Define zero-order reaction. Elaborate the method for determination of the order of reaction.
2) What is creaming in emulsions? How is it prevented in pharmaceutical emulsions?
3) Define Specific surface area. Describe the air permeability method for the determination of the surface area of a powder
4) Enlist the derived properties of the powder. Explain any one method for determination of true density.
5) Write the importance of Stokes' law of sedimentation in suspension
6) What are bulges and spurs? Explain in brief negative thixotropy
7) Describe the experimental method for determining the zeta potential of colloids
8) Explain DLVO theory with energy curves. How this theory is applied in stabilizing the colloidal dispersion
9) Describe polymorphism. Explain in detail the influence of temperature on drug decomposition.

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

1) Enlist various methods for particle size determination. Write in detail about optical microscopy and conductivity methods.
2) What is a colloid? Explain in detail various kinetic properties of colloid.
3) Explain the Newtonian flow type with rheogram, mechanism, and suitable examples.

Seat No.	

Set P

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April - 2025
Pharmacology –I (801404)

Day & Date: Monday, 02-June-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice question. **20**

1) Acidic drugs bind to the _____.
a) Albumin b) Alpha acid glycoprotein
c) Globulin d) Thrombin

2) Which of the following drug is an example of atypical antipsychotic drug?
a) Haloperidol b) Chlorpromazine
c) Thiothixene d) Clozapine

3) Phase 0 is also called as _____.
a) Post Marketing Surveillance
b) Therapeutic Exploratory Trial
c) Therapeutic Confirmatory Trial
d) Micro-dosing Study

4) Agonist drug is having affinity and _____.
a) Potency b) Efficacy
c) Variability d) Safety

5) _____ drug used in the treatment of glaucoma to increase trabecular outflow.
a) Acetazolamide b) Pilocarpine
c) Timolol d) Betaxolol

6) Which of the following muscle relaxant drugs block neuromuscular junction?
a) Centrally acting b) Intermediate acting
c) Peripherally acting d) None of the above

7) _____ a rapid and short-term onset of drug tolerance.
a) Tolerance b) Idiosyncrasy
c) Addiction d) Tachyphylaxis

8) _____ drug excreted in saliva.
a) Atropine b) Caffeine
c) Acetylcholine d) Adrenaline

9) Steroid receptor is an example of _____ type of receptor.
a) Ion channel b) Enzyme linked
c) Nuclear d) G-protein coupled

10) The location of betal receptor is _____.
a) Heart b) Lungs
c) Adipose tissue d) Liver

11) _____ is a chemical messenger regulating mood, memory, behavior.
a) Dopamine b) Noradrenaline
c) Serotonin d) Glutamate

12) _____acts as a non-depolarizing competitive antagonist at nicotinic acetylcholine receptors.
a) D-tubocurarine b) Neostigmine
c) Amantadine d) Strychnine

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13) Which of the following drug is used to treat manic-depressive disorder?
a) Carbamazepine b) Lithium carbonate
c) Risperidone d) Haloperidol

14) _____is glutamate (NMDA) receptor antagonist.
a) Tacrine b) Galantamine
c) Memantine d) Ginko biloba

15) _____ is a powerful analgesic that can be used as a pre-anesthetic.
a) Paracetamol b) Mefenamic acid
c) Diclofenac d) Morphine

16) Which of the following drug is long-acting barbiturate?
a) Phenobarbitone b) Amobarbitone
c) Thiopental sodium d) Hexobarbitone

17) ____ dose response curve shows all or none effect.
a) Graded b) Quantal
c) Both A and B d) None of the above

18) cAMP is an example of _____ messenger.
a) Primary b) Secondary
c) Tertiary d) Quaternary

19) Which of the following drug is an example of enzyme inducer?
a) Phenytoin b) Captopril
c) Aspirin d) Sildenafil

20) Depot injection can be given by _____ route.
a) Intravenous b) Oral
c) Intramuscular d) Sublingual

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

1) Explain in detail about phase1 and phase2 reaction.
2) Write the pharmacological actions of acetylcholine.
3) Describe nature and sources of drugs.
4) Discuss about parkinsonism, classify antiparkinsonism agent.
5) Give a short note on local anesthetic agents.
6) Write a note on sedative and hypnotic drugs.
7) Explain drug-drug interaction and adverse drug reaction process.
8) Describe the factors affecting drug absorption.
9) Discuss about CNS stimulant and nootropic drugs.

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

1) Define receptor, write in detail about JAK-STAT and MAPK pathway.
2) Describe cellular transport process in detail.
3) Classify antiepileptic agent, write mechanism of action of phenytoin.

Seat No.	

Set **P**

B. Pharmacy (Semester - IV) (CBCS) Examination: March/April - 2025
Pharmacognosy and Phytochemistry –I (801405)

Day & Date: Wednesday, 4-June-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 multiple choice questions **20**

1) Who is known as Father of Botanical Sciences?
a) Theophrastus b) Aristotle
c) Galen d) Robert Koch

2) Identify qualitative chemical test used for detection of Tannins.
a) Dragendorff's Test b) Liebermann Test
c) Hegar's Test d) Gold Beater's Skin Test

3) When guard cells are surrounded by two epidermal cells at right angles in the stomata, then it is called as _____ stomata.
a) Paracytic b) Anisocytic
c) Anomocytic d) Dicytic

4) Select the correct statement for the unorganized crude drugs.
a) Unorganized crude drugs are solid and liquid in nature.
b) Botanical terminologies can be used to describe unorganized crude drugs.
c) Unorganized crude drugs do not show cellular structure when focused under microscope.
d) Aloe, Acacia and Starch are not the examples of unorganized crude drugs.

5) Identify the correct example of chemical method of classification.
a) Glycosides: Senna, Aloe, Vasaka, Digitalis
b) Tannins: Catechu, Ashoka, Pterocarpus, Amla
c) Alkaloids: Vasaka, Liquorice, Datura, Vinca
d) Resins: Benzoin, Asafoetida, Guggul, Xanthan

6) Select the type of soil which is classified based on the percentage covered by organic matter.
a) Loamy soil b) Poor Soil
c) Sandy Soil d) Calcareous soil

7) _____ is the type of virus that causes root rot.
a) Mosaic virus b) Fusarium solanii
c) Cercospora atropae d) Ascochyta atropae

8) Which of the following drug is harvested by long handled fork?
a) Agar b) Nux vomica
c) Fennel d) Coriander

9) Identify the primary nutrients useful for the normal growth of medicinal plants.
a) Ca, Mg & S b) N, P & K
c) Zn & Co d) Zn & Fe

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

11) Callus is formed through three developmental stages known as ____.
a) Induction, Cell division and cell differentiation
b) Induction, root division and cell differentiation
c) Infusion, Cell division and root initiation
d) Induction, Cell differentiation and cell division

12) If the multiplication occurs of a single species in euploidy, then it is called as_____.
a) Allopolyploidy b) Autopolyploidy
c) Octopolyploidy d) Pseudopolyploidy

13) Kapha is a one of the dosha in which _____ combination observed.
a) Air and Fire b) Air and Water
c) Earth and Water d) Fire and Water

14) According to Hippocratic theory, the four Humours are _____.
a) Hot, Cold, Moist and Dry
b) Wood, Fire, Earth and Metal
c) Khoon, Balgham, Safra and Sauda
d) Hot, Cold, Fire and Water

15) _____ are the organic products of natural or synthetic origin which are basic in nature and contain one or more nitrogen atoms, normally of heterocyclic nature and possess specific physiological action on human or animal body, when used in small concentration.
a) Glycosides b) Flavonoids
c) Alkaloids d) Steroids

16) Choose the false statement for the Tannins.
a) Tannins are non-crystalline compounds.
b) Aqueous solutions of tannins are acidic in nature.
c) Tannins does not respond positive reaction with phenazone test.
d) Tannins are astringent in taste.

17) _____ is mainly obtained from *Ananas comosus.*
a) Papain b) Serratiopeptidase
c) Bromelain d) None of these

18) _____ is responsible for the gel strength of agar solution.
a) Amylose b) Agarose
c) Agaropectin d) Amylopectin

19) When the aqueous solution of _____ is treated with solutions of hydrogen peroxide and benzidin in alcohol, then it produces blue colour
a) Indian gum b) Agar
c) Vegetable gelatin d) Honey

20) Identify the natural fiber containing highest percentage of cellulose.
a) Cotton b) Jute
c) Wool d) Silk

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

a) Write a note on Morphological System of Classification.
b) Define Adulteration. Explain any four types with suitable examples.
c) Explain exogenous factors affecting cultivation technology.
d) Enlist different techniques of cultivation. Write a note on Sexual Method of Propagation.
e) Explain callus culture with its applications.
f) Explain Chinese System of Medicine.
g) What are Resins? Classify with suitable examples.
h) Write source, chemical constituents and uses of Tragacanth and Beeswax.
i) Write source, chemical constituents and uses of any two plant fibers.

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

a) Explain various official parameters studied under physical method of evaluation with their importance.
b) Describe various stages involved in the processing of crude drugs along with suitable examples.
c) Define Glycosides. Classify with suitable examples. Write qualitative chemical tests used for detection of Cardiac and Saponin Glycosides.

Seat No.	

Set **P**

B. Pharmacy (Semester - V) (CBCS) Examination: March/April 2025
Medicinal Chemistry-II (801501)

Day & Date: Saturday, 24-May-2025 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) Sulphonyl urea hypoglycaemic agents act through which of receptor _____.
a) Potassium channel b) Calcium channel
c) Beta adrenergic receptors d) Muscarinic receptors

2) Among the following which is a co-polymer _____.
a) Colestipol b) Simvastatin
c) Niacin d) All of above

3) Which of the following drugs have tetrazole nucleus _____.
a) Valsartan b) Fosinopril
c) Diazoxide d) Taludipine

4) Sodium nitroprusside act by _____.
a) Potassium channels b) Calcium channels
c) Cyclic AMP d) Guanylate cyclase

5) Mechanism of action of mexiletin HC1 is _____.
a) Blocks Na+ channel b) Blocks Ca+ channel
c) Blocks K+ channel d) β- blockers

6) Thiazolidine 2,4 dione derivative is _____.
a) Thioglitazone b) Neta glinide
c) Metformin d) Repaglinide

7) Antihyperlipidemic medication: structural analogue of HMG-CoA intermediate _____.
a) Cholestyramine b) Gemfibrozil
c) Lovastatin d) Niacin

8) Which of the following is a prodrug _____.
a) Minoxidil b) Losartan
c) Sodium nitroprusside d) Verapamil

9) 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

10) Which of the following is short acting Nitrates _____.
a) Isosorbide dinitrate b) Glyceryl trinitrate
c) Erythryl tetra nitrates d) Isosorbide mononitrate

11) One of the following have sulphonamide character _____.
a) Sotalol b) Quinidine sulphate
c) Phenytoin d) Lidocaine

12) Bumetanide belongs to which class _____.
a) Loop diuretics b) Osmotic diuretics
c) Potassium sparing diuretics d) Carbonic anhydrase diuretics

13) Chlorambucil is an e.g. of _____.
a) Nitrosourea b) Nitrogen mustard
c) Aziridines d) Aryl sulphonates

14) Alkylating agent Alkylate at 7 Position of _____.
a) Thymidine b) Guanine
c) Cytosine d) Adenine

15) Which of the following antibody is responsible for allergic phenomenon _____.
a) lgG b) IgM
c) IgA d) IgE

16) Proteins C & S are dependent on which vitamin for synthesis _____.
a) Vitamin C b) Vitamin B
c) Vitamin E d) Vitamin K

17) Which drugs acts by competitive inhibition of vitamin K reductase _____.
a) Heparin b) Warfarin
c) Ezetimibe. d) Niacin

18) In male the sex hormone that maintains sexual organs & secondary sex characteristics is _____.
a) Progesterone b) Oestrogen
c) Testosterone d) Relaxin

19) Histamine is _____.
a) 1,2,4-imidazoyl ethylamine b) 2,4-imidazoyl ethylamine
c) 2,2,4-imidazoyl ethylamine d) 3,4-imidazoyl ethylamine

20) Diabetic mellitus is characterised by _____.
a) Hyperglycaemia b) Polyphagia
c) Polydipsia d) All of them

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

a) Outline synthesis of warfarin and tolbutamide.
b) Give account of nitro-vasodilators.
c) Write a note on Vasodilators.
d) Describe in details of alkylating agents with e.g.
e) Write structure uses & synthesis of warfarin.
f) Write in details of potassium sparing diuretics.
g) Write a note on Male Sex hormones with e.g.
h) Write SAR of Adrenocorticoids.
i) What are calcium channel blockers in anti-arrhythmic agent.

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

a) Give MOA & SAR of organic nitrates & Calcium channel blockers.
b) Outline synthesis of Diphenhydramine HC1, promethazine, triprolidine.
c) Discuss numbering & stereochemistry of Steroids.

Seat No.	

Set P

B. Pharmacy (Semester - V) (CBCS) Examination: March/April - 2025
Industrial Pharmacy-I (801502)

Day & Date: Monday, 26-05-2025 Max. Marks: 75
Time: 02:30 AM To 05:30 PM

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

Q.1 Multiple choice question: **20**

1) The relationship between pH and the solubility and pKa value of an acidic drug is given by ____
a) Henderson Hasselbalch equation
b) Bragg's Equation
c) Noye's Whitney Equation
d) All of the above

2) Amorphous forms generally having ____.
a) Low thermodynamic energy & low solubility
b) High thermodynamic energy & high solubility
c) Both
d) None

3) According to IP, the limit of wt. variation for tablet having avg. wt. less than 80 mg is ____.
a) 10% b) 7.5%
c) 5% d) 15%

4) Enteric coated tablet is designed to release a drug in ____.
a) Stomach b) Colon
c) Intestine d) Mouth

5) In multi-station rotary tablet press, the portion of the head that hold the upper and lower punches are called the ____.
a) Upper and lower turrets respectively
b) Upper and lower cam- tracks respectively
c) All of above
d) None of Above

6) No disintegrants is included in the composition of ____.
a) Conventional tablets b) Chewable tablets
c) Enteric-coated tablet d) Immediate release tablet

7) In conductivity test, if bulb glows on passing electric current so what would be the type of emulsion?
a) w/o emulsion b) o/w emulsion
c) micro emulsion d) multiple emulsion

8) Type A gelatins are generally derived from ____.
a) Animal bones
b) Animal skin
c) Both a) and b)
d) None of these

9) Clear, sweetened hydro alcoholic solution is?
a) Draught
b) Drops
c) Linctuses
d) Elixirs

10) In capsule, ROTOFILL is used for filling ____.
a) Powders
b) Pellets
c) Liquids
d) None of the above

11) The ____ process involves the conversion of fine powder of a drug and an excipient into small, free flowing, spherical units.
a) Pelletization
b) Wet granulation
c) Dry granulation
d) None of the above

12) ____ is used as humectant in cream.
a) Glycerin
b) Propylene glycol
c) Sorbitol
d) All of the above

13) According to IP, disintegration time for Soft Gelatin Capsule is ____.
a) 60 min.
b) 15 min.
c) 30 min.
d) 5 min.

14) A multiple dose sterile solution must contain ____.
a) suspending agent
b) Sweetener
c) antimicrobial agent
d) all of these

15) Which apparatus is used to determine flash point of aerosol products?
a) Coulter counter
b) Tag open cup apparatus
c) Rheometer
d) Osmometer

16) It is also called as surface treated soda lime glass.
a) USP type I
b) USP type II
c) USP type III
d) USP type IV

17) The direction “To be used within 30 days after first opening.” is given for ____.
a) Suppositories
b) Mixture
c) Paste
d) Eye drops

18) Plastic container is not suitable because ____.
a) Permeable to gases
b) Additives leach out from plastic
c) Adsorb ingredient from product
d) All of above

19) SPF stands for ____.
a) Sun Permeation Factor
b) Sun Product Factor
c) Sun Perfection Factor
d) Sun Protection Factor

20) Which route of administration is used to detect hypersensitivity reactions for diagnostic purposes?

a) Intradermal b) Intravenous
c) Oral d) Intramuscular

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

1) Define BCS classification of drugs and its significance
2) Enlist tablet excipients with their roles and examples
3) Add a note on hair dyes.
4) Enlist different methods of filling of liquid orals and explain any one method.
5) Discuss factors influencing choice of packaging or containers.
6) Discuss significance of isotonicity and pH in parenteral formulation.
7) Write requirements of ophthalmic preparations.
8) Write a short note on formulation and preparation of lipsticks
9) Classify propellants and add a note on hydrocarbon propellants.

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

1) Discuss processing problem or defects occur during manufacturing of tablets and remedies for it.
2) Write principle and procedure for rabbit test and sterility test.
3) Discuss any two methods of manufacturing of soft gelatin capsule.

Seat No.	

Set **P**

B. Pharmacy (Semester - V) (CBCS) Examination: March/April - 2025
Pharmacology– II (801503)

Day & Date: Friday, 30-May-2025 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

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

1) The study of the blood flow is called _____.
a) Hemodynamic b) Homeostatic
c) Hemostatic d) Hemokinetic

2) _____ is a selective beta-1 agonist.
a) Digoxin b) Dobutamine
c) Amirinone d) Dopamine

3) Aglycone is essential for _____.
a) Plasma protein binding b) Half-life
c) Cardiotonic action d) Metabolism

4) The manifestations of glycosides intoxication is _____.
a) Visual changes
b) Ventricular tachycardia
c) Gastrointestinal disturbances
d) All of above

5) Cause of cardiac failure is _____ heart disease.
a) Congenital b) Valvular
c) Arteriosclerotic d) All of above

6) Acetazolamide is sample of _____ diuretic.
a) Loop
b) Thiazide
c) Carbonic Anhydrase Inhibitor
d) K^+Sparing

7) _____ is the example of natural occurring colloid.
a) Albumin b) Dextrose
c) Dextran d) None of above

8) Heparin is _____.
a) Polysaccharide b) Lipoprotein
c) Monosaccharide d) Ceramide

9) Atrovastatin is example of _____.
a) HMG-CoA Reductase Inhibitor
b) Bile acid Sequestrants
c) Cholesterol absorption Inhibitor
d) Anion-exhange resin

10) Verapamil is example of class _____ antiarrythemic drug.
a) I b) II
c) III d) IV

11) Which of the following is not a unwanted effect of NSAIDs?
a) Skin rash b) Gastric Ulcer
c) Vomiting d) Mental confusion

12) _____ of the following is a non-steroidal oestrogen.
a) Diethylstilbesterol b) Wthinylestradiol
c) Mestranol d) Estradiol

13) _____ is the example of thiazolidindione type oral hypoglycaemic agent.
a) Metformin b) Pioglitazone
c) Acarbose d) Miglitol

14) The drug which act as a Antithyroid and inhibit thyroid hormone is _____.
a) Propylthiouracil b) Thiocyanates
c) Organic iodides d) ^{131} I

15) The drug of choice in anaphylactic shock is _____.
a) Dobutamine b) Atropine
c) Adrenaline d) Chlorpheniramine

16) _____ is mild sedative antihistaminic drug.
a) Chlorpromazine b) Phenirmine
c) Hydrpxyzine d) Promethazine

17) Main action of insulin is increase _____.
a) Glucose transport b) RNA & DNA synthesis
c) Lipgenesis d) All of above

18) Angiotensin-11 is involved in _____.
a) Electrolyte balance
b) Blood volume
c) Stimulating Aldosterone secretion
d) All of above

19) _____ anti-5HT drug recommended in children and poor eaters to promote weight gain.
a) Cyproheptadine b) Clozapine
c) Risperidone d) Ondansetron

20) The precision, reliability and reproducibility of bioassay depends on _____.

a) Proper selection of tissue
b) Method with highest selectivity
c) Sensitivity for the drug
d) All of above

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

a) Write a note on plasma volume expanders.
b) Classify antihypertensive drugs with examples.
c) Give the mechanism of action, uses and adverse effects of organic nitrates.
d) Discuss the Pharmacology of Non-steroidal anti-inflammatory agents.
e) Give the adverse effects and contraindications of heparin.
f) E) Write a note on estrogens.
g) Define shock: explain how shock can be managed?
h) Enlist various 5-HT receptors and its antagonists.
i) Classify diuretics with examples.

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

a) Discuss in detail pharmacology of digitalis.
b) Describe insulin. Write a note on different insulin preparations.
c) Define bioassay. Explain different types of bioassays. Add applications of bioassay.

Seat No.	

Set P

B. Pharmacy (Semester - V) (CBCS) Examination: March/April - 2025
Pharmacognosy and Phytochemistry–II (801504)

Day & Date: Tuesday, 03-June-2025 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) Unsaturated fatty acids are biosynthesized via _____ pathway.
a) Acetate mevalonate b) Acetate malonate
c) Shikimic acid d) Polyacetate malonate

2) _____ pathway is also known as isoprenoid pathway.
a) Amino acid b) Shikimic acid
c) Kreb's d) Mevalonate

3) Select the false statement.
a) Pale catechu shows positive reaction with Chlorophyll test.
b) Colophony shows positive reaction with Combined Umbelliferone test.
c) Quinine shows positive reaction with Thalleoquine test.
d) Senna shows positive reaction with Modified Bomtrager's test

4) Which of the following drug is widely cultivated in Kottayam and Quilon district of Kerala?
a) Mentha b) Belladonna
c) Senna d) Clove

5) Which of the following drug shows presence of Trichomes under microscopy?
a) Ephedra b) Cinchona
c) Senna d) Coriander

6) _____ are the organic products of natural or synthetic origin which are basic in nature and contain one or more nitrogen atoms, normally of heterocyclic nature and possess specific physiological action on human or animal body, when used in small concentration
a) Glycosides b) Flavonoids
c) Alkaloids d) Tannins

7) When _____ is triturated with water, then it produces _____ emulsion
a) Asafoetida, white b) Myrrh, orange
c) Guggul, white d) Asafoetida, green

8) Lignans precursors are most abundant in _____.

a) Linseed
b) Nux-vomica
c) Isabgol
d) All of the above

9) Atropine can be isolated by extraction process from all of the following raw materials except _____.

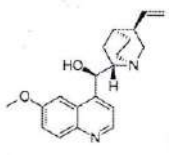
a) Datura metal
b) Atropa belladonna
c) Papaver somniferum
d) Hyoscyamus niger

10) _____ is the agent used in the semi-synthetic production of Etoposide.

a) Artemisinin
b) Atropine
c) Rutin
d) Podophyllotoxin

11) 3-4 ml of test solution of _____ dissolved in alcohol and transferred in china dish, add 3-4 drops of cone. HNO_3. Evaporate to dryness on water bath which produces a pale-yellow color residue. The resultant residue is again treated with 2 drops of potassium hydroxide solution._____ color is observed.

a) Atropine, Violet
b) Caffeine, Purple
c) Reserpine, Brown
d) Quinine. Red

12)  is the chemical structure of _____.

a) Reserpine
b) Quinine
c) Curcumin
d) Rutin

13) _____ is useful in hypertension and angina pectoris.

a) Reserpine
b) Diosgenin
c) Atropine
d) Forskolin

14) Identify the detecting agent used in the analysis of atropine by TLC technique.

a) Dragendorff's reagent
b) Murexide reagent
c) Barfoed’s reagent
d) Benedict’s reagent

15) _____ is the ratio of the distance travelled by solute front to the distance travelled by the solvent front.

a) Refractive factor
b) Retention time
c) Retention factor
d) Ratio value

16) *Taxus brevifolia* is the botanical name of _____.

a) Pacific Yew
b) European Yew
c) Canadian Yew
d) Japanese Yew

17) Most commonly used solvent in the preparation of slurry in TLC technique using silica gel G is _____.

a) Water b) Alcohol
c) Chloroform d) Methanol

18) The substance with a temperature and pressure above its critical point, where distinct liquid and gas phase do not exist is known as _____

a) Supercritical fluid b) Saturation Fluid
c) Overcritical fluid d) None of the above

19) Select the stationary phase used in the process of paper chromatography.

a) Aluminium precoated with silica gel GF-254 paper
b) Aluminium precoated with silica gel G paper
c) Aluminium precoated with silica gel H paper
d) Whatman Filter paper

20) The solvents used in the process of extraction may be _____

a) Only liquid b) Only gas
c) Liquid or gas d) Only organic solvents

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

a) Write a note on acetate malonate pathway.
b) Define the terms Alkaloids, Glycosides, Tannins, Resins and Volatile oils.
c) Write source, chemical constituents and uses of Yew and Aadrak.
d) How does Sumatra benzoin differentiate from Siam benzoin?
e) Explain isolation and identification tests of Quinine.
f) Give brief account on analysis of Rutin by TLC method along with its uses.
g) Explain industrial production and uses of Diosgenin.
h) Define Electrophoresis. Write a note Agarose gel electrophoresis.
i) Write the applications of UV, FT-IR, NMR and Mass Spectroscopy

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

a) Discuss pharmacognostic scheme of Fennel
b) Explain industrial production, identification test and used of artemisinin.
c) Write source, active constituent and uses of any one crude drug of the following classes:

a) Belongs to indole alkaloid
b) Belongs to Bioflavonoid
c) Belongs to Saponin glycoside
d) Belongs to Phenol volatile oil
e) Belongs to Oleo-gum-resin

Seat No.	

Set **P**

B. Pharmacy (Semester - V) (CBCS) Examination: March/April - 2025
Pharmaceutical Jurisprudence (801505)

Day & Date: Thursday, 05-June-2025 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 question. **20**

1) The President Pharmacy Council of India is elected by _____.
a) Elected members of PCI b) Nominated members of PCI
c) Ex-Officio members of PCI d) Pharmacy council members

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

3) Schedule H drug belongs to _____.
a) List of prescription drugs b) Imported drug
c) Dangerous drug d) Narcotic drug

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

5) Who has the power to fix the ceiling price of scheduled formulations?
a) State Government b) Central Government
c) Lok Sabha d) Rajya Sabha

6) A nonbonded manufactory shall be inspected by the officer at least
a) once every month b) once every two months
c) once every six months d) once every year

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

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

9) The ex-officio member of Pharmacy Council of India is_____.
a) Teacher in Pharmacology b) A member from MCI
c) A representative of UGC d) Director of CDL

10) A drug consisting in full or in whole or in part of any filthy, putrid or decomposed substance is called _____.
a) Adulterated drug b) Spurious drug
c) Misbranded drug d) Patent drug

11) The minimum required=area to open a retail drug store is____.
a) 15 sq m b) 10 sq m
c) 40 sq m d) 60 sq m

12) The Pharmacy act was passed in the year.
a) 1950 b) 1965
c) 1948 d) 1947

13) The function of central drug laboratory is.
a) To issue repacking license
b) To issue manufacturing license
c) To issue loan license
d) To analyze the samples of drugs or cosmetics

14) How many nominated members are present in State Pharmacy Council?
a) 5 b) 6
c) 4 d) 7

15) Which of the following schedule belongs to Blood Banks:
a) Schedule C b) Schedule F
c) Schedule C1 d) Schedule F1

16) All the following drugs belong to schedule-C except:
a) Insulin b) Anti toxins
c) Adrenaline solution d) Fish liver oil

17) Schedule X drugs of oral liquids are marketed in packing not exceeding:
a) 300 ml b) 400 ml
c) 450 ml d) 500 ml

18) The study, of fundamental legal principles is____.
a) Ethics b) Rules
c) Jurisprudence d) None

19) Drugs legally allowed to be sold over the counter without prescription of RMP are
a) Schedule H drugs b) OTC drugs
c) Schedule G drugs d) All

20) Prevention of cruelty to Animal Act was passed in which year:

a) 1971 b) 1960

c) 1930 d) 1957

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

1) Define standards of quality Describe the classes of drugs to import under license or permit.

2) Define wholesale, describe conditions of wholesale license.

3) Describe the labeling conditions specified in the Drugs and Cosmetics Rules for Homoeopathic and Ayurvedic drugs.

4) Give Qualification and powers and duties of Drug Inspectors.

5) Write the constitution and functions of the Pharmacy Council of India as per the Pharmacy act.

6) Give constitution of committee and offences and penalties involve under narcotic and psychotropic substances act.

7) Define Magic remedy explains prohibition of certain advertisement under Drugs and magic remedies act.

8) Define contract research explain CPCSEA guidelines for breeding and stocking of animals.

9) Define Minor, explain when pregnancies may be terminated by medical practitioners.

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

1) Give qualification for entry on first register and under what circumstances can the name of a pharmacist be removed from the Register of Pharmacist?

2) Explain the conditions for manufacturing of Schedule C & C1 Drugs and drugs specified in schedule X as per the Drugs & Cosmetics act 1940.

3) Explain about storage of alcoholic preparations and export of alcoholic preparations as per Medicinal and toilet preparation act.

Seat No.	

Set | **P**

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April 2025
Medicinal Chemistry-III (801601)

Day & Date: Tuesday, 27-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) _____ breaks beta-lactam ring.
a) Beta-lactamase b) Hydrolases
c) Catalase d) Amylase

2) Select the prodrug from the following list _____.
a) Amoxicillin b) Azetidine
c) Bacampicillin d) Tetracycline

3) _____ contains epo-peroxide bridges in their structure.
a) Artemisinin b) Quinine
c) Quinidine d) Quinol

4) _____ are major symptoms of malaria.
a) Anaemia b) Fever
c) Chills d) All of these

5) Erythromycin isolated in 1952 by _____.
a) Alexander b) Kolbe
c) McGurry d) Ross

6) _____ is used as starting material in the synthesis of primaquine.
a) 4-methoxy-2-nitrobanzanamine
b) 4-methoxy-4-nitrobanzanamine
c) 4-methoxy-3-nitrobanzanamine
d) 4-methoxy-5-nitrobanzanamine

7) Hammett's constant belongs to _____ parameter.
a) Hydrophilic b) Electronic
c) Hydrophobic d) Steric

8) In the equation of Hansch, the $\log P^0$ stands for optimum _____.
a) Hydrophilicity b) Partition coefficient
c) Hammett’s constant d) electronic

9) Select the starting material used in the synthesis of Isoniazid _____.
a) 4-methyl pyridine b) 2- 2-methyl pyridine
c) 1-methyl pyridine d) 5-methyl pyridine

10) Identify the MOA of macrolides _____.
a) Cell wall inhibition b) inhibition of protein synthesis
c) Nucleic synthesis d) DNA

11) Zidovudine shows action by inhibiting _____ enzyme.
a) Isomerase b) Catalase
c) Peroxidase d) Reverse transcriptase

12) Anthelmintics are _____.
a) Fungicides b) Vermifuges/vermicides
c) Amebicides d) Viriocide

13) Helminthiasis is known as _____.
a) Helminth infection b) Worm infection
c) Microparasitic infection d) All of them

14) Amphotericin B is not effective in the following fungal disease _____.
a) Cryptococcosis b) Histoplasmosis
c) Blastomycosis d) Dermatophytosis

15) The most important toxicity of amphotericin B is _____.
a) Nephrotoxicity b) Neurotoxicity
c) Hepatotoxicity d) Bone marrow depression

16) The following anthelmintic has been found to re safe during pregnancy _____.
a) Thiabendazole b) Piperazine
c) Albendazole d) Pyrantel pamoate

17) Drugs effective in filariasis include _____.
a) Ivermectin b) Albendazole
c) Diethyl carbamazine citrate d) All of the above

18) Drug which is used for leprosy _____.
a) Sulphamethizole b) Sulphapyridine
c) Trimethoprim d) Dapsone

19) Causative agent for tuberculosis _____.
a) Lacto bacillus b) Mycobacterium tuberculosis
c) Streptomyces nodulus d) Streptomyces erythrus

20) Select the drug that is active against both HIV & hepatitis B virus _____.
a) Lamivudine b) Indinavir
c) Didanosine d) Efavirenz

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

a) Discuss the SAR and MOA of quinolones.
b) Classify antiviral agents. Explain any two drugs with structure.
c) Explain SAR and MOA tetracyclines.
d) Write synthesis of diethylcarbamazine citrate*,, Mebendazole*,
e) Write SAR & MOA of 8-amino quinoline with e.g.
f) Define & classify Anti protozoal agent
g) Write a note Folate reductase inhibitor with e.g.
h) Write a note on QSAR.
i) Write MOA & SAR of ethambutol.

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

a) Explain the life cycle of a malarial parasite along with the drug acting on it. Give SAR and MOA of 8- aminoquinolines.
b) Classify antibiotics. Explain the SAR and MOA of penicillin's.
c) Classify anti-TB agents. Give a complete account of first-line anti-TB drugs.

Seat No.	

Set **P**

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April - 2025
Pharmacology- III (801602)

Day & Date: Thursday, 29-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 multiple choice questions **20**

1) _____ patient is most likely to hypersensitive to aspirin?
a) Intrinsic asthmatic b) Extrinsic asthmatic
c) Chronic bronchitis d) Patient with viral injection

2) The distinctive feature of nimesulide is _____
a) It does not inhibit prostaglandin synthesis
b) It does not cause gastric irritation
c) It is well tolerated by aspirin intolerant asthama patients.
d) It is not bound to plasma proteins

3) Ipratropium bromide is principally effective in _____
a) Asthma b) Bronchitis
c) COPD d) None of above

4) ____ is the correct statement for inhaled glucocorticoids in COPD.
a) They are indicated in COPD only for severe/advanced cases
b) Instituted early they retard the progression of COPD
c) Their use predisposes to respiratory infections
d) Both A and B

5) _____ expectorant acts both directly on the airway mucosa as well as reflexly.
a) Potassium iodide b) Guapihenesin
c) Terpin hydrate d) Bromhexine

6) Antitussives act by _____
a) Liquifying bronchial secretions
b) Raising the threshold of cough centre
c) Reducing cough inducing impulses from the lungs
d) Both ‘B’ and ‘C‘ are correct

7) The most likely complication of prolonged use of nasal decongestant drops is ____
a) Atrophic rhinitis b) Hypertrophy of nasal mucosa
c) Naso-pharyngeal moniliasis d) Blockage of eustachian tubes

8) _____ antiulcer drug does not act by reducing the secretion of or neutralizing gastric acid

a) Magaldrate
b) Sucralfate
c) Misoprostol
d) Omeprazole

9) _____ is true of loperamide except

a) It is absorbed from intestines and exerts centrally mediated antidiarrhoeal action
b) It acts on the opioid receptors in the gut
c) It increases lone and segmenting activity of the intestines
d) It inhibits intestinal secretion by binding to calmodulin in the mucosal cell

10) All of the following drugs are antiemetics EXCEPT _____

a) Metoclopramide
b) Ondansetron
c) Chlorpromazine
d) Apomorphinc hydrochloride

11) Quinolones work on _____ mechanism to kill bacteria

a) Inhibit topoisomerase II
b) Inhibit topoisomerase IV
c) Inhibit DNA gyrase
d) Both b & c

12) Flouroquinolones interact with _____ drugs

a) Theophylline
b) Polyvalent cations
c) NSAIDS
d) All of above

13) _____Flouroquinolones are likely to cause long QT syndrome.

a) Moxifloxacin
b) Spirafloxin
c) Both a and b
d) Ciprofloxacin

14) Adverse effect of macrolide is _____

a) oral/vaginal candidiasis
b) Cramping
c) QT prolongation
d) All of the above

15) In order to combate virus produced diseases _____

a) Antibiotics shall be administered
b) depressant drugs shall be administered
c) Amphetamines shall be administered
d) body's own immunity system shall combat

16) Aminoglycosides are _____

a) Broad spectrum antibiotics
b) Narrow spectrum antibiotics
c) Both a and b
d) none of the above

17) Anti-dote for organophosphorous compounds poisoning is

a) Disulfiram
b) BAL
c) Pralidoxime
d) Flumazenil

18) Specific anti-dotes for arsenic poisoning is _____

a) Naloxone
b) BAL
c) EDTA
d) Flumazenil

19) Macrolides exhibit their MOA at ____

a) 50 s subunit b) 30 s ribosomal subunit
c) RNA synthesis d) cell wall

20) Chloramphenicol is used for the treatment of ____ type of infection

a) Conjunctivits b) Cholera
c) Meningitis d) All of the above

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

a) What are adsorbents? Give their pharmacological importance with examples.
b) Give the mechanism of action and uses of terbutaline sulphate
c) What are purgatives? Classify them with examples and give mechanism of action of castor oil
d) Classify cephalosporin with examples.
e) Explain mechanism of action, adverse effects, and therapeutic uses of amphotericin-B.
f) Define chronopharmaoclogy, rhythm, biological clock, chronotherapy and cycles.
g) Write mechanism of action and uses of sulphonamides.
h) Classify antifungal agents with examples.
i) Briefly write the toxicity and treatment of lead poisoning.

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

a) Discuss in detail the pharmacotherapy of bronchial asthma giving classification of antiasthmatics.
b) Classify drugs used in the treatment of peptic ulcer and discuss the pharmacotherapy of peptic ulcer.
c) Describe general principles of treatment of poisoning. Give detail symptoms and treatment of arsenic poisoning.

Seat No.	

Set P

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April – 2025
Herbal Drug Technology (801603)

Day & Date: Tuesday, 03-June-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 multiple choice questions **20**

1) Rice bran is helpful in _____.
a) Eye site b) Cardiovascular disease
c) Lung cancer d) Obesity

2) Principle of homeopathy includes _____.
a) Single medicine b) Minimum dose
c) Similia Curenture d) All of the above

3) Sunflower oil is used in _____.
a) Lipstick b) Emulsion
c) Toothpaste d) Shampoo

4) Under the Ministry of AYUSH, the CCRAS is established which stands for _____.
a) Central Council for Research in Applied Science
b) Central Council for Research in Ayurveda and Siddha
c) Central Council for Research in Yoga Science
d) None of the above

5) Bleaching agent used in cosmetic _____.
a) Citrus extracts b) Liquorice extracts
c) Alpha hydroxyl acids d) All of the above

6) Regulatory bodies involved in regulation of ASU drugs manufacturing and sale _____.
a) ASUDTAB b) ASUDCC
c) Both a & b d) ASUCCB

7) The process of discovery and commercialization of new product based on biological resource _____.
a) Biopiracy b) Bioprospecting
c) Biotransformation d) None of the above

8) Essential objective are followed in assessment of herbal drug includes _____.
a) Safety b) Quality
c) Efficacy d) All of the above

9) Manufacturing of Ayurvedic Siddha and Unani drug is regulated by schedule _____.

a) M b) X
c) T d) H

10) Optimum ratio of phytoconstituents: phospholipids in preparation of phytosomes is _____.

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

11) Nicotine is used in Bio-Dynamic Agriculture as _____

a) Insecticide b) nutrient
c) growth hormone d) fertilizer

12) Tridosha referred as _____.

a) Kapha b) Pitta
c) Vata d) All of the above

13) In Bhasma preparation, raw material is purified by _____ method

a) Shodhana b) Marana
c) Evaporation d) Both a & b

14) Ginseng with_____ produce interaction to produce Manic episode.

a) Alcohol b) Anti-depressant
c) Aspirin d) Phenelzine sulphate

15) Which are the naturally occurring fungi on the scalp causing Dandruff

a) *Malssezia globosa* b) *Malssezia furfur*
c) *Malssenia glabra* d) *Malssenia glandula*

16) Churna is evaluated for_____ activity

a) Solubility b) Flow property
c) Friability d) Spreadability

17) Pre- biotic are the nutraceuticals helps to grow _____ in gut

a) *Salmonella* b) *Mycobacteria*
c) *Lactobacillus* d) *E. coli*

18) Drug evaluation of herbal product include _____.

a) Microscopic b) Toxicological
c) Refractive index d) All of the above

19) Biological source of Castor oil is _____ and used as _____.

a) *Cocus nucifera* b) *Ricinus communis*
c) *Cocos mangifera* d) *Cocos nucifera*

20) Which of the following oil is not a fixed oil _____.

a) Eucalyptus b) Sesame
c) Almond d) Olive

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

a) Explain various class of Herbal excipients along with their importance
b) Write a note on Organic farming.
c) What is the theory of Panchamabhutas.
d) Explain Herbal drug regulation in India.
e) Discuss in detail herbal drug industry with special features on GMP.
f) Write a note on Probiotics and Benefits of Honey.
g) Write a note on Perfumes used in cosmetics.
h) Explain stability testing of herbal drugs.
i) Enlist different herbal research institution/centers in India

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

a) Explain in detail preparation and standardization of Ayurvedic formulation.
b) Write a note on present scope and future prospects of herbal drug Industry.
c) Write a note on following: -
a) Amla
b) Garlic
c) Leha
d) Biopesticides

Seat No.	

Set **P**

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April - 2025
Biopharmaceutics & Pharmacokinetics (801604)

Day & Date: Thursday, 05-June-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice question. **20**

1) _____ is concern with the release of drugs from the dosage form and its subsequent absorption into systematic circulation.
a) clinical pharmacokinetics b) Pharmacodynamics
c) biopharmaceutics d) All of the above

2) According to pH partition theory, a weak acidic drug will most likely be absorbed from the stomach because the drug which exists primarily in the _____.
a) un-ionized, more lipid soluble form
b) ionized, more water-soluble form
c) Form of week acid and more soluble in acid
d) ionic Form of the drug which facilitates diffusion

3) The main mechanism of most drugs absorption in GI tract is
a) Active transport b) Filtration
c) Endocytosis d) Non-ionic diffusion

4) What is the chemical equivalence?
a) Two or more drug products contain the same labelled chemical substance in the same amount
b) Two or more drug products contain the same labelled chemical substance in different quantity
c) Two or more drug products contain different labelled chemical substance giving the same therapeutic effect
d) Two or more drug products contain the same labelled chemical substance giving a different therapeutic effect.

5) IV route of drug administration does not involve
a) Distribution step b) Absorption step
c) Biotransformation step d) All of the above

6) Plasma protein binding _____the volume of distribution of drugs.
a) Increases b) Decreases
c) No change d) None of these

7) Distribution is _____.
a) Irreversible process
b) Dynamic equilibrium process
c) Both options a & b
d) None of these

8) In compartment modelling the term “Open” indicates _____.
a) Unidirectional input and output
b) All compartments are open
c) Body is open
d) None of the above

9) _____ is defined as volume of blood or plasma from drug is removed in unit time
a) Half life
b) Clearance
c) Volume of distribution
d) biotransformation

10) The reasons determining bioavailability are
a) Rheological parameters of blood
b) Amount of substance obtained orally and quantity of intakes
c) Extent of absorption and hepatic first-pass effect
d) Glomerular filtration rate

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

12) Under non compartment analysis the following formula is used for calculation
a) MRT=AUMC /AUC
b) AUMC=MRT / AUC
c) MRT=AUC / AUMC
d) AUC=AUMC /MRT

13) t_{max} (Time for peak plasma concentration) indicates _____.
a) Drug absorption rate
b) Drug elimination rate
c) Drug distribution rate
d) Drug metabolism rate

14) Transfer of drug from plasma to tissue depends on
a) Weight of tissue
b) Blood perfusion rate of tissue
c) Size of tissue
d) All of the above

15) Most of drugs will bind with _____ of plasma protein.
a) Albumin
b) Globulin
c) Histone
d) Glycoprotein

16) Drug elimination involves _____ (ADME are steps of Pharmacokinetic)
a) ADME
b) DME
c) ME
d) E Only

17) Which of the following is not a step of renal excretion?

a) Glomerular filtration b) Tubular Filtration
c) Tubular reabsorption d) Secretion

18) USP Apparatus 5 is _____?

a) Flow-through-cell b) Paddle over disk
c) Cylinder d) Paddle

19) According to biopharmaceutics classification system (BCS),class II drugs have

a) High solubility /High Permeability
b) Low solubility /High Permeability
c) High solubility /Low Permeability
d) Low solubility / Low Permeability

20) When rate is independent of the reactant concentration, then it is called

a) Zero order reaction b) Pseudo zero order reaction
c) First order reaction d) Second order reaction

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

a) Enlist mechanism of drug absorption, explain passive diffusion
b) Write a note on Non compartment analysis.
c) Explain different process of renal excretion.
d) Explain any five methods of enhancement of bioavailability.
e) Write comparison of features of compartment and physiological models.
f) Define- 1 Loading Dose 2 Dose regimen 3 Drug Absorption
4 Protein binding of drug 5 Bioavailability
g) Describe various causes of non-linearity in pharmacokinetics.
h) Explain estimation of pharmacokinetic parameters of IV Bolus administration.
i) Discuss Diffusion layer model.

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

a) Enlist the various factors affecting drug absorption. Discuss about patient related factors in detail.
b) Write note - on Bioequivalence studies and discuss in vitro-in vivo correlation.
c) Define pharmacokinetics. Discuss a typical plasma concentration-time profile.

Seat No.	

Set **P**

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April - 2025
Pharmaceutical Biotechnology (801605)

Day & Date: Tuesday, 10-06-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice question. **20**

1) Polymerase Chain Reaction is a _____.
a) DNA amplification method b) Western blotting method
c) DNA digestion method d) DNA fragmentation method

2) Transcription is _____.
a) DNA to RNA b) RNA to protein
c) cDNA to DNA d) RNA to DNA

3) Home blood glucose sensor works on _____ principle.
a) Electro-physiological b) Electrochemical
c) Physio-chemical d) Chemical

4) Excision and insertion of a gene is called _____
a) Cytology b) Genetic engineering
c) Cytogenetics d) Gene therapy

5) Cell line is _____.
a) Multilayer culture
b) Transformed cells
c) Multiple growth of cells
d) Sub culturing of primary culture

6) Introduction of recombinant DNA into the bacterial cell by using current is called _____.
a) Transformation b) Electroporation
c) Transition d) Transduction

7) Sparger is used in fermentation for supply of _____.
a) Antifoaming agent b) Antimicrobial agents
c) Sterile air d) Sterile medium

8) Identify the strains used for commercial production of vitamin B_{12} _____.
a) *Streptomyces olivaceus* b) *Streptomyces griseus*
c) *Streptomyces albidoflavus* d) All of these

9) An enzyme that cleaves DNA at specific site is called _____.
a) Restriction ribonuclease b) Restriction endonuclease
c) Trypsin d) *E.coli* DNA ligase

10) Shotgun method used in _____.
a) DNA sequencing b) Gene mapping
c) Gene transformation d) Genomic library creation

11) The extra-chromosomal circular DNA found in the E.coli is _____.
a) Plasmid b) DNA ligase
c) Vector d) Cytokinine

12) Temperature needed for DNA strand separation in PCR is _____.
a) 74°C b) 45°C
c) 100°C d) 95°C

13) Taq polymerase is used in PCR because of its _____.
a) Low thermal stability b) High fidelity
c) High speed d) High thermal stability

14) Southern blotting technique is used for specific identification of _____.
a) RNA b) Surfactants
c) DNA d) Lipids

15) _____ enzyme is isolated from *Thermus aquaticus.*
a) *Taq polymerase* b) *Taq ligase*
c) *Taq kinase* d) *Taq nuclease*

16) Most suitable pH required for the commercial production of streptomycin is _____.
a) 7 to 8 b) 3 to 4
c) 9 to 10 d) 5 to 6

17) The Polymerase Chain Reaction technique was developed by _____.
a) Karry Mullis b) Kohler
c) Milstein d) Boyer

18) Discovery that lead to the development of rDNA technology was _____.
a) Discovery of Watson & crick DNA model
b) Discovery of restriction endonuclease
c) Discovery of ligase
d) Discovery of tissue culture cloning

19) Identify the purine base present in DNA _____.
a) Adenine b) Cytosine
c) Guanine d) Both a & c

20) PCR is useful in the diagnosis of _____.
a) HIV b) Fever
c) Diabetes d) None of these

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

a) Define Biotechnology. Write scope of Biotechnology.
b) What is enzyme immobilization? Explain different methods of enzyme immobilization.
c) Write the basic principle, working and applications of biosensors in biomedical field.
d) Write basic principle and applications of r-DNA technology.
e) Describe the general method of production of enzyme.
f) Write a note on restriction endonucleases and DNA ligase.
g) Discuss principle, procedure and applications ELISA test.
h) What is mutation? Give the types of mutation.
i) Discuss the production of human insulin by r-DNA technology.

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

a) Draw a neat labelled diagram of industrial fermenter and explain its various controls.
b) Explain the production of penicillin and griseofulvin.
c) Write the basic principle, technique and applications of PCR.

Seat No.	

Set **P**

B. Pharmacy (Semester - VI) (CBCS) Examination: March/April - 2025
Quality Assurance (801606)

Day & Date: Thursday, 12-June-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Arrange the steps of QA in ascending order?
a) Customer needs, material control, design development, process control, marketing
b) Material control, process control, customer need, design development, finished product
c) Customer needs, design development, material control, process control, finished product
d) Material control, servicing, process control, material control, design development

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

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

4) What are the core principles of the TQM in a company-wide effort?
a) Customer and process orientation only
b) Continuous improvement only
c) Process orientation and continuous improvement only
d) Continuous improvement, process and customer orientation

5) What is quality assurance?
a) Process of recognition of entire manufacturing process
b) totality of arrangement to ensure quality of product
c) Detection of defects in a product
d) Minimization of material level

6) Providing documented evidence that a method/product does what it intends to do is termed as?

a) Validation b) Qualification
c) Calibration d) Verification

7) NABL accreditation will be valid for _____

a) 1 b) 2
c) 3 d) 5

8) QSEM stands for _____

a) Quality, Stability, Efficacy, Medicine
b) Quality, Stability, Efforts, Manufacturing
c) Quality, Safety, Efficacy, Multidisciplinary
d) None of the above

9) _____ guidelines describe Good Manufacturing Practices.

a) Q8 b) Q1
c) Q3A d) Q7

10) What does NABL stand for?

a) National Accreditation Board Limited
b) National Accreditation Board for Laboratories
c) National Accreditation Board for Testing and Calibration Laboratories
d) National Accreditation Board for Law

11) The guidelines that describe the parameters of analytical method validation.

a) ICH Q2 b) ICH Q1
c) ICH Q8 d) ICH Q9

12) Significant amendments to the manufacturing process:

a) should be avoided
b) should be validated
c) Should be informed to manager
d) SOP preparation

13) The lowest amount of analyte in a sample which can be detected is called as?

a) Limit of Detection b) Accuracy
c) Limit of Quantitation d) Specificity

14) The closeness of agreement between true value and experimental value is _____

a) Specificity b) Precision
c) Accuracy d) Sensitivity

15) OECD stands for _____
a) Organization for Economic Co-operation and Development
b) Organization for Environmental Co-operation and Development
c) Organization for Economic Co-operation and Distribution
d) Organization for Environmental Co-operation and Distribution

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

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

18) In Quality by Design process CPP stands for _____
a) Critical Process Performance
b) Critical Packaging Parameters
c) Critical Process Parameters
d) Critical Planning Parameters

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

20) The type of process validation which is based on information generated during actual implementation of the process is known as _____
a) Prospective validation b) Concurrent validation
c) Retrospective validation d) Analytical validation

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

a) Define Quality Assurance and Quality Control. Write functions of QA department.
b) Enlist ICH Q series guidelines.
c) Define Drug Stability. Write importance of stability testing in pharmaceuticals.
d) Define Quality by Design. Explain the elements of QBD.
e) Give ten principles of Good Manufacturing Practices.
f) Enlist Deming's 14 Points Guidelines for the management for attainment of total quality.
g) What is Good Warehousing Practices? Explain its key elements.
h) Write note on complaints and evaluation of complaints.
i) Write elements involved in ISO 9000.

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

a) Discuss scope and benefits of NABL. Describe Procedure for NABL Accreditation.

b) Define Validation. Explain parameters of analytical method validation.

c) Describe in detail any five quality control tests for Secondary packaging material.

Seat No.	

Set P

B. Pharmacy (Semester - VII) (CBCS) Examination: March/April - 2025
Instrumental Methods of Analysis (801701)

Day & Date: Friday, 23-05-2025 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 question: **20**

1) Aliphatic compounds show which electronic transition?
a) $n \rightarrow \sigma *$ b) $\sigma \rightarrow \sigma *$
c) $n \rightarrow \pi *$ d) $\pi \rightarrow \pi *$

2) Turbidimetry is concerned with measurement of ____ light by suspended particles in solution.
a) Absorbed b) Scattered
c) Transmitted d) All of the above

3) The distance between two successive crest or trough is called as ____.
a) Wavelength b) Frequency
c) Velocity d) Wave number

4) Globar source consists of ____.
a) Zirconium b) Tungsten
c) Nichrome d) Silicon carbide

5) If wavelength of radiation is 1.5um then the corresponding wave number is ____.
a) 4333 cm^{-1} b) 6666 cm^{-1}
c) 1111 cm^{-1} d) 3333 cm^{-1}

6) Bathochromic shift occurs due to ____.
a) Introduction of conjugation b) Removal of conjugation
c) Removal of auxochrome d) Both b and c

7) Which sentence is false about Nephelometry?
a) The intensity of the scattered light is usually measured at 90° to the incident light
b) is concerned with the measurement of the intensity of the scattered light
c) Intensity of scattered light is directly proportional to the concentration of the suspended particle
d) is concerned with the measurement of the intensity of the transmitted light

8) ____ technique where separation of sample mixture was carried out by continuous addition of mobile phase.
a) Elution b) Frontal analysis
c) Displacement analysis d) All of the above

9) The mechanism of separation in Gas-Liquid chromatography is ____.
a) Adsorption b) Electrostatic force
c) Biological interaction d) Partition

10) Volume of M.P. required to elute 50% of the compound from the column is defined as ____.
a) Adjusted retention volume b) Retention time
c) Retention volume d) Adjusted retention time

11) Different paths travelled by molecules of particular solute during their passage through the column is called as ____.
a) Eddy diffusion
b) Longitudinal diffusion
c) Non-Equilibrium mass transfer
d) Both b and c

12) Temperature produced in flame photometer by Acetylene and oxygen mixture is ____.
a) 2700 b) 2900
c) 3100 d) 3500

13) The material used for construction of Hollow cathode lamp is ____.
a) Tungsten b) Sintered Silicon Carbide
c) Element to be analyzed d) Both a and b

14) The chromatographic method of separating biochemical mixture of compounds, based on highly specific biological interactions is referred to as ____.
a) thin layer chromatography
b) ion-exchange chromatography
c) affinity chromatography
d) gel permeation chromatography

15) Spontaneous emission of previously absorbed radiation by a molecule is called as ____
a) Phosphorescence b) Fluorescence
c) Flame emission d) None of the above

16) Which of the following is not a highly specific biological interaction to be used in affinity chromatography?
a) Antigen-antibody b) Cations-anions
c) Enzyme-substrate d) Receptor-ligand

17) What is the principle of FES?

a) Absorption of radiation by excited state atoms
b) Absorption of radiation by ground state atoms
c) Emission of radiation by ground state atoms
d) Emission of radiation by excited state atoms

18) UV spectra are plot of ____.

a) Abs. vs. Wavelength
b) T vs. Cone
c) Abs vs. Cone
d) % T vs. Wave number

19) Which of the following gas is suitable for use as a GC carrier gas?

a) Hydrogen
b) Helium
c) Oxygen
d) All of the above

20) 1 nm =

a) 10^{-9} m
b) 10^{-9} cm
c) 10^{-9} mm
d) 10^{-9} um

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

a) Define and classify chromatography.
b) Give construction and working of any two IR radiation sources.
c) Explain in detail any five factors affecting flame emission intensity.
d) Give principle and applications of Gel Chromatography.
e) Write a note on any two pumps used in HPLC.
f) Write a note on spectrophotometric titrations.
g) Give advantages and disadvantages of AAS over FES.
h) Define spectroscopy, chromophore, auxochrome, Blue Shift, Red Shift.
i) Describe sampling techniques in IR spectroscopy.

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

a) Summarize principle and types of Gas Chromatography. Give construction and working of any three detectors used in GC.
b) Discuss in detail factors influencing fluorescence intensity.
c) Give statement of Beer Lamberts law. Explain in detail how chemical and instrumental factors affect Beer's law.

SLR-AE-22

Seat No.	

Set P

B. Pharmacy (Semester - VII) (CBCS) Examination: March/April 2025
Industrial Pharmacy - II (801702)

Day & Date: Tuesday, 27-May-2025 Max. Marks: 75
Time: 02:30 PM To 05:30 PM

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

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

1) Which of the following methods are generally used in liquid filling?
a) Gravimetric b) Volumetric
c) Constant level Method d) All of the above

2) The definition of Quality Risk Management (QRH) has be mentioned ICH in guideline _____.
a) Q7 b) Q8
c) Q9 d) Q10

3) Small industrial development Bank of India (SIDBI) was established on _____.
a) April 2, 1990 b) April 2, 1991
c) April 2, 1992 d) April 2, 1993

4) Six Sigma concepts includes _____.
a) Define, Measure, Analyze, Improve & Control
b) Design, Measure, Analyze, Improve & Control
c) Define, Manage, Analyze, Improve & Control
d) All of these

5) ISO 14000 relies on _____.
a) DMAIC Model b) PCDA Model
c) Six-Sigma concepts d) All of these

6) A large scale apparatus or full size plant is called as _____.
a) Proto type b) Pilot Plant
c) Scale up plant d) None

7) Parameters considered for scale up of FBD.
a) Optimum Load b) Air flow rale
c) Inlet air temperature d) All of above

8) Changes are those that are unlikely to have any detectable impact on formulation quality & performance.
a) Level1 b) Level2
c) Level3 d) Level4

9) Qualification is _____.
a) Regulatory requirement b) Process based approach
c) Verification of quality d) Documented Verification

10) MFC stand for _____.
a) Master formality card b) Master formula card
c) Manufacturing formula card d) Management formula card

11) Confidentially agreement can be _____.
a) One way b) Two way
c) Both a & b d) None

12) Which tool can be used to establish pathway to root cause of failure?
a) FMECA b) FMEA
c) FTA d) All of above

13) VMP stand for _____.
a) Validation master plan
b) Verification master plan
c) Verification master procedure
d) Validation manufacture procedure

14) Thalidomide tragedy was detected in year _____.
a) 1965 b) 1967
c) 1991 d) 1996

15) One IND is submitted and study can be initiated after _____ days.
a) 30 b) 16
c) 25 d) 60

16) Carcinogenicity & Genotoxicity study is a _____ aspect of ICH guideline.
a) Safety guideline b) Efficiency guideline
c) QSEM guideline d) All of these

17) What is the synonym/ description for the phase 4 trials?
a) Post Marketing Surveillance b) Pre Marketing Surveillance
c) Pre FDA Approval d) Post FDA Approval

18) What is the approximate ratio of potential compound from the beginning of development to number of product that ultimate get FDA approval?
a) 1:10 b) 1:100
c) 1:1000 d) 1:10000

19) RA Professional works in the following areas.
a) Pharmaceutical b) Medical devices
c) Both A & B d) None

20) State the other name of dry granulation _____.
a) FIFO b) LIFO
c) Both d) None

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

a) Discuss the various change levels in SUPAC guidelines.
b) Discuss in brief various phases involves in technology transfer.
c) What are various responsibilities of regulatory affairs professionals?
d) Discuss the concepts of Quality.
e) Explain the methods for change control in pharmaceutical industry?
f) Enlist various functions of state drug licensing authority on India.
g) Write a note on Total Quality Management (TQM).
h) Explain in detail Granularity of Transfer Technology process.
i) Discuss in detail clinical research protocol.

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

a) Discuss general consideration during pilot plant as process in Pharmaceutical industry.
b) Briefly discuss about new drug application.
c) Discuss the organization & responsibilities of CDSCO.

SLR-AE-23

Seat No.	

Set P

B. Pharmacy (Semester - VII) (CBCS) Examination: March/April - 2025
Pharmacy Practice (801703)

Day & Date: Thursday, 29-May-2025 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) _____ means any noxious and unintended effect of drug.
a) ADR b) Side effect
c) Synergistic Effect d) all of the above

2) Budget classified into _____
a) Income accounts b) Expenditures account
c) Profit & loss account d) both a & b

3) Minimum _____ sq. ft. area should be allotted to Medical Store.
a) 600-80 b) 1000-2000
c) 150-250 d) 400-500

4) In ABC analysis Items B contains _____ % of total inventory.
a) 10 b) 20
c) 30 d) 40

5) List B drugs are required to be stored at _____ °C.
a) 2-8 b) 8-25
c) Room temp d) Warm temp

6) Hospital is also _____ for training of health workers.
a) Center b) School
c) Academy d) None of the above

7) Generally adverse drug reaction occurring in the hospital are _____
a) Serious b) Minor
c) Major d) Common

8) The hospital formulary is a list of preparations.
a) Pharmaceutical b) Chemical
c) Food d) None of these

9) _____ Provides valuable insights into patients' allergic tendencies.
a) Patient Interaction b) Patients History
c) Patients counseling d) Patients education

10) The main responsibilities of community pharmacy include compounding, counseling and _____
a) Stocking b) Purchasing
c) Dispensing d) Recruitment

11) Loan capital is of _____ types.
a) 2 b) 3
c) 4 d) 5

12) _____ is the process used for easy identification of materials.
a) Grouping b) Separation
c) Location d) Coding

13) _____ is policy framing and recommending body of the hospital.
a) Governing board
b) Local body
c) Permas and therapeutic committee
d) Trustee

14) _____ responsible for gathering information on all investigations of drugs which are in current use in the hospital.
a) Pharmacist b) Doctors
c) PTC d) Drug information center

15) Patient _____ and communication is a part of pharmaceutical care.
a) Education b) Reception
c) Introduction d) Counseling

16) TDM refers to measure and interpret _____ drug concentration for optimizing patients' drug therapy.
a) Urine b) Plasma
c) Both d) None of the above

17) All orders for narcotics sedative and hypnotic must be rewritten every _____ hours.
a) 24 b) 12
c) 18 d) 48

18) The drug store should be preferably located at _____
a) top floor b) ground floor
c) Out of the-premise of hospital d) 1st floor

19) _____ are the first point of consultation for all patient.
a) Primary Hospital b) Secondary Hospital
c) Tertiary Hospital d) Quaternary hospital

20) Clotting time of blood is _____ minutes.
a) 1-2 b) 4-9
c) 10-12 d) None of the above

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

a) Write a note on preparation & implementation of budget.
b) Explain the functions of a hospital Pharmacist.
c) Define patient counseling explain steps involved in patient counseling.
d) Discuss ABC analysis with its advantages and disadvantages.
e) Write a note on rational use of OTC drugs.
f) Explain causes of medication non-adherence.
g) Discuss the hematology parameters and its significance.
h) Explain content of hospital formulary.
i) Describe materials stocked in drug store and their storage conditions.

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

a) State objectives and describe functions of clinical pharmacist.
b) Describe functions of PTC and roll of PTC in drug safety in hospital.
c) Enlist functions of hospital and describe the organizational structure of hospital.

SLR-AE-24

Seat No.	

Set P

B. Pharmacy (Semester - VII) (CBCS) Examination: March/April - 2025
Novel Drug Delivery System (801704)

Day & Date: Monday, 02-06-2025 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 question: **20**

1) Which of the following is not a disadvantage of conventional dosage form?
a) Poor patient compliance
b) Change in concentration may lead to under or over medication
c) Attainment of steady state condition difficult
d) Have high cost

2) In general, dose strength of ____ g is considered maximum for a CRDDS.
a) 1 b) 2
c) 10 d) All of the above

3) Possibility of dose dumping is high in ____ DDS.
a) Reservoir b) Matrix
c) Monolithic d) None of the above

4) Size based drug delivery systems are designed to release the drug in ____
a) Oral cavity b) Colon
c) Stomach d) Small intestine

5) Hydrophilic matrices are known as _____.
a) Swellable systems b) Non-swellable systems
c) Insoluble plastic systems d) All of these

6) A system that releases the drug after some time but not promptly after administration is known ____.
a) Sustained release
b) Delayed release
c) Immediate release
d) Mechanical activated drug delivery system

7) In ____ electric field used to enhance permeability of drug through skin.
a) Iontophoresis b) Electroporation
c) Both a and b d) Sonophoresis

8) Which of the following does not constitute an appendageal route?
a) Sweat glands
b) Hair follicle
c) Sebaceous gland
d) Stratum corneum

9) Ideal characteristics of targeted drug delivery system ____.
a) Nontoxic and biodegradable
b) Biocompatible and physicochemically stable
c) Predictable and controllable rate of drug release
d) All of the above

10) Folding endurance test is to be carried out on ____.
a) Solution
b) Osmotic DDS
c) Buccal film
d) Intrauterine devices

11) Loading of the entrapped agents before/during the manufacture procedure is known as ____.
a) active loading
b) Passive loading
c) both a and b
d) None of the above

12) Which of the following should not be property of implant?
a) Biostable
b) Biocompatible
c) Nontoxic
d) Non removable

13) Which are the not proper ideal properties of the microspheres?
a) Longer duration of action
b) Control of content release
c) Protection of drug
d) Decrease of therapeutic efficiency

14) The main goal in designing nano particles as a delivery system ____.
a) To control size and surface characteristics of particle
b) To achieve the site-specific action of the drug
c) Both a) and b
d) None of the above

15) Mucociliary clearance is ____.
a) A barrier to nasal absorption
b) Not a barrier to nasal absorption
c) It is protective in function
d) It is a barrier to nasal absorption but also protective in function

16) A lipid bilayer structure that encloses an internal aqueous volume.
a) Liposomes
b) Noisome
c) Nanoparticles
d) both a and b

17) Ocusert is an example of ____.
a) Feedback regulated system
b) Activation modulates system
c) Bio-responsive system
d) Membrane permeation system

18) Identify the component which is not a part of the Transdermal Patch,
a) Seal Coat b) Adhesive layer
c) Backing membrane d) Polymer matrix

19) Solid implants are implanted into ____ tissue.
a) SC b) IM
c) Both a and b d) None of the above

20) Alzet is an example of ____ type of parenteral system.
a) Osmotic pressure activated
b) Vapor pressure activated
c) Magnetically activated
d) Hydration activated

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

1) Enlist different factors which are to be considered during selection of suitable drug candidates for CRDDS and explain any four.
2) Give an exhaustive review on an Ion exchange system for controlled drug delivery.
3) Describe the preparation and applications of monoclonal antibodies.
4) Write classification, advantages, and disadvantages of IUD.
5) Discuss approaches of GRDDS.
6) Give an exhaustive review of Nebulizers.
7) Define and classify Niosomes and enlist advantages of Niosomes over Liposomes.
8) Enlist different techniques of microencapsulation and explain coacervation phase separation technique
9) Define and classify polymers with examples.

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

1) Explain mechanism and different theories of mucoadhesion.
2) Discuss permeation pathways and factors affecting skin permeation.
3) Discuss in detail intraocular barriers and methods to overcome barriers in ocular drug delivery.

Seat No.	

Set P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April - 2025
Biostatistics and Research Methodology (801801)

Day & Date: Wednesday, 28-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice question. **20**

1) The square of standard deviation is called _____.
a) Variance
b) Quartile Deviation Full factorial design
c) Mean absolute deviation
d) Range

2) Lottery method is also called as _____.
a) Simple random sampling b) Stratified random sampling
c) Both a and b d) None

3) Sampling error occurs because of _____.
a) Faulty sample b) Substitution
c) Constant error d) All of the above

4) _____ graphs developed by dividing circle in parts.
a) Pie chart b) Histogram
c) Line graph d) Cubic graph

5) Which is not probability sampling technique?
a) Simple random sampling b) Stratified random sampling
c) Cluster random sampling d) Quota Sampling

6) _____ is the probability of accepting null hypothesis when it is true.
a) Power of the test b) Type-1
c) Both a and b d) None

7) Normal distribution is applied for _____ random distribution.
a) Discrete b) Continuous
c) Both a and b d) None

8) What is not measures of the dispersion?
a) Range b) Quartile deviation
c) Mean deviation d) Mode

9) Chi -Square test was developed by _____.
a) W. S. Gosset b) Karl Pearson
c) A. R. Fisher d) Pascal

10) Continuous variables are represented by _____.
a) Histogram b) Line diagram
c) Bar diagram d) Pie chart

11) Wilcoxon test is also called as _____.
a) Rank sum test b) Signed rank test
c) Both a and b d) None

12) Calculate Mode for given set of data: 32, 55, 60, 30, 20, 15, 20, 35,40, 30, 40, 45, 20, 35, 20.
a) 30 b) 40
c) 20 d) 15

13) SPSS stands for _____.
a) Social Science package of statistics
b) Science package for social statistics
c) Statistical package for social sciences
d) Social Science package of statistics

14) Which one of the following is an example of cubic graph?
a) Response surface plot b) Pie charts
c) Bar graph d) Line graph

15) Sample size depends on____.
a) Type of problem investigated
b) Resources available
c) Required precision
d) all of them

16) Which of the following is a measure of variation?
a) Standard deviation b) Midrange
c) Mode d) Median

17) The coefficient of skewness is always zero for _____ distribution.
a) Symmetrical b) Skewed
c) Median d) None

18) The collection of one or more outcomes from an experiment is called _____.
a) Probability b) Event
c) Random variable d) Z-value

19) When two coins are tossed together then probability of getting no tail is _____.
a) 0 b) 1/4
c) 1/2 d) 1

20) All of the following are an example of quantitative data except _____.

a) Age b) Viscosity

c) Weight d) Gender

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

1) Write a note on normal distribution of data.
2) What is regression? Write in detail about it.
3) Write a note on Measures of dispersion.
4) What is Type I and Type II error?
5) Write a note on Mann Whitney U test.
6) What are Counter Plot graph and response surface plot.
7) Explain in detail about Minitab and SPSS.
8) What are different phases of clinical trials?
9) What is correlation explain it in details.

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

1) Define Hypothesis. Write its types. Explain different steps involved in testing of hypothesis.
2) What do you mean by measures of central tendency? Describe the types of measures and their characteristics.
3) What is factorial design? What are the advantages of factorial design? Add a note on 2^3 factorial design.

Seat No.	

Set P

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April - 2025
Social and Preventive Pharmacy (801802)

Day & Date: Friday, 30-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Overpowering desire to take drug and obtain it by any means is _____.
a) Psychological dependence b) Physical dependence
c) Both d) None of the above

2) Which of the following disease has been eradicated from India?
a) Hepatitis b) Diphtheria
c) Polio d) Tetanus

3) Chikungunya is primarily spread by _____.
a) Viruses b) Bacteria
c) Molluscs d) Protozoa

4) In larval survey CI stands for _____.
a) Container index b) Crowding index
c) Connectivity index d) None of the above

5) _____ Diabetes results from absolute lack of insulin.
a) Type 1 b) Type 2
c) Gestational d) None of the above

6) _____ strategy introduced by NLCP to control leprosy.
a) Use of antibiotics b) Immunization
c) BCG vaccination d) Multi Drug Therapy

7) _____ vaccine is not included in UIP.
a) BCG b) Hepatitis B
c) Measles d) Influenza

8) Pulse polio immunization programme launched in the year _____.
a) 1985 b) 1995
c) 2000 d) 2010

9) _____ is not function of PHC.
a) Nutrition services b) School health
c) Newborn Care d) Clinical research

10) Ability to understand our own feelings, accept limitation is _____.
a) Spiritual health b) Social Health
c) intellectual health d) Emotional health

11) _____ is not function of food.
a) Physiological b) Social
c) Psychological d) Emotional

12) _____ is a Greek word means gutter of the roof.
a) Cholera b) Lumbago
c) Chikungunya d) Malaria

13) _____ in lymphatic Filariasis clinical incubation period is commonly.
a) 8 to 12 Months b) 8 to 16 Months
c) 2 to 8 Months d) 2 to 12 Months

14) _____ is defined as “The science and art of preventing disease”.
a) Social health b) Public health
c) Emotional health d) Environmental health

15) Kwashiorkor is _____ deficiency disease.
a) Carbohydrate b) Lipids
c) Proteins d) Fats

16) _____ are protective foods.
a) Proteins b) Carbohydrates
c) Fats d) Vitamins

17) _____ deficiency precipitates rickets in children’s.
a) Cobalt b) Zinc
c) Calcium d) Iron

18) National leprosy program is _____ sponsored scheme.
a) state b) national
c) WHO d) World bank

19) _____ is second level of disease prevention.
a) Primordial prevention b) Primary prevention
c) Secondary prevention d) Tertiary Prevention

20) Scurvy is _____ vitamin deficiency disease.
a) Vit. A b) Vit. B
c) Vit. C d) Vit. D

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

a) Write a note on National Tobacco control programme.
b) Discuss cholera and its prevention in detail.
c) Explain symptoms prevention and control strategies of Ebola virus disease.
d) Write a objectives and strategies of the National programme for the elderly.
e) Discuss social causes of disease.
f) Classify vitamins; write functions and sources of it.
g) Discuss pulse polio programme in detail.
h) Describe goals and principals of PHC.
i) Define health explain impact of urbanization on health.

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

a) Explain transmission, symptoms and prevention of Dengue.
b) Explain urban healthcare delivery model in detail.
c) Discuss in detail health promotion and education in school.

Seat No.	

Set **P**

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April - 2025
Pharmaceutical Marketing Management (801804)

Day & Date: Monday, 02-June-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice question. **20**

1) Which of the following is NOT an element of the marketing mix?
a) Distribution b) Product
c) Target market d) Pricing

2) A place where goods are bought and sold against the price consideration between the buyers and the sellers is called_____.
a) Exchange b) Market
c) E-commerce d) Transaction

3) The term marketing refers to _____.
a) Advertising, Sales Promotion, Publicity and Public Relational activities.
b) A new product needs ideas, Developments, concepts and improvements.
c) Sales Planning, Strategy and Implementation.
d) A philosophy that stresses customer value and satisfaction.

4) The objective of price can be:
a) Profit b) Market share
c) Cash Flow d) All the above

5) At the introduction stage of the Product Life Cycle (PLC), which of the following are the marketer's two main priorities?
a) Launch planning and creating shelf space.
b) Generating awareness and stimulating responses.
c) Launch planning and generating awareness.
d) Creating shelf space and generating awareness.

6) A fixed percentage of profit is added to the total cost of product is called _____.
a) Cost plus pricing b) Mark-up pricing
c) Demand based pricing d) None

7) Segmentation is the process of:
- a) Splitting of market into groups of similar or different end users within each groups.
- b) Selecting one group of consumers among several other groups.
- c) Creating a unique space in the minds of the target consumer.
- d) None of these.

8) Which is the unique identity of product _____.
- a) Branding
- b) Packaging
- c) Labelling
- d) None of these

9) Product can be classified on the basis of _____.
- a) Durability
- b) Users
- c) Visibility
- d) All of above

10) _____ is the process whereby individuals decide what, when, where, how and from whom to purchase goods and services.
- a) Buying behavior
- b) Psychological behavior
- c) Consumer behavior
- d) None of these

11) Which is the emerging concepts marketing
- a) Global marketing
- b) Rural marketing
- c) Industrial marketing
- d) All of the above

12) Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large definition is given by _____.
- a) Baristol mayers
- b) The American Marketing Association
- c) The Association of National Advertisers
- d) Peter Drucker

13) There are _____ stages in product life cycle.
- a) One
- b) Two
- c) Three
- d) Five

14) _____ refers to the total number of items in its product mix.
- a) Product mix
- b) Product line
- c) Product width
- d) Product length

15) Reasons for growing rural markets are_____.
- a) Change in rural consumer behaviour.
- b) Marketing strategies.
- c) Promotion strategies.
- d) Product mix.

16) 4P's of marketing_____.
a) Product, price, preference, place.
b) Product, payment, promotion, place.
c) Product, price, promotion, place
d) Product, price, promotion, publicity

17) If manufacturer increases the price of drug more than 10% of MRP, It empowers NPPA to reduce to level of 10 % of MRP for next ____ month.
a) 7 b) 10
c) 12 d) 14

18) Following one is not marketing environment _____.
a) Internal environment b) External environment
c) Micro environment d) Macro environment

19) Which model is available to explain organizational buying behaviour_____.
a) Webster and Wind Model b) Sheth Model
c) Both A & B d) None of the above

20) When producers, wholesalers, and retailers act as a unified system, they comprise a _____.
a) Conventional marketing system.
b) Power-based marketing system.
c) Horizontal marketing system.
d) Vertical marketing system.

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

a) Write a detail note on NPPA.
b) Write a note on product layer.
c) What do you understand by "advertising"?
d) Define and describe the duties of Professional sales representatives (PSR).
e) Write objectives and importance of Pricing?
f) Define
i) Global Marketing
ii) Packaging
iii) Branding
g) Write a note on rural marketing.
h) Write a detail note on conflict in channels.
i) Give a detail note on pricing method.

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

a) What is the importance of consumerism? Discuss in brief consumer responsibilities and Consumer right.
b) Write in short about scope of marketing? Give difference between Marketing and Selling.
c) Define Product. Explain in detail product life cycle.

Seat No.	

Set **P**

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April - 2025
Pharmacovigilance (801806)

Day & Date: Wednesday, 04-June-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice questions **20**

1) For the chemical substance names are usually chosen excepta
a) The International Non-proprietary Name (INN)
b) USAN (United States Adopted Name)
c) BAN (British Approved Name)
d) IAN(Indian Approved Name)

2) Eudra Vigilance is short form of
a) European Union Drug Regulating Authorities Pharmacovigilance
b) European Union Drug Research Authority Pharmacovigilance
c) European Department of Research and Analytical Vigilance
d) None of the above

3) MedDRA is developed by
a) WHO b) ICH
c) CDSCO d) PCI

4) Website of WHO for Pharmacovigilance is
a) Vigimed b) Viginex
c) Vigimel d) VigiBase

5) This observational study of pharmacovigilance includes a group of individuals who Share a common characteristic and may be chosen based on a population definition, or Based on a particular exposure.
a) Case control study b) Cohort study
c) Cross sectional study d) Spontaneous reporting

6) The Pharmacovigilance Programme of India (PVPI), coordinated by the Indian Pharmacopeia Commission, is situated at.
a) Calcutta b) Mumbai
c) Ghaziabad d) Jaipur

7) It is a list of patients with the same characteristics useful in the active surveillance of Pharmacovigilance
a) Sentinel sites b) Registries
c) Case series d) Drug event monitoring

8) Which one of the following comprise primary drug information resource?
a) Review and research articles
b) Major compendia
c) EMBASE and MEDLINE
d) Clinical research study reports

9) Which of the following database is maintained by UMC on behalf of World Health organization?
a) Eudra Vigilance
b) Motherisk
c) Vigibase
d) General Practice Research Database (GPRD)

10) ATC stands for:
a) Anatomical Therapeutic Chemical Classification
b) Anatomical Therapeutic Committee classification
c) Anatomy and Theoretical Classification
d) American Technical Council

11) What is Pharmacovigilance
a) Effects of drugs and mechanism of action
b) Biochemical and physiological effect of drug
c) Analyse the risk, safety of medicine
d) Role of the drug of Genome Response

12) Pharmacovigilance programme of India was started by Govt of India on-
a) 14th July 2012
b) 14th July 2010
c) 10 June 2012
d) 10 July 2010

13) The objectives of PVPI includes.
a) Adverse drug reaction
b) Monitoring the Patients
c) Patient counselling
d) Create national wide system for patient safety reporting

14) The most commonly adopted method for reporting of ADR is -
a) Expedited reporting
b) Longitudinal electronic patient records
c) Spontaneous reporting
d) Suspected reporting

15) Naranjio scale method of causality assessment is -
a) Algorithmic method
b) Probabilistic method
c) Global introspection
d) Algebraic Method

16) WHO-ART has:
a) A 4 levels hierarchical structure
b) B. 10 levels hierarchical structure
c) C. 5 levels hierarchical structure
d) D. 6 levels hierarchical structure

17) Time frame to report fetal ADR in expedited reporting is _____.
a) 7 days b) 30 days
c) 60 days d) 90 days

18) US Medwatch 3500 A is required for _____.
a) Mandatory reporting b) Voluntary reporting
c) Both a and b d) None of these

19) ICSR stands for
a) International council for safety report
b) Indian council for survey and report
c) Individual case safety report
d) WHO-UMC

20) Who is responsible for WHO international drug monitoring Programme?
a) Uppsala monitoring center
b) WHO Drug dictionary
c) PVPI
d) Contract research Organization

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

a) Write note on WHO International drug monitoring Programme.
b) Explain in detail periodic safety update reports.
c) Write in detail about CDSCO.
d) Write note on history & development of PV.
e) Write note on international classification of Disease.
f) Write note on Vaccine Failure.
g) Explain about MedDRA queries.
h) Explain CIOMS requirements for ADR reporting.
i) Give Brief about Schedule Y.

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

a) Discuss in details of passive surveillance and active surveillance. Explain the drug event monitoring program.
b) Write note on pharmacovigilance programme of India?
c) Give Organization and objectives of ICH guidelines. Explain ICH guidelines for expedited reporting.

Seat No.	

Set **P**

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April - 2025
Cosmetic Science (801810)

Day & Date: Friday, 06-06-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 Multiple choice question. **20**

1) An agent used to clean the surface of teeth and thereby decrease tooth decay, mouth odour is _____.
a) Abrasive b) Dentifrice
c) Gargle d) Dental cone

2) Surfactants are incorporated in the preparation of dentifrice as they _____.
a) Clean the teeth b) Produce foam
c) Removes debris d) All of these

3) Vanishing cream is _____ type of emulsion.
a) Oil in water b) Water in oil
c) Oil in water in oil d) All of these

4) Emollients refers to _____.
a) Materials that harden the skin
b) Materials that soften the skin
c) Materials that imparts stickiness to skin
d) None of these

5) Titanium dioxide commonly used in _____.
a) Vanishing Cream b) Sunscreen Cream
c) Ophthalmic Cream d) Aqueous Calamine cream

6) Which one of the following is not a stage of hair growth cycle?
a) Anagen phase b) Catagen phase
c) Telogen phase d) Pigmentation phase

7) Vanishing creams are called so because _____.
a) They disappear during formulation mix
b) They vanish during removal from skin surface
c) They disappear after rubbing application
d) None of the these

8) Retinoids are _____.
a) Anti-dandruff compounds b) Emollients
c) Anti-aging compounds d) Humectants

9) Anti-perspirants are the personal hygiene compounds designed to _____.
a) Control the penetration of harmful rays
b) Control sweat
c) Impart brightness to the skin
d) None of these

10) Efficacy of sunscreen is usually expressed by _____.
a) Sun rays factor
b) Time of application of sunscreen
c) Sun protection factor
d) All of these

11) Following country has a specific category of products that are in between cosmetics and drug _____.
a) Japan
b) India
c) Russia
d) Turkey

12) The soap and syndet bars are manufactured by following process _____.
a) Kettle process
b) Cold process
c) Semi and full-boiled process
d) All of these

13) Common problem associated with teeth and gums _____.
a) Plaque and dental carries
b) Tartar and bad breathe
c) Dental stains
d) All of the above

14) The sunscreen products works by _____.
a) Absorbing the rays
b) Reflecting the rays
c) Both (a) and (b)
d) None of these

15) Dry mouth is dental condition in which the level of saliva in the mouth is: _____.
a) Decreased
b) Increased
c) Stop
d) None of these

16) Sunscreen is available in following dosage form _____.
a) Lotion
b) Gel
c) Spray
d) All of the above

17) _____ instrument used to measure sebum level of the skin surface.
a) Cornometer
b) Sebumeter
c) TEWL
d) All of these

18) Following gives yellow colour to turmeric _____.
a) Curcumin
b) α- phellanderene
c) Sabiene
d) Cineol

19) Layers of epidermis _____.
- a) Stratum Basale & stratum spinosum
- b) Stratum granulosum & stratum corneum
- c) Both a and b
- d) None of the above

20) Following is not the preservative _____.
- a) Methyl paraben
- b) Butyl paraben
- c) Magnesium stearate
- d) Phenol

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

a) Classify surfactants with suitable examples and explain surfactants as cosmetic excipient.
b) Add a note on cosmetics as quasi and OTC drugs.
c) What are the difference between antiperspirants and deodorants?
d) Enlist some ingredients used in para-phylene Diamine-based hair dye and write any two evaluations test of hair dyes.
e) Enlist the excipients used in the formulation of hair conditioners and explain them.
f) Define SPF and write its formula and as well as significance.
g) What are herbal cosmetics? write applications of herbal cosmetics.
h) Write the advantages and disadvantages of sebumeter.
i) Explain the types and causes of hair fall.

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

a) Write the principle of formulation and method of preparation of cold cream and vanishing cream.
b) Explain in detail the evolution of cosmeceuticals from cosmetics.
c) What are antiperspirants? Classify antiperspirants and write the mechanism of working of antiperspirants.

Seat No.	

Set **P**

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April - 2025
Quality Control and Standardization of Herbals (801807)

Day & Date: Monday, 09-June-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 multiple choice questions **20**

1) Control of laboratory should include _____
a) Sampling plans b) Test procedure
c) Standards d) All

2) GMP in Drugs and cosmetics Act 1940 and Rules 1945 comes under _____
a) Schedule T b) Schedule M
c) Schedule R d) Schedule J

3) Gel permeation Chromatographic technique is used for separation of _____
a) Polysaccharides b) Enzymes
c) Polymers d) All

4) Chromatography is a physical method used to separate and analyze_____
a) Simple mixture b) Complex mixture
c) Viscous mixture d) Metals mixture

5) In Thin layer Chromatography, the stationary phase is made up of _____ and The mobile phase made up of _____
a) Solid, liquid b) Liquid, liquid
c) Solid, Gas d) Liquid, Gas

6) Components of GMP includes _____
a) Training of personnel
b) Design and construction of the industry
c) Quality control
d) All

7) No objection certificate for expert of drugs from India is issued by Ministry of Health and Family Welfare for export purpose and ____ of the drug and cosmetic act 1940.
a) Rule 94 b) Rule 95
c) Rule 96 d) Rule 97

8) When a company wants to manufacture/ Import anew drug it has to apply to seek permission from?

a) GEAC b) DCC
c) DCGI d) All

9) Requirement and guidelines for permission to import or manufacture of new drug for sale or to undertake clinical trial belongs to schedule?

a) schedule X b) Schedule Y
c) Schedule B d) Schedule C

10) The group of constituent that serve solely for analytical purpose and have no clinical or Pharmacological activities is known as _____

a) Active markers b) Analytical Markers
c) Negative Markers d) None of these

11) "RAPD" Stands for _____

a) Random Amplified polymorphic DNA
b) Restriction Amplified polymorphic DNA
c) Random Amplified polymorphism DNA
d) Rapid Amplified polymorphic DNA

12) The Fourth Edition of IP was published in?

a) 1996 b) 1997
c) 1998 d) 1999

13) Markers are _____

a) Pure herbal extracts
b) Pure and mixtures of constituents
c) Pure and single constituents
d) All

14) AYUSH "Stands for _____

a) Allopathy, Yoga, Naturopathy, Unani, Siddha and homeopathy
b) Ayurveda, Yoga, Naturopathy, Unani, Siddha and homeopathy
c) Ayurveda, Yoga, Unani, Siddha and homeopathy
d) All

15) BIO chemical markers are _____

a) Enzymes b) Proteins
c) Isozymes d) All

16) Herbal Pharmacopeia is a _____

a) Pharmacognosy book b) Monographs on botanicals
c) Books on herbs d) None

17) "IDMA" Stands for _____

a) Indian Drugs Manufacturers Association
b) Indian Drugs Manufacturing Association
c) Indian Drugs Manufacturers Associate
d) None

18) The Third edition of IP was published in 1985 with _____ volumes
a) Two b) Three
c) Four d) Five

19) The Eighth edition of IP was published in _____
a) 2015 b) 2016
c) 2017 d) 2018

20) Finger printing techniques includes _____
a) TLC b) HPTLC
c) HPLC d) All of these

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

a) Write WHO and ICH guidelines on quality control of herbal drugs.
b) Write a note on quality assurance.
c) Write a short note on herbal formulations.
d) Explain about GLP in traditional system of medicine
e) Describe current good manufacturing practices for herbal medicines.
f) Write a note on standardization of herbs.
g) Discuss stability testing parameters of herbal medicines.
h) Explain chemical and biological markers.
i) Write application of spectroscopic techniques.

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

a) Discuss the importance of WHO guidelines and safety monitoring in pharmacovigilance systems.
b) What is role of various chromatographic techniques involved in standardization of herbal drugs?
c) Write EU and ICH guidelines for quality control of herbals.

Seat No.	

Set **P**

B. Pharmacy (Semester - VIII) (CBCS) Examination: March/April - 2025
Pharmaceutical Regulatory Science (801805)

Day & Date: Monday, 09-June-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

Q.1 multiple choice questions **20**

1) In Europe, variations are classified as Type-IA for _____ change.
a) Minor b) Major
c) Moderate d) Relative

2) What is the main purpose of phase II of a clinical trial?
a) To initially assess drug effectiveness and to further study its safety.
b) Tests the safety and how well a new treatment works compared with a standard treatment.
c) Studies the side effects caused over time by a new treatment after it has been approved and is on the market.
d) All of the above

3) The FDA regulations are announced under the term of _____
a) CFR 51 b) CFR 31
c) CFR 11 d) CFR 21

4) Bioequivalence study is part of which application process _____
a) IND b) NDA
c) ANDA d) All of the above

5) ANDA stands for _____
a) Abbreviated New Drug Application
b) Abbreviated New dose Application
c) Abbreviated Novel Drug Application
d) All of the above

6) In US the New Chemical Entity Exclusivity last for _____ years.
a) 8 b) 7
c) 6 d) 5

7) European Medicine Agency was founded in _____
a) 1989 b) 1988
c) 1987 d) 1976

8) The first step in the generic drug development process is _____
a) Target Identification
b) Drug candidate selection
c) Lead Optimization
d) Target Validation

9) Lists of FDA-licensed biological products and their associated IPR is available in _____.
a) Orange book
b) Black book
c) Red book
d) Purple book

10) _____ means drugs which are legally allowed to be sold by pharmacists without need for a prescription.
a) Old Drug Product
b) Over the Counter medicines
c) New Drug Products
d) All of the above

11) Which of the following is NOT a part of the Investigational New Drug (IND) Review?
a) Review of preclinical trial results
b) Determination of safety in human use
c) Authorization to ship across the state lines
d) Identification of side effect profile

12) How long does a drug patent last?
a) 5 years
b) 10 years
c) 20 years
d) Patent does not expire

13) Which phase of a clinical drug trial is ongoing?
a) I
b) II
c) III
d) IV

14) As per ANDA requirements the bioequivalence of test to reference formulation is _____
a) 80-120%
b) 100-150%
c) 70-130%
d) 70-80%

15) In US the Orphan Drug Exclusivity (ODE) last for _____ years.
a) 5
b) 6
c) 7
d) 8

16) CTD stands for ____
a) Common Technical Document
b) Chemical Technique for Drug
c) Common Transfer Device
d) None of the above

17) The first step in the drug discovery process is _____
a) Lead Identification
b) Target Identification
c) Lead Optimization
d) Target Validation

18) List of approved drugs and their associated IPR is available in _____
a) Pink book
b) Purple book
c) Red book
d) Orange book

19) Select the responsibility/s of RA personnel _____

a) To analyze the content of the active ingredient in the formulation
b) Work with federal, state and local governing agencies to get the approval for drug
c) To undertake stability studies of the drug products
d) To supervise the production of the formulation

20) Identify the relevant regulatory body in USFDA for approval of drugs.

a) BLA b) IND
c) CBER d) CDER

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

a) What is code of federal regulation? What are its objectives?
b) Discuss in brief part 11 of CFR.
c) What is generic drug product? How and why the concept of generics is evolved?
d) What is GCP Obligations? List them.
e) What is DMF? Elaborate parts of DMF.
f) What are the levels of changes in SUPAC guidance?
g) Give responsibilities and functions of Institutional Review Board.
h) Give organizational structure of CDSCO. Enlist types of applications submitted to CDSCO.
i) Write in brief the different stages of clinical trials?

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

a) Discuss in detail stages of drug discovery and development.
b) What is CTD? Explain in detail modules of CTD.
c) Explain in detail IND application.

Seat No.	

Set P

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

Day & Date: Wednesday, 30-April-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Which layer of the heart is formed by cardiac muscle fibers and cardiac myocytes?
a) Myocardium b) Pericardium
c) Both the option a & b d) Epicardium and septum

2) What % of blood is plasma?
a) 90% b) 60%
c) 55% d) 20%

3) Spinal nerves come under which part of nervous system?
a) central nervous system b) peripheral nervous system
c) somatic nervous system d) autonomic nervous system

4) Which of the following is moving skull bone?
a) Femur b) Mandible
c) Atlas d) Tibia

5) Which of the given below cell organelle does not contain DNA?
a) Lysosomes b) Mitochondria
c) Nucleus d) chloroplast

6) Ear drum is also called as_____.
a) Ceranious gland b) Ceranious gland
c) Tympanic membrane d) Tomophonic layer

7) Prothrombin is a _____ clotting factor.
a) I b) II
c) III d) IV

8) Cardiac function is _____.
a) Pumping a blood b) Pumping lymph
c) Absorption d) Digestion

9) Smallest bone of the body is _____.
a) Stapes b) Malleus
c) Incus d) Patella

10) Hypglossal nerve is _____ nerve.
a) Mixed b) Motor
c) Sensory d) None

11) Anaemia is a _____ term.
a) Roman b) French
c) Greek d) Indian

12) Sites of blood synthesis in fetus except
a) Yolk sac b) Bone marrow
c) Spleen d) Liver

13) Rods are responsible for _____ vision.
a) Night b) Day
c) Near d) Far

14) Tear gland is also known as_____.
a) Lacrimal gland b) Lecreamal gland
c) Locramal gland d) Vascular gland

15) Hemopoiesis is the process of
a) Diagestion of cells b) Blood cell production
c) Wax production d) Dead cell production

16) A muscle which flexes both hip and knee joints is -
a) gluteus maximus b) biceps femoris
c) rectus femoris d) Sartorius

17) Which of the following structures is likely to get damaged when the semiflexed knee is suddenly rotated medially.
a) anterior cruciate ligament b) Lateral meniscus
c) medial meniscus d) posterior cruciate ligament

18) In midbrain following structures are found at the level of occulomotor nerve nucleus.
a) red nucleus
b) pretectal nucleus
c) substantia nigra
d) decussation of superior cerebellar peduncle

19) Which of the following nerves is involved in fracture neck humerus?
a) ulnar b) median
c) axillary d) radial

20) Following bones take part in lateral longitudinal arch EXCEPT;
a) calcaneous b) cuboid
c) talus d) 5^{th} metacarpal

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

a) Define cell and explain mitochondria with a neat labeled diagram of cell along with its parts.
b) Describe the composition of blood.
c) Explain anatomy and physiology of eye with neat labeled diagram.
d) Draw a neat labeled diagram electrocardiogram. Explain the P, Q, R, S, and T waves in brief.
e) Describe in detail ABO blood group system.
f) Write in detail about structure and function of skin.
g) Write a note on cranial and spinal nerves.
h) Elaborate the cell cycle in detail.
i) Describe the term homeostasis. Write in brief about positive feedback mechanism.

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

a) Explain in details the anatomy and physiology of hearing.
b) Describe in detail anatomy and physiology of heart with neat labeled diagram.
c) Define tissue and its types, explain the structure and function of epithelial and connective tissue.

Seat No.	

Set **P**

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

Day & Date: Friday, 02-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Number of gram mole of solute per liter of solution is known as _____.
a) Normality b) Molarity
c) Molality d) Mole

2) Standardization of silver nitrite is based on _____ method.
a) Mohr's b) Volhard's
c) Fajan's d) Gay-Lussac

3) Difference between true value and observed value with regard to sign is known as _____.
a) Absolute Error b) Error
c) Relative Error d) Precision

4) Starch is added towards the end point because _____.
a) It is sensitive towards iodine
b) It forms starch-iodide complex
c) It causes error in titration
d) All of these

5) Which solvent is used in non-aqueous titration?
a) Glacial acetic acid b) Hydrochloric acid
c) Pentanoic acid d) Sulphuric acid

6) Which type of titration used to determine alkaloids?
a) Precipitation b) Displacement
c) Redox d) None of the above

7) Potassium dichromate is used as an _____ agent in acidic medium.
a) Reducing agent b) Conductant
c) Oxidizing agent d) Potential

8) 4.005 have _____ significant figures value.
a) 2 b) 3
c) 4 d) 5

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

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

11) Which apparatus is used for limit test of arsenic?
a) Nessler cylinder b) Volumetric flask
c) Guitzeit apparatus d) Burette

12) Any zero digit that comes before the first nonzero digit is _____.
a) Trailing b) Non significant
c) Leading zero d) Significant

13) Limit test is used for _____.
a) Increase accuracy b) Increase impurity
c) Decrease impurity d) Control impurity

14) The reciprocal of conductance is _____.
a) Resistance b) Viscosity
c) Turbidity d) None of the above

15) According to Arrhenius theory acid is defined as _____.
a) Which dissociate in water and produce O H+ ion
b) Which undissociate in water and produce H+ ion
c) Which dissociate in water and produce O H- ion
d) Which dissociate in water and produce H+ ion

16) Indicator used for Isoprenaline sulphate titration _____.
a) Crystal violet b) Napthol benzene
c) Green orange d) Quinaldine red

17) What is the limitation of Arrhenius theory?
a) Some compounds are basic in nature but they do not contain OH group.
b) Some compounds are basic in nature but they do not contain H group.
c) Applicable in aqueous state but not for the gaseous state.
d) All of above

18) What is formula of Normality?
a) N = number of equivalent weight of solute/ liter of solution
b) N = weight of solute/ weight of solvent
c) N = weight of solvent/ weight of solute
d) N = number of equivalent weight of solute/ liter of solution* 1000

19) In iodometric titration _____ is used as indicator.
a) Methyl orange b) Methyl blue
c) Thymol blue d) Starch

20) Which Titration is known as the Argintometric titration?
a) Acid base Titration b) Diazotization Titration
c) Gravimetry d) Precipitation titration

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

a) Explain titration curve of strong acid-strong base in detail.
b) Write a note on gravimetry.
c) Define impurity. Explain various sources of impurity.
d) Give the difference between Mohr's method and Volhard's method.
e) Explain dropping mercury electrode.
f) Write factor affecting conductance & give details of conductivity cell.
g) Define: Precision, relative accuracy, significant figure, molarity and primary standard.
h) Define Pharmaceutical Analysis. Add a note on scope of analysis.
i) Explain theories of indicator in detail.

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

a) Write the difference between Iodimetric and iodometric titration. Explain assay of sodium thiosulphate powder.
b) Discuss in detail gravimetric analysis.
c) Define errors. Write sources and types of errors. Explain methods of minimizing errors.

Seat No.	

Set P

B. Pharmacy (Semester - I) (CBCS) Examination: Oct/Nov - 2024
Pharmaceutics - I (801105)

Day & Date: Monday, 05-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Elixirs are_____ type of dosage forms
a) Aqueous b) Non-aqueous
c) Hydroalcoholic d) Oily

2) Which of the following method is followed for preparation of emulsion?
a) Dry gum method b) Wet gum method
c) Bottle method d) All of the above

3) _____ is represented by R_x Symbol.
a) Superscription b) Inscription
c) Subscription d) Renewal instructions

4) Posology deals with study of _____.
a) Dose b) Incompatibilities
c) Drug interactions d) Toxicity

5) What is the meaning of Latin term 'bis in die'?
a) Twice daily b) Three times a day
c) Twice a week d) Four times a day

6) The first edition of IP was published in _____.
a) 1955 b) 1975
c) 1965 d) 1985

7) Drugs converted to suitable forms are known as _____
a) API b) Dosage form
c) Excipients d) None of the these

8) Simple syrup is a saturated solution of _____
a) Fructose b) Lactose
c) Sucrose d) Dextrose

9) When the action of the drug is opposed by the other drug, is known as _____
a) Analgesics b) Addition
c) Antioxidant d) Antagonism

10) The prescription is an order written by a registered medical practitioner to _____.
a) Pharmacist b) Patient
c) Nurse d) Compounding

11) Enemas are administered _____.
a) Orally b) Rectally
c) Parenteral d) None of these

12) Aqueous iodine solution is also known as _____.
a) Mandl's paint b) Lugol's solution
c) Dakin's solution d) None of these

13) Who is the father of pharmacy education in Indian?
a) Prof. M. L. Scroff b) Prof. R. N. Chopra
c) Dr. B. N. Ghosh d) Dr. G. M. Sadique

14) Which of the following is sign of instability in emulsion?
a) Cracking b) Creaming
c) Phase inversion d) All of the above

15) Pessaries are meant for introduction into _____.
a) Vagina b) Rectum
c) Oral cavity d) Nasal cavity

16) Emulsifying agents reduce _____ between two phases.
a) solubility b) reaction
c) Interfacial tension d) None of these

17) Which of the following method is used to manufacture suppositories?
a) fusion b) cold compression
c) hand moulding d) All of the above

18) Liniments must not be applied on the _____ skin.
a) Broken b) Swelled
c) painful d) normal

19) In emulsion both phases are _____.
a) solids b) liquids
c) semisolids d) none of these

20) Bases that are water-washable, non-greasy, and non-occlusive are ____.
a) Water soluble Bases b) oleogenous bases
c) fatty bases d) Emulsifiable

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

a) Write method of preparations of mouthwashes and lotions.
b) Write short notes on BP and USP.
c) Give different types of suppository bases and briefly explain evaluation of suppositories.

d) Define emulsion and classify emulsifying agents with suitable examples.
e) Define ointment and explain preparation of ointments.
f) Mention in detail about stability problems encountered by suspensions.
g) Define and classify liquid dosage forms. Write about different excipients used in liquid dosage forms.
h) Write in detail development of pharmacy education in India.
i) What is prescription? Explain the different parts of prescription.

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

a) What is posology? Discuss the various factors affecting the dose.
b) What is incompatibility? Explain different types of incompatibilities with examples.
c) What are emulsions? Discuss in detail different methods of preparation of emulsions.

Seat No.	

Set P

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

Day & Date: Wednesday, 07-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) A supplement to the I.P. 1955 was published in _____.
a) 1960 b) 1965
c) 1970 d) 1959

2) The synonym of sodium bicarbonate is _____.
a) Epsom salt b) French chalk
c) Baking soda d) None of above

3) Low serum sodium level is called _____.
a) Hyponatrimia b) Hypokalemia
c) Hypernatrimia d) Hyperkalemia

4) Sodium nitrite used in poison due to _____.
a) CO b) Barbiturates
c) Cyanide d) Alkaloidal

5) _____ helps in preventing dental carries.
a) Fluoride b) Chloride
c) Magnesium d) None of above

6) Alum is _____.
a) Potassium aluminia
b) Potassium sulphate
c) Potassium Aluminium sulphate
d) All of above

7) According to the I.P. sparingly should be _____ volume(ml)per gram of solvent.
a) 1 to 10 b) 30 to 100
c) 100 to 1000 d) 1000 to 10,000

8) Epsom salt is synonym of _____.
a) $NaHCO_3$ b) Na_2CO_3
c) NaCl d) $MgSO_4$

9) _____ is used for avoiding passage of H_2S gas from glass tube in Guizeit apparatus.
a) Lead acetone cotton plug b) Lead acetate cotton plug
c) Lead oxide cotton plug d) None of above

10) ORS contain _____.
a) NaCl b) KCl
c) Sodium Citrate d) All of above

11) Guitzeit apparatus is having _____ ml Capacity bottle/Conical flask.
a) 110 b) 120
c) 130 d) 140

12) Calcium glucanate is assayed by _____.
a) Acid base titration b) Complexometric Titration
c) None aqueous titration d) Redox titration

13) The molecular weight of hydrogen peroxide is _____.
a) 34.016 b) 33.106
c) 34.616 d) 33.016

14) _____ is a source of impurity.
a) Raw Material b) Methods of manufacturing
c) Both a & b d) None of these

15) _____ used as emetic.
a) Copper Sulphate b) Boric acid
c) Magnesium d) Citric acid

16) Addition of fluoride to the municipal water supply known as _____.
a) Fluridation b) Flurination
c) Flurosis d) All of these

17) Magnesium sulphate is used as _____.
a) Astringent b) Expectorant
c) Cathartics d) Dental product

18) _____ Antidote producing the effect opposite to that of poison.
a) Physiological b) Chemical
c) Mechanical None of these

19) In the limit test for iron _____ is added to avoid precipitation.
a) Iron b) Ammoniac
c) Thioglycolic acid d) Citric acid

20) Phosphate buffer system is important regulator of P^H in _____.
a) Plasma b) Kidneys
c) Lungs d) Cytosol

Q.2 Answer the followings (Any Two) **20**

a) Which different aspects of drug/excipient are covered in an official monograph?

b) Explain in detail Modified Limit test for Arsenic.

c) How the physiological acid-base balance is maintained?

Q.3 Answer Any Seven **35**

1) Write a note on ORS.

2) What is desensitizing agents. Write a note on zinc eugenol cement.

3) What are GIT agents? Classify with example.

4) Write a note on mechanism of action of antimicrobial agents.

5) What do you mean by Poisoning?

6) Explain in detail IP 2014.

7) What are the sources of impurities?

8) Explain in detail Modified Limit test for sulphate.

9) Explain the importance of haematinics with one example.

Seat No.	

Set **P**

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

Day & Date: Saturday, 03-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Which part of neuron transmits an electrical signals to a target cell?
a) Dendrites b) soma
c) cell body d) axon

2) The system that enables movement, supports the body and protects internal organs is _____.
a) respiratory system b) reproductive system
c) skeletal system d) circulatory system

3) Neurons
a) are basic units of nervous system
b) are held in place by glial cell
c) transmits electrical massages throughout the nervous system
d) all of above

4) The ducts of liver and pancreas unite in to a common duct and open in to _____.
a) ileum b) caecum
c) colon d) duodenum

5) Which of these organ is not considered an accessory digestive structure?
a) mouth b) salivary gland
c) pancreas d) liver

6) Which of these is involved in the chemical digestion of protein?
a) pancreatic amylase b) trypsin
c) sucrose d) pancreatic nuclease

7) ATP is hydrolyzed in to _____.
a) ADP b) inorganic phosphate
c) organic phosphate d) both a and b

8) Which of the following statement is true regarding the respiratory rate of a newborn?
a) respiratory rate of a newborn is slow
b) respiratory rate of a newborn various between male and female infants
c) the respiratory rate of a newborn is approximately 30 respirations per minute
d) the respiratory rate of a newborn is at its highest rate, approximately 40 to 80 respirations per minute

9) What is the role of alveolar macrophages?
a) to secrete pulmonary surfactant
b) to secrete antimicrobial proteins
c) to remove pathogens and debris
d) to facilitate gas exchange

10) Inspiratory capacity is _____.
a) the total amount of air that can be inspired after a tidal expiration
b) total amount of exchangeable air
c) functional residual capacity
d) air inspired after a tidal inhalation

11) Water nutrients and ions are moved from the glomerulus by means of?
a) tubular reabsorption b) tubular secretion
c) osmosis d) glomerular filtration

12) The primary structure found within the medulla is _____.
a) loop of Henle b) minor calyces
c) portal system d) ureter

13) Which of these is not steroid _____.
a) adrenalin b) cholesterol
c) progesterone d) cortisone

14) The thyroid gland is _____.
a) located inferior to the larynx
b) produces anti-diuretic hormone
c) secrete small amount of insulin
d) helps initiate milk production

15) Growth hormone_____.
a) is also called as somatostatins
b) is regulated by humoral mechanisms
c) secretion results in a decrease in muscle mass
d) promotes long bone growth during the formative years

16) Hormone that prevents ovulation is _____.
a) prolactin b) progesterone
c) estrogen d) FSH

17) Where does fertilization of the egg by the sperm typically occur?

a) vagina b) uterus
c) uterine tube d) ovary

18) What control whether an embryo will develop testes or ovaries?

a) pituitary gland
b) hypothalamus
c) Y- chromosome
d) presence or absence of estrogen

19) The timing of puberty can be influenced by which of the following _____.

a) genes b) stress
c) amount of body fat d) all of the above

20) Which of the following is not necessary for protein synthesis to occur, once transcription is completed _____

a) t- RNA b) ribosome
c) m- RNA d) DNA

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

a) Explain neuron and neuralgia
b) Enlist various parts of brain and give their functions.
c) Write a note on disorders of digestive system
d) Describe the process of formation of ATP.
e) Classify respiratory system and enlist different process of respiration.
f) Draw a neat labeled diagram of nephron and write a note on nephron.
g) Write a note on hormone released from pineal gland
h) Write a note on disorders of reproductive system.
i) Describe the structure and functions of chromosomes.

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

a) Name various cranial nerves. Explain the internal anatomy of spinal cord and comment on reflex arc.
b) Give the anatomy and physiology of different parts of digestive system along with neat labeled diagram.
c) Write a note on disorders of endocrine system.

Seat No.	

Set P

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

Day & Date: Tuesday, 06-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Primary amine can be identified by using _____.
a) HCl b) $CHCl_3$
c) NaOH d) $CHCl_3$ + KOH

2) Aldehydes undergoes reduction with the presence of $NaOH/NH_2NH_2$ to give alkane. This reaction is known as _____.
a) Clemmensen reduction b) Wolf-Kishner reduction
c) Rosenmund reduction d) Reformastky reaction

3) Formaldehyde are treated with Grignard reagent to give _____.
a) Primary alcohol b) Secondary alcohol
c) Tertiary alcohol d) Both a and b

4) Which of the following compound will not easily oxidized?
a) 1° alcohol b) 2° alcohol
c) 3° Alcohol d) Aldehydes

5) The IUPAC name of $CH_3COCH(CH_3)_2$ is _____.
a) 2-methyl-3-butanone b) 4-methyl isopropyl ketone
c) 3-methyl-2-bulanone d) Isopropyl methyl ketone

6) _____ reaction requires only non-aromatic, non α-hydrogen containing carbonyl compound.
a) Mannich b) Benzoin
c) Perkin d) Cannizzaro

7) Pyrolysis of alkanes is carried out at_____°C.
a) 0 - 200 b) 200 - 400
c) 500 - 700 d) 900 - 1000

8) When propene reacts with HBr in the presence of peroxide, it gives rise to
a) allyl bromide b) isopropyl bromide
c) n-propyl bromide d) 3-bromopropane

9) In combustion reaction, alkane react with _____.
a) Oxygen b) Nitrogen
c) Water d) Hydrogen

10) Which one of the following shows functional isomerism?
a) CH_2Cl_2 b) C_3H_6
c) C_2H_5OH d) C_2H_4

11) Tollen's reagent can be used to distinguish _____.
a) Alcohols b) Amines
c) Aldehydes and Ketones d) Neither

12) In Hofmann's method for separation of 1°, 2° and 3° amines, the reagent used is _____.
a) Acetyl chloride b) diethyl oxalate
c) Nitrous acid d) none of above

13) Identify the correct IUPAC name _____.
a) $(CH_3CH_2)_2NCH_3$ = N-Ethyl-N-methylethanamine
b) $(CH_3)_3CNH_2$ = 2-methylpropan-2-amine
c) $CH_3NHCH\ (CH_3)_2$ = N-Methylpropan-2-amine
d) $(CH_3)_2CHNH_2$ = 2, 2-Dimethyl-N-propanamine

14) Which of the following reaction not used for preparation of alkane?
a) Halogenation b) Kolbe synthesis
c) Wurtz Synthesis d) Hydrolysis of Grignard reagent

15) 1,4 Pentadiene CH_2=CH-CH-=CH_2 is _____.
a) A planar compound b) A cumulated diene
c) Isolated diene d) Conjugated diene

16) Lucas test is used to determine the type of_____.
a) Alcohol b) Acids
c) Amines d) Carbohydrates

17) Which of the following reaction not used for preparation of aldehydes?
a) Oxidation of alcohol
b) Hydration of alkynes
c) Pyrolysis of calcium salts of acids
d) Oxo-Process

18) Which of the following reagents used for preparation of acetyl chloride from acetic acid?
a) Thionyl chloride b) Phosphorus halide
c) Both a and b d) Alkyl halide

19) $CH_3\ CH_2$ OH and $CH_3O\ CH_3$ are?
a) Position isomerism b) Functional isomerism
c) Chain isomerism d) Positional isomerism

20) Rosenmund reduction reaction used for preparation_____.

a) Alkyl halide b) Alcohol
c) Aldehydes d) Ketone

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

a) Define and classify organic compound with example.
b) Explain Lucas and dichromate test
c) Describe any three methods of preparation of 1, 3 butadiene and classify alkadienes.
d) Explain in detail electrophilic addition reaction of alkene.
e) Give the structure and uses of ethanol and methanol.
f) Write a note on Basicity of amines.
g) Write method of preparation of carboxylic acid.
h) Write chemical reaction of alcohol.
i) Explain in detail ozonolysis reaction and Diels-Alder reaction.

Q.3 Attempt any Two of the following. **20**

1) Describe in detail halogenation of alkane. Write in detail Markovnikov rule.
2) Write synthetic reaction of aldehyde and ketone.
3) Discuss in detail SN1 and SN2 reaction. Explain factors affecting on it.

Seat No.	

Set **P**

B. Pharmacy (Semester - II) (CBCS) Examination: Oct/Nov 2024
Biochemistry (801205)

Day & Date: Thursday, 08-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Which of following is essential amino acid?
a) Arginine b) Valine
c) Histidine d) All of the above

2) Alkaptonuria occurs due to deficiency of the enzyme _____.
a) Maleylacetoacetate isomerase
b) Homogentisate oxidase
c) p-Hydroxyphenylpyruvate hydroxylase
d) Fumarylacetoacetate hydrolase

3) The optical inactive amino acid is _____.
a) Glycine b) Thronine
c) Serine d) Valine

4) Sugar Found in milk is _____.
a) Galactose b) Glucose
c) Fructose d) lactose

5) Net ATP synthesis in glycolysis is _____.
a) 9 b) 10
c) 8 d) 12

6) Which of the following is the first amino group entering into urea cycle?
a) Argininosuccinate b) Cituilline
c) Carbamoyl phosphate d) Ornithine

7) Which of the following statement is not correct with respect to Deoxyribonucleic Acid?
a) It is found in all prokaryotic and eukaryotic cells and in many viruses
b) The DNA molecule consist of single strand that is made of deoxyribose and phosphate group
c) DNA codes genetic information for the transmission of inherited traits
d) Each strand has a backbone made of alternating sugar and phosphate group

8) The normal range of total serum bilirubin, is _____.
a) 0.2-1.2 mg/100 ml b) 1.5-1.8 mg/100 ml
c) 2.0-4.0 mg/100 ml d) Above 7.0 mg/100 ml

9) Which of the following is the simple sugar?
a) Disaccharide b) Monosaccharide
c) Oligosaccharide d) Polysaccharide

10) RNA does not contain _____.
a) Uracil b) Adenine
c) Ribose d) Thymine

11) Which enzyme regulates the synthesis of ketone body?
a) HMG Co A reductase b) HMG CoA oxidase
c) HMG CoA Synthase d) HMG CoA deoxidase

12) Which of the following is coenzyme?
a) Thiamine b) Riboflavin
c) Nicotinamide d) All of the above

13) The power house of the cell is _____.
a) Nucleus b) Cell membrane
c) Mitochondria d) Lysosomes

14) Which is following is a non-reducing sugar?
a) Sucrose b) Maltose
c) Lactose d) None of the above

15) Which of the following is a component of electron transport chain?
a) Carnitine b) NADPH
c) CoA d) Cytochrome C

16) Which of the following enzymes acts in the pentose phosphate pathway?
a) Pyruvate kinase
b) 6-phosphogluconate dehydrogenase
c) Glycogen phosphorylase
d) Aldolase

17) Lock and key model of enzyme mechanism is also called as _____.
a) Koshland's model b) Fischer's template theory
c) Substrate strain theory d) None of the above

18) The removal of amino group from the amino acid is _____.
a) Transamination b) Amination
c) Oxidative deamination d) Deamination

19) What is IUB stand for?
a) International Union of Biochemistry
b) International Union of Biology
c) International Union of Botany
d) International Union of Bioscience

20) In DNA transcription _____ enzyme used.

a) RNA helicase b) RNA polymerase
c) RNA deoxidase d) None of these

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

a) Explain in detail amino acid metabolism?
b) What are Proteins and Amino acid? Give detail classification of protein?
c) What are high energy compounds? Give suitable examples. Add note on redox potential.
d) Explain disorders of lipid metabolism.
e) Explain in detail urea cycle.
f) Explain structure & biosynthesis of cholesterol.
g) Define following terms:
i) endergonic reaction ii) exergonic reaction iii) enthalpy
iv) entropy v) redox potential
h) Define carbohydrates. Give detail classification.
i) Define and classify Enzyme with suitable example.

Q.3 Attempt any Two of the following. **20**

a) Describe hexose monophosphate shunt & its significance.
b) What is DNA replication? Explain the process of DNA replication.
c) Explain in detail Krebs Cycle with energetics.

SLR-SA-8

Seat No.	

Set P

B. Pharmacy (Semester - II) (CBCS) Examination: Oct/Nov 2024
Pathophysiology (801209)

Day & Date: Saturday, 10-May-2025 Max. Marks: 75
Time: 10:30 AM To 01:30 PM

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

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

1) Reduction in number as well as size of parenchymal cell as a result of stress is called as _____.
a) Dystrophy b) Atrophy
c) Atopy d) Metaplasia

2) What is the meaning of Tumor in the cardinal signs of inflammation?
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) Variant Angina b) Prinzmetal Angina
c) Stable Angina d) Crescendo Angina

4) Deposition of urea on skin after evaporation of sweat (usually in chronic renal failure) is termed as _____.
a) Uremic cloud b) Uremic mist
c) Uremic frost d) Uremic froth

5) The appearance of RBC in iron deficiency anemia is _____.
a) Normocytic, Hypochromic b) Macrocytic, Normochromic
c) Microcytic, Hypochromic d) Microcytic, Hyperchromic

6) Which of the following is/are the cause(s) of chronic bronchitis?
a) Smoking b) Pollution
c) Infection d) All of the above

7) Which of the following is a feature of hypothyroidism?
a) Poor mental development b) Dry and scaly skin
c) Cold intolerance d) All of the above

8) Which of the following bacteria can cause peptic ulcer?
a) *Pseudomonas aerogenosa* b) *Echrecia coli*
c) *Helicobactor pylori* d) *Salmonella pylori*

9) Progressive dementia is the clinical feature of _____.
a) Mental retardation b) Parkinson's disease
c) Alzheimer's disease d) Hashimoto's disease

10) Hepatitis A is spread by _____.
a) Faeco-oral route b) Mosquito bite
c) Respiratory droplets d) Sexual intercourse

11) Rheumatoid factor (Anti-IgG antibody) in Rheumatoid arthritis is released by _____.
a) B-Cells b) T-Cells
c) Cartilage d) Endothelial cells

12) Spread of tumor to distant tissues by invasion is termed as _____.
a) Metaplasia b) Meta-spread
c) Metastasis d) Metaphase

13) The group protein on HIV responsible for selective tropism to CD4+ molecule is _____.
a) CCR b) RT
c) gp 41 d) gp 120

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

15) Condensation and clumping of nucleus is known as _____.
a) Pyknosis b) Karyorrhexis
c) Karyolysis d) Apoptosis

16) Which of the following is a cell derived mediator of inflammation?
a) TNF-α b) IL-1
c) Histamine d) All of the above

17) Which of the following is/are the compensatory mechanism(s) to maintain cardiac output?
a) Activation of Renin-Angiotensin- Aldosterone mechanism
b) Decreased Atrial natriuretic peptide secretion
c) Cardiac atrophy
d) All of the above

18) Extrinsic asthma is also known as _____.
a) Allergic asthma b) idiosyncratic asthma
c) Non-atopic asthma d) None of the above

19) Which of the following is a sexually transmitted disease?
a) Typhoid b) Gonorrhoea
c) Diphtheria d) Malaria

20) Typhoid is spread by _____.
a) Air b) Water
c) Mosquito d) Sexual contact

Q.2 Answer any two of the following questions. **20**

a) Write a note on Types, symptoms and clinical complications of Diabetes mellitus.

b) Define and classify hypertension. Write a note on risk factors associated with it and clinical manifestations.

c) Classify Epilepsy and Describe the etiopathogenesis of Epilepsy.

Q.3 Answer any seven of the following questions. **35**

a) Define Cell Injury and describe the etiology of cell injury.

b) Classify anemia. Add a note on megaloblastic anemia.

c) Write a note on causes of cancer.

d) Describe the clinical features of chronic Renal Failure.

e) Write a note on the clinical manifestations of AIDS.

f) Distinguish between duodenal and gastric ulcers.

g) Classify arthritis. Describe the gross changes during rheumatoid arthritis.

h) Describe the pathogenesis of alcoholic liver disease.

i) Write a note on types and risk factors of bronchial asthma.