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B. Pharmacy (Semester - I) (CBCS) Examination: March/April - 2025
Human Anatomy and Physiology - I (801101)

Day & Date: Wednesday, 29-10-2025
 Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions. 20

- 1) Which of the following is the most basic level of organization in the human body?
 - a) Tissue
 - b) Cell
 - c) Organ
 - d) Organism
- 2) Homeostasis is the ability of the body to:
 - a) Increase body temperature
 - b) Produce hormones
 - c) Maintain a stable internal environment
 - d) Fight infections
- 3) The heart is located in the _____ cavity.
 - a) Spinal
 - b) Cranial
 - c) Abdominal
 - d) Mediastinal
- 4) The term "superior" means _____.
 - a) Away from the midline
 - b) Towards the back of the body
 - c) Above or higher than another part of the body
 - d) Closer to the point of attachment
- 5) The "powerhouse" of the cell, responsible for generating ATP, is the:
 - a) Nucleus
 - b) Mitochondrion
 - c) Ribosome
 - d) Lysosome
- 6) What is the "graveyard" of red blood cells?
 - a) Liver
 - b) Kidney
 - c) Spleen
 - d) Pancreas
- 7) The structural and functional unit of the human nervous system is the _____.
 - a) Brain
 - b) Spinal cord
 - c) Neuron
 - d) Axon
- 8) What is the longest bone in the human body?
 - a) Cranium
 - b) Thigh bone (femur)
 - c) Stapes
 - d) Humerus

- 9)** The outermost layer of the skin is the _____.
a) Epidermis b) Dermis
c) Hypodermis d) Subcutaneous layer
- 10)** Normally, how many bones are there in an adult human skeleton?
a) 205 b) 208
c) 207 d) 206
- 11)** Which chamber of the heart receives oxygen-rich blood from the lungs?
a) Right atrium b) Left atrium
c) Right ventricle d) Left ventricle
- 12)** How many pairs of cranial nerves are there in humans?
a) 10 b) 12
c) 31 d) 33
- 13)** The largest cranial nerve is the _____.
a) Olfactory nerve (CN I) b) Vagus nerve (CN X)
c) Trigeminal nerve (CN V) d) Optic nerve (CN II)
- 14)** The transparent, outermost layer of the eye that refracts light is the ____.
a) Cornea b) Retina
c) Sclera d) Iris
- 15)** The eardrum is also known as the _____.
a) Tympanic membrane b) Pinna
c) Auricle d) Eustachian tube
- 16)** The sense of smell is detected by specialized olfactory receptors located in the _____.
a) Nasal conchae b) Nasal septum
c) Olfactory epithelium d) Hard palate
- 17)** Taste buds are also called as _____.
a) Filiform papillae b) Fungiform papillae
c) Gustatory receptors d) Circumvallate papillae
- 18)** The smallest lymphatic vessels, which collect excess interstitial fluid from tissues, are the _____.
a) Lymphatic veins b) Lymphatic arteries
c) Lymphatic capillaries d) Lymphatic trunks
- 19)** The primary lymphatic organ where T lymphocytes mature is the _____.
a) Spleen b) Thymus
c) Lymph nodes d) Bone marrow
- 20)** The fluid part of the blood, excluding clotting factors, is known as _____.
a) Serum b) Lymph
c) Interstitial fluid d) Plasma

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

- a) Define & classify joints.
- b) Explain anatomy of vertebral column.
- c) Define - Blood pressure. Write a note on factors affecting blood pressure.
- d) Enlist different systems of human body & their functions.
- e) Define anemia & explain its different types.
- f) Give the different parts & functions of lymphatic tissue.
- g) Give the difference between sympathetic & parasympathetic nervous system.
- h) Explain different directional planes in human body with suitable examples.
- i) Define blood. Give its different functions.

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

- a) Explain structure of skin. Describe its functions.
- b) Describe the anatomy of heart. Add a note on ECG.
- c) Explain the anatomy of eye in detail.

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B. Pharmacy (Semester - I) (CBCS) Examination: March/April - 2025
Pharmaceutical Analysis - I (801103)

Max. Marks: 75

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

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- 1) pH is defined as _____.
a) $-\log [\text{OH}^-]$ b) $\text{pH} + \text{pOH}$
c) $-\log [\text{H}^+]$ d) $\log \text{pOH}$
- 2) The titration carries out between NaCl and AgNO₃ is termed as _____ titration.
a) Precipitation b) Acid-Base
c) Oxidation-Reduction d) None of these
- 3) 8.2 ml concentrated HCl when dissolved in 1 litre of distilled water it becomes _____ N
a) 1 b) 0.001
c) 0.1 d) 0.01
- 4) Assay of which compound is done with self-indicator method?
a) Sodium Chloride b) Hydrogen peroxide
c) Boric Acid d) Salicylic Acid
- 5) Which of following indicator does not give color change in acidic pH?
a) Methyl Red b) Phenol Red
c) Phenolphthalein d) All of these
- 6) The titration of _____ substances are carried out using non-aqueous solvents.
a) Strongly Acidic b) Strongly basic
c) Weakly acidic & basic d) Neutral
- 7) Amphoteric means _____
a) Acidic nature b) Basic nature
c) Neutral nature d) Acidic or Basic nature
- 8) Bonds formed in a complex are of following type _____
a) Co-ordinate b) Covalent
c) Covalent / co-ordinate d) Hydrogen bond

- 9) Solubility of sparingly soluble salts can be determined by _____.
a) Chromatography b) Conductometry
c) IR Spectroscopy d) None of above
- 10) Precipitation is combination of two ionic species to form _____.
a) Soluble product b) Coloured product
c) Insoluble product d) Colourless product
- 11) Primary standard substance possesses which property _____.
a) Highly pure b) Having high molecular weight
c) Highly stable d) All of these
- 12) Which drug is analysed by non-aqueous titration?
a) Boric acid b) Benzoic acid
c) Salicylic acid d) Ephedrine
- 13) Dropping mercury electrode is used in _____.
a) Conductometric titration b) Potentiometric titration
c) Polarographic titration d) All of these
- 14) Which of the following is analysed by complexometric titration?
a) Sodium Chloride b) Calcium Gluconate
c) Ephedrine d) Salicylic acid
- 15) EDTA means _____.
a) Ethylene diamine tetra acetic acid
b) Ethylene amine tetra acetic acid
c) Ethylene diamine tetra acetic anhydride
d) Ethylene disulphide tetra acetic acid
- 16) In reduction _____.
a) Negative valency increase
b) Negative valency decreases
c) Negative valency doesn't change
d) All is possible
- 17) Phenolphthalein gives _____ colour in alkaline medium.
a) Pink b) Yellow
c) Red d) Colourless
- 18) Titrations with the standard iodine is called _____.
a) Iodometry b) Iodimetry
c) Argentometry d) Cerimetry
- 19) Acidic dyes used in Fajan's method is _____.
a) Phenol b) Rhodamine series
c) Fluorescein d) Thymol blue
- 20) Oxidation-Reduction titration is also known as _____.
a) Complexometric titration b) Gravimetric titration
c) Redox titration d) Gasometric titration

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

- a) Differentiate between Mohr's method and Volhard's method.
- b) Explain principle, instrumentation, working of Dropping Mercury Electrode (DME) with suitable diagram.
- c) Write a note on masking & demasking phenomenon.
- d) What do you mean by co-precipitation? Give the types of co-precipitation.
- e) What is redox titration? Discuss various types of redox titration.
- f) Write a note on limit test for sulphate.
- g) Write different types of solvents used in non-aqueous titration along with example.
- h) Discuss iodimetry and iodometry titration.
- i) Write factor affecting conductance & give details of conductivity cell.

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

- a) What is gravimetric analysis? Explain principle and steps involved in gravimetric analysis.
- b) Define pharmaceutical analysis and discuss different techniques of analysis.
- c) Write a brief note on reference electrode (SHE & SCE) used in Potentiometric titration.

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B. Pharmacy (Semester - I) (CBCS) Examination: March/April - 2025
Pharmaceutics - I (801105)

Day & Date: Monday, 03-11-2025
 Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) Immiscibility of oil and water is _____ type of incompatibility.
 - a) Physical
 - b) Chemical
 - c) Therapeutic
 - d) All of these
- 2) Lanolin is also known as _____.
 - a) Wool fat
 - b) Wool alcohol
 - c) Hydrous wool fat
 - d) Bees wax
- 3) Pessaries are meant for introduction into _____.
 - a) Rectum
 - b) Vagina
 - c) Oral cavity
 - d) Nasal cavity
- 4) Which of the following test used for identification of emulsion?
 - a) Dilution test
 - b) Dye test
 - c) Conductivity test
 - d) All of the above
- 5) First edition of Indian pharmacopoeia published in the year _____.
 - a) 1955
 - b) 1965
 - c) 1985
 - d) 1996
- 6) Who is the father of pharmacy education in India?
 - a) Prof. M. L. Schroff
 - b) Prof. R. N. Chopra
 - c) Dr. B. N. Ghosh
 - d) Dr. G. M. Sadique
- 7) 100 % Proof spirit contains _____ % v/v of alcohol.
 - a) 57.2
 - b) 57.1
 - c) 57.3
 - d) 56.2
- 8) _____ are sterile dosage forms.
 - a) Eye drops
 - b) Implants
 - c) Liniments
 - d) Both a & b
- 9) Fried's formula is used for calculating dose of _____.
 - a) 24 years
 - b) 24 months
 - c) 12-20 years
 - d) 1-12 years

- 10) Geometric dilutions are done for _____.
a) Potent drugs b) Non potent drugs
c) Both a & b d) None of these
- 11) _____ is a topical drug used to soften the skin.
a) Expectorant b) Emollient
c) Laxative d) Counter irritant
- 12) Throat paints are _____ liquid preparations.
a) Viscous b) Non viscous
c) Solid d) Semisolid
- 13) Paste contains high concentration of _____.
a) Solids b) Liquids
c) Colours d) Flavors
- 14) Simple syrup contains _____%w/v of sucrose in water according to U.S.P.
a) 66.7% b) 85.5%
c) 66.9% d) 85%
- 15) _____ is the body of the prescription.
a) Superscription b) Subscription
c) Signa d) Inscription
- 16) Drug inquiry committee was appointed by Government of India under the chairmanship of _____.
a) T. K. Gajjar b) M. L. Shroff
c) R. N. Chopra d) None of these
- 17) Aqueous Iodine solution is also known as _____.
a) Mandi's paint b) Lugol's solution
c) Dakin's solution d) None of the above
- 18) In deflocculated suspension the particles exist as _____.
a) Aggregates b) Separate entities
c) Floccs d) None of these
- 19) All the following are internal used liquids except _____.
a) Solution b) Mixture
c) Liniment d) Linctus
- 20) Which of the following is unit dosage form?
a) Granules b) Tablet
c) Syrup d) All of these

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

- a) Define the following terms Tablet, Elixir, Suppository, Capsule, Cream.
- b) Define & classify powders. Explain hygroscopic and deliquescent powders.
- c) Explain different evaluation techniques for suppositories.
- d) Discuss different identification test for emulsion.
- e) Write a note on percentage solution.
- f) Write a note on ointment bases.
- g) Explain different formulas used for dose calculation.
- h) Write a note on Indian Pharmacopoeia.
- i) Explain in detail solubility enhancement techniques.

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

- a) Define Incompatibility. Classify it and explain any two types of incompatibility.
- b) What is prescription? Enlist and explain in detail various parts of prescription.
- c) Define Suspension. Differentiate flocculated and deflocculated suspension, add a note on stability problems of suspension.

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B. Pharmacy (Semester - I) (CBCS) Examination: March/April - 2025
Pharmaceutical Inorganic Chemistry (801107)

Day & Date: Thursday, 06-11-2025
 Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) Mechanical antidote prevents _____ of poison.
 - a) Distribution
 - b) Absorption
 - c) Excretion
 - d) Metabolism
- 2) Blue vitriol is a common name of _____.
 - a) Copper Sulphate
 - b) Ferrous Sulphate
 - c) Aluminum Sulphate
 - d) Ammonium Sulphate
- 3) _____ is used as dental product.
 - a) Sodium nitrite
 - b) Dimercaprol
 - c) Sodium Fluoride
 - d) None of these
- 4) Calcium gluconate is assayed by _____ titration.
 - a) Argentometric
 - b) Acid-base
 - c) Precipitation
 - d) Complexometric
- 5) The term Cold denotes _____.
 - a) 8 - 20°C
 - b) 2 - 8°C
 - c) 30 - 40°C
 - d) -8 - 2°C
- 6) When iron enters into the plasma, it gets bound to _____.
 - a) Transferrin
 - b) Cytochrome
 - c) Ferrin
 - d) Ferritin
- 7) The term soluble express _____ parts of solvent.
 - a) 1-10
 - b) 10-30
 - c) 30-100
 - d) 100-1000
- 8) Select the Unit of measurement of Radioactivity.
 - a) Curie
 - b) Rutherford
 - c) Ohms
 - d) Both a & b
- 9) As per Lewis Acid-base theory, Acid is a _____.
 - a) Proton Donor
 - b) Proton Acceptor
 - c) Electron Donor
 - d) Electron Acceptor

- 10) _____ type of water is free from impurities.

a) Soft	b) Tap
c) Distilled	d) None of these
- 11) Astringents will cause _____ on tissues.

a) Contraction	b) Relaxation
c) Shrinkage	d) Both a & c
- 12) Major solutes found in body fluid are _____.

a) Electrolytes	b) Proteins
c) Sugars	d) Amino acids
- 13) _____ type of cough does not produce mucus.

a) Productive cough	b) Non-Productive cough
c) Both a & b	d) None of these
- 14) The condition of decreased levels of sodium is termed as _____

a) Hyponatremia	b) Hypokalemia
c) Hypocalcemia	d) Hypophosphatemia
- 15) Sodium nitrite is given in conjugation with _____.

a) Sodium bicarbonate	b) Sodium thiosulphate
c) Sodium calcium edentate	d) Dimercaprol
- 16) Ferrous gluconate is prepared by oxidation of _____ with dil. HNO₃.

a) Glucose	b) Calcium Sulphate
c) Ferrous sulphate	d) None of the above
- 17) Chemically Borax is _____.

a) Boric acid	b) Sodium borate
c) Boron	d) None of these
- 18) _____ is a Saline purgative.

a) Magnesium chloride	b) Sodium chloride
c) Ammonium chloride	d) Magnesium sulphate
- 19) Copper sulphate is used as _____.

a) Astringent	b) Emetic
c) Antidote	d) All of these
- 20) Hydrogen sulphide gas stains the mercuric chloride paper _____.

a) Brown	b) Green
c) Yellow	d) Red

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

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- Explain in detail Antimicrobial agents with two examples.
- Explain in detail Limit test for Arsenic.
- Explain the electrolytes used to maintain physiological acid-base balance.

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

- a)** Write a note on Sources of impurities.
- b)** What are expectorants and emetics?
- c)** What are Acidifiers? Explain with example.
- d)** Explain in detail classification of antidotes.
- e)** What do you mean by dental caries? How it is prevented? Explain the compounds used in such treatment.
- f)** Explain in detail IP 1955 and 1966.
- g)** Explain Geiger-Muller counter.
- h)** Explain in detail Modified Limit test for chloride.
- i)** Explain the importance of haematinics with one example.

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B. Pharmacy (Semester - II) (CBCS) Examination: March/April - 2025
Human Anatomy and Physiology - II (801201)

Day & Date: Tuesday, 28-10-2025
 Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) The Cerebro spinal fluid is slightly _____ in nature.

a) Strongly Alkaline	b) Weak Alkaline
c) Weak acidic	d) Strongly acidic
- 2) _____ is outer covering of testes.

a) Tunica vaginalis	b) Tunica vasculosa
c) Tunica albuginea	d) Skin
- 3) The action potential is caused by diffusion of _____.

a) Na ⁺ ions	b) K ⁺ ions
c) Ca ⁺⁺ ions	d) Cl ⁻ ions
- 4) _____ is not internal organ of male reproductive system.

a) Two testes	b) Prostate gland
c) Pair of vas deference	d) Peins
- 5) In a healthy adult the GFR is about _____.

a) 100 ml/min	b) 125 ml/min
c) 150 ml/min	d) 175 ml/min
- 6) The release of T₃ and T₄ into blood is regulated by TSH from _____.
 Lobe of the pituitary.

a) Anterior	b) Middle
c) Posterior	d) Occipital
- 7) Testosterone secreted by the male testes has a powerful _____ effect.

a) Metabolic	b) Catabolic
c) Anabolic	d) Pharmacokinetic
- 8) Function of hypothalamus include control of _____.

a) Appetite	b) Body temperature
c) Thirst	d) All of above
- 9) The lowest part of the brain stem is the _____.

a) Medulla oblongata	b) Midbrain
c) Pons	d) Thalamus

- 10)** _____ is the amount of air that normally enters the lungs during quite breathing.
- a) Tidal volume
 - b) Inspiratory reserve volume
 - c) Expiratory reserve volume
 - d) Residual volume
- 11)** In which part of the body digestion of protein begins?
- a) Pancreas
 - b) Stomach
 - c) Small intestine
 - d) Large intestine
- 12)** The trachea is also called as _____.
- a) Lungs
 - b) Diaphragm
 - c) Windpipe
 - d) Bronchus
- 13)** Which of the following parts of the brain regulates the respiratory process?
- a) Vagus nerve
 - b) Medulla oblongata
 - c) Cerebral pensuncle
 - d) Cerebellum
- 14)** The enzyme used to join the fragments of DNA during the process of replication is _____
- a) DNA Polymerase
 - b) DNA Ligase
 - c) Endonuclease
 - d) Helicase
- 15)** The process of translation is _____.
- a) Ribosomes synthesis
 - b) DNA Synthesis
 - c) RNA synthesis
 - d) Protein Synthesis
- 16)** ATP belongs to group of compounds _____.
- a) Amino acids
 - b) Nucleotides
 - c) Fatty acids
 - d) Nucleic acid
- 17)** Arrangement of chromosomes of an individual is _____.
- a) Genotype
 - b) Karyotype
 - c) Phenotype
 - d) Pedigree chart
- 18)** Which of the following hormones are secreted by pineal gland?
- a) Melatonin
 - b) Androgens
 - c) Epinephrine
 - d) Glucocorticoid
- 19)** The yellow color of urine is due to _____.
- a) Uric acid
 - b) Urochrome
 - c) Urea
 - d) Melanin
- 20)** The hormone stimulates the secretion of hydrochloric acid in GIT _____
- a) Gastrin
 - b) Renin
 - c) Insulin
 - d) Glucagon

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

- a) Give the anatomy and functions of small intestine.
- b) Write note on protein synthesis.
- c) Give the structure and function of cerebrum.
- d) Discuss anatomy and function of stomach
- e) Explain detail structure, location and function of Adrenal gland.
- f) Give anatomy and functions of spinal cord.
- g) Give the functions and formation of ATP.
- h) Give anatomy and function of pancreas.
- i) Draw neat labelled diagram of kidney. Explain role of RAS in kidney.

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

- a) Give the anatomy of Lungs. Add note on mechanism and regulation of respiration.
- b) Explain in detail about female reproductive system. Add note on menstrual cycle.
- c) Enlist hormones of pituitary gland. Explain function of each hormone in body.

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B. Pharmacy (Semester - II) (CBCS) Examination: March/April - 2025
Pharmaceutical Organic Chemistry - I (801203)

Day & Date: Thursday, 30-10-2025
 Time: 10:30 AM To 01:30 PM

Max. Marks: 75

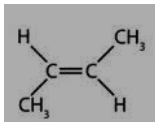
Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

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

1) Identify the smallest alkane which can form a ring structure (cycloalkane)?

- | | |
|-----------------|------------|
| a) Cyclomethane | b) Methane |
| c) Cyclohexane | d) Propane |

2) Is the molecule below considered cis or trans-2-butene?



- | |
|--|
| a) Cis because the substituents are on the same side |
| b) Cis because the substituents are on the opposite side |
| c) Trans because the substituents are on the same side |
| d) Trans because the substituents are on the opposite side |

3) Acetone reacts with HCN to form a cyanohydrin. It is an example of which type of reaction?

- | | |
|---------------------------|-------------------------------|
| a) Electrophilic addition | b) Electrophilic substitution |
| c) Nucleophilic addition | d) Nucleophilic substitution |

4) The C=C bond in the chain of the compound considered is shown by ____.

- | |
|--|
| a) Specifying the number of carbon atoms associated with the bond. |
| b) Specifying the number of carbon atoms at beginning of the C=C bond. |
| c) Specifying the number of carbon atoms at end of the C=C bond. |
| d) Specifying the number of carbon atoms in the entire chain. |

5) Triple bond with two carbon atoms on either side is called ____.

- | | |
|--------------------|--------------------|
| a) Methynyl group | b) Ethynyl group |
| c) Propionyl group | d) Propargyl group |

6) _____ are structural isomers which readily interconvert, so that two or more species co-exist in equilibrium.

- | | |
|------------------------|--------------------|
| a) Metamers | b) Tautomers |
| c) Geometrical Isomers | d) Optical Isomers |

- 7) Select the minimum number of carbon atoms, a molecule must possess so as to be regarded as a higher alkane.

a) 15 b) 16

c) 17 d) 18
- 8) What is the expected product formed from the reaction between 2-butene and Cl₂?

a) 1-chlorobutane b) 2-chlorobutane

c) 2,3-dichlorobutane d) 2,2-dichlorobutane
- 9) Ethylene on reaction with bromine forms which among the following product?

a) BrH₂C-CH₂Br b) BrH₂C=CH₂Br

c) Br₂HC=CHBr₂ d) Br₂HC-CHBr₂
- 10) Ethanol can be oxidized stepwise. What is the first stable intermediate product when ethanol is oxidized with a mild oxidation agent?

a) CH₃COOH b) CO₂

c) CH₃CHO d) CH₃OCH₃
- 11) The organic starting materials for the preparation of an ester could be _____.

a) An acid and an alcohol b) A ketone and an alcohol

c) An alkane and a ketone d) An amine and an acid
- 12) Select the IUPAC name for: (CH₃)₂CHCH(OH)CH₂C(CH₃)₃.

a) 2,5,5-trimethyl-3-hexanol b) 1,1,4,4-pentamethylbutanol

c) 1, 1-dimethylisopentanol d) 2, 5-dimethyl-4-hexanol
- 13) Which among the following is most reactive towards S_N2 reaction?

a) Me-X b) RCH₂-X

c) R₂-CHX d) R₃-CX
- 14) In S_N1 reaction, the racemization takes place. It is due to _____

a) Inversion of configuration b) Retention of configuration

c) Conversion of configuration d) both (a) & (b)
- 15) Dienes are the name given to compounds with _____

a) Exactly a double bond b) Exactly a triple bond

c) Exactly two double bond d) More than two double bond
- 16) Tertiary alkyl halides are practically inert to substitution by S_N2 mechanism because _____.

a) Insolubility b) Instability

c) Steric hindrance d) Inductive effect
- 17) Which one of the following compound is obtained by the oxidation of primary alcohol with nascent oxygen?

a) Alkanal b) Alkanone

c) Ether d) Amine

- 18) O_3 reacts with $CH_2 = CH_2$ to form ozonide. On hydrolysis it forms which of the following?
- | | |
|--------------------|------------------|
| a) Ethylene oxide | b) Formaldehyde |
| c) Ethylene glycol | d) Ethyl alcohol |
- 19) Secondary alcohols on catalytic dehydrogenation by Cu-Ni couple gives ____.
- | | |
|--------------------|-------------|
| a) Ketone | b) Aldehyde |
| c) Carboxylic acid | d) Amine |
- 20) Which of the following compound will undergo self-aldol condensation in the presence of cold dilute alkali?
- | | |
|------------------------|----------------------|
| a) C_6H_5CHO | b) CH_3CH_2CHO |
| c) $CH \equiv C - CHO$ | d) $CH_2 = CH - CHO$ |

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

- Write methods of preparation of alkenes.
- Write any five chemical reactions of aliphatic amines.
- What is structural isomer? And classify it with suitable example.
- Write a note on E1 reaction.
- Write methods of preparation of alkyl halides?
- Write method of preparation of 1,3-butadiene.
- Explain Markovnikov rule with suitable example.
- Write methods of preparation of aldehydes and ketones.
- Write Chemical reactions of alkanes.

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

- Discuss in detail SN_1 reaction and compare SN_1 and SN_2 reaction.
- Explain in detail following reaction with its mechanism -
 - Crossed aldol condensation
 - Perkin condensation
- Define and classify alcohols. Write any four methods of preparation and reactions of alcohols.

Set

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B. Pharmacy (Semester - II) (CBCS) Examination: March/April - 2025
Biochemistry (801205)

Day & Date: Saturday, 01-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions.

20

- Carbohydrate reserved in human body is _____.
 - Starch
 - Glucose
 - Glycogen
 - Insulin
- Enzymes of β oxidation are found in _____.
 - Mitochondria
 - Cytosol
 - Golgi apparatus
 - Nucleus
- Imino acid found in protein structure is _____.
 - Arginine
 - Proline
 - Histidine
 - Lysine
- RNA does not contain _____.
 - Uracil
 - Adenine
 - Thymine
 - Ribose
- The synthesis of urea occurs in _____.
 - Liver
 - Kidney
 - Brain
 - Muscles
- The codon that terminates protein biosynthesis is _____.
 - UAA
 - UAG
 - UGA
 - All of them
- Translation results in product known as _____.
 - Protein
 - DNA
 - tRNA
 - mRNA
- Nucleic acids are the _____.
 - Nucleoside
 - Nucleotide
 - DNA
 - RNA
- The optically inactive amino acid is _____.
 - Glycine
 - Serine
 - Threonine
 - Valine

- 10) The base that is never found in genetic code is _____.
a) Adenine b) Guanine
c) Thymine d) Cytosine
- 11) The protein present in hair is _____.
a) Keratin b) Elastin
c) Collagen d) Myosin
- 12) Small fragments of DNA produced during replication are called _____.
a) DNA fragments b) DNA primer
c) Okazaki fragments d) DNA replicates
- 13) Combination of base, sugar and phosphate is called _____.
a) Nucleotide b) Nucleoprotein
c) Nucleoside d) Nuclease
- 14) Enzymes are _____.
a) Catalysts b) Reactant
c) Biocatalysts d) Substrate
- 15) All of the following are basic amino acid except _____.
a) Lysine b) Arginine
c) Histidine d) Glycine
- 16) The enzyme which involves the transfer of functional group is _____.
a) Transferases b) Ligases
c) Oxidoreductases d) Isomerases
- 17) The electron transport chain located in _____.
a) Inner mitochondrial membrane
b) Outer mitochondrial membrane
c) Cytoplasm
d) Endoplasmic reticulum
- 18) The amino acid that does not participate in transamination is _____.
a) Lysine b) Glutamate
c) Tryptophan d) Alanine
- 19) Protein contains _____.
a) Only L-α- amino acid b) Only D- amino acid
c) DL- amino acid d) Both a and b
- 20) The non protein part of enzyme is called _____.
a) Isoenzyme b) Apoenzyme
c) Coenzyme d) None of the above

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

- a) Define haloenzyme and apoenzyme. Describe detailed classification of enzyme with suitable example.
- b) Explain DNA replication.
- c) Write in detail about transamination reaction.
- d) Explain Electron transport chain.
- e) What is β oxidation of fatty acids.
- f) Write note on types of RNA.
- g) What are essential, non-essential, and semi essential amino acids.
- h) Explain in detail about Enzyme inhibition.
- i) Discuss high energy compounds.

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

- a) Explain in detail Krebs cycle and give its energetic.
- b) Describe Urea cycle in detail.
- c) Describe protein biosynthesis in detail. Add note on inhibitors of protein biosynthesis.

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B. Pharmacy (Semester - II) (CBCS) Examination: March/April - 2025
Pathophysiology (801209)

Day & Date: Tuesday, 04-11-2025
 Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions.

20

- 1) Who is the father of pathology?

a) Paul Ehrlich	b) R. Virchow
c) R. Koch	d) Aristotle
- 2) Insulin is a polypeptide with molecular weight of _____ Dalton.

a) 5000	b) 6000
c) 7000	d) 8000
- 3) Which of the following is a type of reversible cell injury?

a) Autolysis	b) Hypoxia
c) Necrosis	d) Apoptosis
- 4) Type of diabetes that occurs during pregnancy?

a) Diabetes mellitus type 1	b) Diabetes mellitus type 2
c) Gestational diabetes	d) Diabetes insipidus
- 5) All the following are classes for treatment of hypertension except _____

a) β -Blockers
b) Diuretics
c) ACE (angiotensin converting enzyme) inhibitors
d) Aspirin
- 6) Emphysema is a type of COPD that is characterized by: _____

a) Chronic bronchitis
b) Inflammation of the airways
c) Destruction of alveoli and loss of lung elasticity
d) Excessive mucus production
- 7) What condition is characterized by an excessive production of thyroid hormones, leading to symptoms such as weight loss, nervousness, and tremors?

a) Hypothyroidism	b) Hyperthyroidism
c) Hypoparathyroidism	d) Hashimoto's thyroiditis

- 8) Which neurotransmitter deficiency is associated with Parkinson's disease?
- a) Serotonin
 - b) Dopamine
 - c) GABA
 - d) Acetylcholine
- 9) Which neurotransmitter is often associated with depression and its treatment?
- a) Serotonin
 - b) Dopamine
 - c) Epinephrine
 - d) Acetylcholine
- 10) Which microorganism is responsible for causing syphilis?
- a) Human Papillomavirus (HPV)
 - b) Treponema pallidum
 - c) Herpes simplex virus
 - d) Chlamydia trachomatis
- 11) Which bacterium causes gonorrhea?
- a) Neisseria gonorrhoeae
 - b) Chlamydia trachomatis
 - c) Treponema pallidum
 - d) Streptococcus pyogenes
- 12) Meningitis is the inflammation of which part of the body?
- a) Liver
 - b) Brain and spinal cord membranes
 - c) Lungs
 - d) Skin
- 13) What term describes the genetic changes in a cell that can lead to the development of cancer?
- a) Mutation
 - b) Metastasis
 - c) Benign
 - d) Angiogenesis
- 14) Osteoporosis is characterized by: _____
- a) Excessive bone density
 - b) Bone weakening and increased fracture risk
 - c) Abnormal bone growth
 - d) Joint inflammation
- 15) Gout is primarily caused by the buildup of which substance in the joints?
- a) Uric acid
 - b) Calcium
 - c) Cholesterol
 - d) Glucose
- 16) Which type of hepatitis is known as "fulminant" and is the most severe form?
- a) Hepatitis A
 - b) Hepatitis B
 - c) Hepatitis C
 - d) Hepatitis F
- 17) Alzheimer's disease is a neurodegenerative disorder primarily characterized by: _____
- a) Rapid memory recovery
 - b) Progressive memory loss and cognitive decline
 - c) Excessive daytime sleepiness
 - d) Severe mood swings

- 18) Schizophrenia is primarily characterized by: _____
a) Multiple personalities
b) Delusions, hallucinations, and disorganized thinking
c) Intense mood swings
d) Memory loss
- 19) Thalassemia is a group of genetic disorders primarily affecting the synthesis of: _____
a) Hemoglobin
b) Platelets
c) White blood cells
d) Red blood cells
- 20) The buildup of waste products in the blood, which is a hallmark of chronic renal failure, is known as: _____
a) Anemia
b) Uremia
c) Hematuria
d) Proteinuria

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

- a) What is Alzheimer's disease? Describe its pathogenesis and manifestation.
- b) Explain in detail Diabetes mellitus.
- c) Mention causative agent, pathology, clinical manifestations and management of AIDS.
- d) What is hypertension? Give type and management of same.
- e) Describe the causes and clinical manifestations of Rheumatoid arthritis.
- f) Describe the etiopathogenesis and clinical manifestations of peptic ulcer.
- g) Define apoptosis. Explain in detail the mechanism of apoptosis.
- h) Define - Atrophy, Hypertrophy, Hyperplasia, Metaplasia and Dysplasia.
- i) Write causes of cell injury in detail.

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

- a) Define CHF, explain pathogenesis, etiology, clinical manifestation and management of CHF.
- b) Define homeostasis. Describe components and types of feedback systems with suitable examples.
- c) Give the Classification, etiology and pathogenesis of Cancer.

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**B. Pharmacy (Semester - III) (CBCS) Examination:
October/November – 2025
Pharmaceutical Organic Chemistry – II (801301)**

Day & Date: Monday, 17-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 MCQ.

20

- 1) Anthracene undergoes oxidation with O₂/V₂O₅ at 500°C to give ____.
a) Benzoic acid b) Anthraquinone
c) Phthalic acid d) Benzophenone
- 2) On sulphonation of naphthalene at 165°C with cone, sulphuric acid give _____.
a) 1-Naphthalene sulfonic acid
b) 2-Naphthalene sulfonic acid
c) 3-Naphthaline sulfonic acid
d) 1 and 2-Naphthaline sulfonic acid
- 3) Amines can be prepared using ammonia and _____.
a) Alkyl halides b) Carboxylic acids
c) Aliphatic esters d) Alky Nitriles
- 4) Aromatic compounds are _____ compounds.
a) Alkane b) Cumulated & cyclic
c) nonconjugated and cyclic d) conjugated and cyclic
- 5) Which of the amine does not react with acid chloride?
a) 1° amine b) 2° amine
c) 3° amine d) 4° amine
- 6) Which of the following method is most suitable for the preparation of cyclopropane?
a) Dieckmann Condensation b) Freund's method
c) Diels Alder reaction d) None of the above
- 7) The acidity of phenol is _____.compound.
a) greater than alkyl halide but less than amines
b) greater than amines but less than alcohol
c) greater than alcohol but less than carboxylic acid
d) equal to carboxylic acid

- 8) Carboxylic acid group on an aromatic ring causes ____ orientation in EAS reactions.
- | | |
|----------|------------------|
| a) Ortho | b) Meta |
| c) Para | d) None of these |
- 9) Resonance energy in Benzene is: ____.
- | | |
|----------------|------------------|
| a) 36 KJ/mole | b) 121 Kcal/mole |
| c) 141 KJ/mole | d) 36 Kcal/mole |
- 10) Fats and oils contains ____ functional group.
- | | |
|---------------------|------------|
| a) Esters | b) Amides |
| c) Carboxylic acids | d) Phenols |
- 11) Naphthalene on reduction with Na and Ethanol yields: ____.
- | | |
|------------|-------------|
| a) Dialin | b) Tetralin |
| c) Decalin | d) None |
- 12) The product of reaction between Cyclobutane and KMnO_4 is ____.
- | | |
|------------------|-----------------------|
| a) Cyclobutanone | b) Hydroxycyclobutane |
| b) Cyclobutane | d) Cyclobutanol |
- 13) Which of the below fatty acid is an example of unsaturated fatty acid?
- | | |
|------------------|-----------------|
| a) Myristic acid | b) Oleic acid |
| c) Palmitic acid | d) Stearic acid |
- 14) ____ type/s of strain/s seen in cycloalkanes.
- | | |
|----------------------|---------------------|
| a) Angular or Baeyer | b) steric |
| c) Torsional | d) All of the above |
- 15) Saponification value of oil more than 2 indicates.
- | |
|--|
| a) Oil is fresh |
| b) Oil is deteriorated |
| c) It has no effect on oil |
| d) Oil contain more unsaturated fatty acid |
- 16) Reichert-Meissel number indicates volatile fatty acid which is water ____ small Chain Fatty Acids.
- | | |
|---------------|--------------|
| a) Soluble | b) Insoluble |
| c) Immiscible | d) None |
- 17) Coulson-Moffitt theory model explain about ____ bonds.
- | | |
|-----------|-----------------------|
| a) Bent | b) Unsaturation bonds |
| c) Banana | d) both A) & B) |
- 18) Which of the following compound is most acidic?
- | | |
|------------|------------------|
| a) phenol | b) benzoic acid |
| c) ethanol | d) ethyl acetate |

- 19) Chemically DDT is_____.
a) Dichlorodiphenyltrichloroethane
b) dichlorotetrachloro ethane
c) diphenyl trichloroethane
d) Dichlorodiphenyl tetrachloroethane.
- 20) Which of the following is meta directing group?
a) NO₂
b) CH₃
c) OH
d) NH₂

Q.2 Solve any seven of the following.

35

- a) Explain Huckel's rule of aromaticity.
- b) Write synthesis and medicinal uses of naphthalene and anthracene.
- c) Explain in detail Baeyer's strain theory.
- d) Give structure and uses of DDT and BHC.
- e) Explain acidity of phenols. Give structure and uses of phenol and cresol.
- f) Explain the concept of basicity of amines and mention the parameters affecting on it.
- g) Write a note on acid value.
- h) Outline reactions of cyclopropane.
- i) Give principle and significance of iodine value.

Q.3 Solve any two of the following.

20

- a) Discuss in detail on reactions of benzene with example and mechanism.
- b) Explain fatty acid reactions. Discuss Saponification value with its significance.
- c) Outline preparation and reactions of phenanthrene. Discuss reactions of Naphthalene.

Set | P

**B. Pharmacy (Semester - III) (CBCS) Examination:
October/November – 2025
Physical Pharmaceutics – I (801302)**

Day & Date: Wednesday, 19-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions.

20

- 1) The unit of surface tension in the CGS system is _____.
a) N/m
b) Kg/cm
c) Dynes/cm
d) Dynes/m
- 2) When non-polar substances are dissolved in a polar solvent using surfactants the process is called _____.
a) HLB
b) Solubilisation
c) Emulsification
d) Gelatinization
- 3) EDTA is an example of _____.
a) Unidentate ligand
b) Bidentate ligand
c) Tetra dentate ligand
d) Hexadentate ligand
- 4) Oscillometry method is used to determine _____.
a) Refractive index
b) Dielectric constant
c) Dissociation constant
d) Optical rotation
- 5) Near CMC, micelles of the surfactant molecules assume the shape of _____.
a) Cylindrical
b) Layered
c) Rod shaped
d) Spherical
- 6) Buffer solutions _____.
a) Are strong acids
b) Resist change in pH
c) Decrease the pH of a solution
d) Increase the pH of a solution
- 7) If the osmotic pressure of a solution is equal to the osmotic pressure of plasma, then it is said to be _____.
a) Isotonic solution
b) Isobaric solution
c) Hypertonic solution
d) Hypotonic solution

- 8) Water soluble stable complexes are formed with ____.
- a) Hydrophobic agent
 - b) EDTA
 - c) Organic solvent
 - d) All of these
- 9) Which of the following interaction is the strongest?
- a) Electrovalent bonding
 - b) Dipole-Dipole interaction
 - c) London force
 - d) Debye force
- 10) Protein binding distribution of drugs ____.
- a) Increases
 - b) Decreases
 - c) Does not affect
 - d) Prevents
- 11) Due to solvation which of the following properties of dispersed particles changes?
- a) Size
 - b) Shape
 - c) Rigidity
 - d) All of the above
- 12) When the analyzer is oriented in ____ to the polarizer, no light reaches the detector.
- a) 90°
 - b) 45°
 - c) 180°
 - d) 0°
- 13) Picric acid reacts with ____ to form molecular complex.
- a) Weak acids
 - b) Weak base
 - c) Strong acid
 - d) Strong base.
- 14) Solubility of gases ____ with a rise temperature.
- a) Increases
 - b) Constant
 - c) Decreases
 - d) All of these
- 15) Surfactant molecules which act as solubilizing agent have HLB value ____.
- a) 30
 - b) 13
 - c) 20
 - d) 3
- 16) The rise of a liquid in a capillary tube does not depend upon ____.
- a) Angle of Contact
 - b) Density of the liquid
 - c) Radius of the capillary tube
 - d) Atmospheric pressure.
- 17) Van der Waals forces are present in ____ interaction between the molecules.
- a) Ionic
 - b) Anionic
 - c) Nonionic
 - d) Cationic
- 18) Solid-solid interfaces are important in ____.
- a) Emulsions
 - b) Paste
 - c) Suspensions
 - d) Tablets
- 19) The apparatus used for the determination of surface tension of a liquid is ____.
- a) Odometer
 - b) Stalagmometer
 - c) Consolidometer
 - d) None of these

- 20) An ideal gas laws did not expressed by ____.
- | | |
|---------------|------------|
| a) Boyles | b) Charles |
| c) Gay-Lussac | d) Lewis |

Q.2 Answer any seven of the following questions.

35

- a) Discuss in detail the various methods used for adjusting the toxicity of solutions.
- b) Explain in detail factors affecting solubility of drug.
- c) What is the difference between Crystalline solid and Amorphous solids?
- d) Write a note on HLB system and its applications.
- e) Define protein binding and its mechanism.
- f) Write buffer equation with its application.
- g) Describe how the dissociation constant can be determined.
- h) Write a note on spreading coefficient.
- i) Explain in detail Eutectic mixture and sublimation critical point.

Q.3 Answer any two of the following questions.

20

- a) Explain Raoult's law. Give its limitations.
- b) What is adsorption? Explain the Freundlich and Langmuir adsorption isotherm.
- c) What are complexes? Give classification of complexes with examples.

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**B. Pharmacy (Semester - III) (CBCS) Examination:
October/November – 2025
Pharmaceutical Microbiology (801303)**

Day & Date: Friday, 21-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions.

20

- 1) Cedar wood oil is used for ____ magnification of optical microscope.

a) 10X	b) 5X
c) 45X	d) 100X
- 2) Which of the following bacterial genus is cell wall deficient?

a) Bacillus	b) Clostridium
c) Mycoplasma	d) None of above
- 3) If the magnification of an eyepiece is 10X and the magnification of an objective is 100X then total magnification of microscope is _____.

a) 1000X	b) 500X
c) 45 X	d) 100X
- For construction of aseptic design, generally plaster walls are easily damaged by impact so for reduction of fungal growth ____ may be added to the paint.

a) 1% 8 hydroxyquinoline	b) Salicylanilide
c) Pentachlorophenol	d) All of these
- 5) Viruses are not cultivated using _____.

a) Laboratory animals	b) Embryonated eggs
c) Tissue culture	d) Nutrient broth
- 6) Virions means _____.

a) Infectious virus particle	b) Non-infectious particle
c) Incomplete particles	d) Defective virus particle
- 7) What is function of bactericidal agent?

a) Kill spores	b) Inhibits bacteria
c) Kills bacteria	d) Does not kill bacteria
- 8) Efficiency of disinfectant are tested by _____.

a) Rideal test	b) Indole test
c) Methyl red test	d) All

- 9) Select yeast from following _____.
 - a) *Candida albican*
 - b) *Saccharomyces*
 - c) Both a and b
 - d) *Penicillium*
- 10) What is the following is primary stain for acid fast staining?
 - a) Crystal violet
 - b) Carbol fuchsin
 - c) Iodine
 - d) Methylene blue
- 11) Which of the following are chemical indicators of sterilization?
 - a) Browne's tube
 - b) Witness tube
 - c) Royce Sachet
 - d) All of above
- 12) Peritrichous means _____.
 - a) Absence of flagella
 - b) Tuft of flagella a tone end
 - c) Single flagellum
 - d) Numerous flagella all around the cell
- 13) Temperature needed for Pasteurization is _____.
 - a) Above 100° C
 - b) Above 160° C
 - c) Exact 100° C
 - d) Below 100° C
- 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) Following are common ingredients of Nutrient agar media except _____.
 - a) Water
 - b) Peptone
 - c) Yeast extract
 - d) Sodium hydroxide
- 16) The differences between Gram positive and Gram negative bacteria is shown to reside in the _____.
 - a) Cell wall
 - b) Nucleus
 - c) Cell membrane
 - d) Mesosomes
- 17) If only one stain is used for staining a specimen _____.
 - a) Simple staining
 - b) Negative staining
 - c) Differential staining
 - d) None of these
- 18) Isolation is _____.
 - a) Purification of culture
 - b) Introduction of inoculum
 - c) Separation of a single colony
 - d) To grow microorganisms on surfaces
- 19) Growth period of the culture is _____.
 - a) Inoculation
 - b) Incubation
 - c) Incineration
 - d) Isolation

- 20)** Factors on which disinfectivity of a disinfectant depends ____.
- a) Concentration of the substance
 - b) Time of action
 - c) pH of the medium and temperature suitable for the chemical
 - d) All of the above

Q.2 Solve: (Any Seven)

35

- a) Write scope and applications of Pharmaceutical Microbiology.
- b) Write the Terms / Use of following:
 - i) Iris Diaphragm.
 - ii) Incubator.
 - iii) Antiseptic.
 - iv) Microbiostasis.
 - v) Autoclave.
- c) Write a note on factors affecting on microbial spoilage.
- d) Enlist staining methods and explain steps involved in Gram staining method.
- e) Define Microscope and elaborate Scanning Electron microscope.
- f) How will you perform assay of antibiotic by Cup plate method?
- g) Write postulates of Robert Koch in field of microbiology.
- h) Differentiate Prokaryotic cell and Eukaryotic cell.
- i) Enlist different applications of cell culture in pharmaceutical industry.

Q.3 Solve: (Any Two)

20

- a) Give an exhaustive account on structural asymmetry and cultivation of virus.
- b) Elaborate different methods of Sterilization.
- c) Draw a flow diagram of design of an aseptic area and add note on main sources of contamination of aseptic area.

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**B. Pharmacy (Semester - III) (CBCS) Examination:
October/November – 2025
Pharmaceutical Engineering (801304)**

Day & Date: Monday, 24-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

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

- 1) _____ centrifugal force is the used to separate solid from fluids.

a) Air separator	b) Cyclone separator
c) Filter bag separator	d) Sieve shaker separator
- 2) The slurry is _____.

a) A suspension to be filtered
b) A porous membrane used to retain the solid
c) The solids which are present on the filter
d) A clear liquid passing through the filter
- 3) Calendria consists of no. of _____.

a) Baffles	b) Jacket
c) Tubular surfaces	d) None of these
- 4) In heat transfer, Media is not required for heat transfer in _____.

a) Conduction	b) Convection
c) Radiation	d) ALL
- 5) The bell crank lever arrangement is major part of which of the following _____.

a) Cyclone separator	b) Edge runner Mill
c) End runner Mill	d) Bag filter
- 6) _____ is called as variables area meter.

a) Venturi	b) Orifice
c) Rotameter	d) All
- 7) The (emissivity) of a black body is: _____.

a) 1	b) 1.5
c) 2	d) None
- 8) Which one of these drying techniques is used for drying of blood plasma, antibiotics and plant extract?

a) Spray drying	b) Freeze drying
c) Vacuum Drying	d) Fluid Bed drying

- 9) Fractional distillation is used for separation of two ____ liquids.
a) Miscible
b) Immiscible
c) Both (a) and (b)
d) None of these
- 10) The minimum water held by the materials that exerts an equilibrium vapour pressure less than the pure water is ____.
a) Bound water
b) unbound water
c) Both (A) and (B)
d) None
- 11) Which type of mixture is easily formed?
a) Positive mixtures
b) Negative mixture
c) Neutral mixture
d) Ampholytic
- 12) Double neck Distillation Flask is known as?
a) Claisen Flask
b) Round Bottom Flask
c) Florentine Flask
d) None of the above
- 13) Idler are used in ____.
a) Belt conveyor
b) Pneumatic conveyor
c) Screw conveyor
d) All of these
- 14) Which one of the following does not require manometer in construction of flow meter?
a) Orifice meter
b) Pitot tube
c) Rotameter
d) Venture meter
- 15) Which property of substance influences centrifugation ____.
a) Density
b) Surface area
c) Melting Point
d) Interfacial tension.
- 16) Corrosion is prevented by ____.
a) Use of corrosion inhibitor
b) By changing the environment
c) Coating and lining
d) All of above
- 17) Which of the following factors do not affect the rate of evaporation?
a) Temperature of liquid
b) Humidity of surrounding air
c) Depth of liquid
d) Surface of liquid.
- 18) For ease in size reduction, the material should be ____.
a) Hard, brittle
b) Soft, tough
c) Hard, tough
d) Soft, brittle
- 19) Clear liquid passing through the filter medium is known as ____.
a) Filtrate
b) Filter cake
c) Slurry
d) None
- 20) Which of the following term is used to describe the material that remains on given screening surface?
a) Minus material
b) Neutral material
c) Plus material
d) Medium size material

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

- a) Give principle, construction and working of planetary mixer.
- b) What is Reynolds number? Describe its significance.
- c) Give principle, construction and uses of spray dryer.
- d) What is centrifugation? Explain principle of centrifugation.
- e) Write a note on corrosion control method.
- f) Give principle, construction and working of filter leaf.
- g) Explain basic principle and methodology steam distillation.
- h) Define heat transfer. Write its objective and application.
- i) Give principle, construction and working of fluid energy mill.

Q.3 Answer the following (Solve any two). 20

- a) Describe multiple effect evaporator. Add note on economy of multiple effect evaporator.
- b) Explain theory behind rate of drying curve.
- c) Explain the factors which should be considered during selection of material for pharmaceutical plant construction.

**Seat
No.**

Day & Date: Monday, 17-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

20

- [illegible]

- 8) A racemic mixture rotates plane polarized light ____.

a) Clockwise b) Counter clockwise

c) Does not rotate in any direction d) None of these
- 9) Conversion of alcohols to ketones involves ____ reaction.

a) Dakin Reaction

b) Claisen-schmidt rearrangement

c) Oppenauer oxidation

d) Birch Reduction
- 10) Alkenes show geometrical isomerism due to ____.

a) Rotation around a double bond

b) Restricted rotation around a double bond

c) Rotation around a single bond

d) All of the above
- 11) The preference given for numbering heteroatom in nomenclature of heterocyclic compound ____.

a) $O > N > S$ b) $S > O > N$

c) $O > S > N$ d) $S > N > O$
- 12) An object lacking plane of symmetry is called as ____.

a) Optically active b) Optically inactive

c) Diastereomer d) None of the Above.
- 13) Aromatic carboxylic acid on reaction with hydrazoic acid in presence of H_2SO_4 gives ____.

a) Amine b) Alcohol

c) Phenol d) Ester
- 14) Two Diastereomers differ in the configuration of single chiral Centre is called as ____.

a) Epimer b) Enantiomer

c) Meso Compound d) Threo form
- 15) The most favored position for Electrophilic Aromatic Substitution reaction in quinoline is ____.

a) 8 b) 7

c) 3 d) 2
- 16) Which of the following reagents will react with furan to form 2-furan sulfonic acid?

a) SO_3 in pyridine at $100^\circ C$ b) Dil. H_2SO_4 at $200^\circ C$

c) SO_2 at $100^\circ C$ d) Dil. H_2SO_4 at $400^\circ C$
- 17) Which of the following is not true about geometrical isomers?

a) Different physical Property

b) Non- Identical Chemical Properties

c) Same Physical & Chemical properties

d) Different rates of reaction.

- 18)** Diastereomers have minimum ____ Asymmetric carbon/s.
a) 1 b) 2
c) 3 d) 4
- 19)** Methyl formate & Ethanoic acid are an example of ____ isomerism.
a) Positional b) Functional
c) Chain d) Metamer
- 20)** Optical Isomers that are non super imposable mirror images are called _____.
a) Diastereomers b) Enantiomers
c) Metamers d) Tautomer's

Q.2 Answer any seven of the following questions.

35

- a) Give the rules for nomenclature of heterocyclic compounds with suitable examples.
- b) Explain with suitable examples the terms Enantiomers and Diastereomers.
- c) Write any two methods of synthesis of Thiazole. Write any three reactions of it.
- d) Write methods of preparation for Indole. Write any three reactions of it.
- e) Explain aromaticity and basicity of pyridine.
- f) Explain wolf Kushner reduction reaction with mechanism and application.
- g) Write in brief Resolution of racemic mixture.
- h) Discuss different methods of determination of configuration of geometrical isomers.
- i) Explain the rearrangement reaction with mechanism of Beckmann rearrangement.

Q.3 Answer any two of the following questions.

20

- Write the synthesis, reactions, and medicinal uses of Pyrrole. Explain in brief aromaticity and reactivity of pyrrole, furan and thiophene.
- Discuss with suitable examples R&S, E&Z and D&L system of nomenclature of optical isomers.
- Write on synthesis and medicinal uses of Imidazole and Quinoline.

Max. Marks: 75

20

- Page 1 of 3

- 9) Choose general strength of hydrogen bonding from the following list _____.
- | | |
|----------------------|-----------------------|
| a) 1-10 Kcal/mole | b) 10- 50 Kcal/mole |
| c) 50 - 60 Kcal/mole | d) 80 - 150 Kcal/mole |
- 10) The main site of metabolism is ____.
- | | |
|--------------|-----------|
| a) Liver | b) Lung |
| c) Intestine | d) Kidney |
- 11) Thiopental belongs to ____ class.
- ultra short acting barbiturates
 - long-acting barbiturates
 - Intermediate acting barbiturates
 - None of these
- 12) A structure which is used as the starting point for drug design and development ____.
- | | |
|------------------|------------------|
| a) Active drug | b) Pharmacophore |
| c) Lead compound | d) orphan drug |
- 13) ____ contain phenanthrene nucleus.
- | | |
|--------------|------------|
| a) Morphine | b) Codeine |
| c) Noscapine | d) a & b |
- 14) Morphine have higher affinity towards ____ receptor.
- | | |
|------------|-------------|
| a) μ_1 | b) k |
| c) μ_2 | d) κ |
- 15) Benzodiazepines shows activity binding with ____ receptor.
- | | |
|---------|------------------|
| a) GABA | b) Alpha |
| c) Beta | d) None of these |
- 16) Haloperidol is used as ____ agent.
- | | |
|-------------------|----------------------|
| a) Antipsychotic | b) Analeptic |
| c) Anticonvulsant | d) None of the above |
- 17) ____ is not tricyclic antidepressant.
- | | |
|------------------|------------------|
| a) Imipramine | b) Amitriptyline |
| c) Nortriptyline | d) Paroxetine |
- 18) Phenylbutazone is a derivative of ____.
- | | |
|---------------------------|----------------------------|
| a) Pyrazolidine Dione | b) N-aryl anthranilic acid |
| c) Acetic acid derivative | d) Aniline |
- 19) Schizophrenia is closely associated with neurochemical abnormality:
- High-level of GABA
 - Dopaminergic abnormality
 - Decreased level of serotonin
 - All of the above

- 20) The following statements concerning aspirin are true except ____.
- a) Aspirin blocks with the chemical mediators of the kallikrein system
 - b) Aspirin irreversibly inhibits COX
 - c) Aspirin inhibits thromboxane A₂ creation
 - d) Aspirin inhibits phospholipase A₂

Q.2 Attempt Any Seven.

35

- a) Classify and Explain MOA of general anesthetic drug.
- b) Explain MOA & SAR of benzodiazepines drugs.
- c) Explain in detail information of adrenergic receptors and cholinergic receptors.
- d) Explain in detail various physicochemical properties related to drug action.
- e) Classify Parasympathomimetic agents and explain SAR of Direct acting Parasympathomimetic agents.
- f) Explain reversible choline esterase inhibitor drugs.
- g) Write synthesis and uses of Phenytoin and Chlorpromazine.
- h) Classify anticonvulsant drug & Explain MOA of it.
- i) Write a note on α -adrenergic blocker drugs.

Q.3 Attempt Any Two.

20

- a) Explain MOA of narcotic analgesic drug and explain SAR of morphine and related drugs.
- b) Note on Metabolism and Explain Phase -II Cycle.
 - i) Glucuronic acid conjugation.
 - ii) Sulphate conjugation in detail.
- c) Define, classify hypnotic & sedative drug with MOA and explain SAR of barbiturate.

Seat No.	
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Set

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**B. Pharmacy (Semester - IV) (CBCS) Examination:
October/November – 2025
Physical Pharmaceutics –II (801403)**

Day & Date: Friday, 21-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) Pseudo plastic materials are also called as systems _____.
 a) Shear thickening b) shear thinning
 c) Newtonian d) All of these
- 2) 1 micrometer (μm) is equal to _____.
 a) $10^{-5}m$ b) $10^{-6}m$
 c) $10^{-7}m$ d) $10^{-8}m$
- 3) In reaction that follow first order kinetics, half-life is expressed by equation _____.
 a) $0.693/k$ b) $0.301/k$
 c) $0.105/k$ d) $k/0.693$
- 4) _____ is the method of combining negatively and positively charged hydrophilic colloids.
 a) Coacervation b) Peptization
 c) Flocculation d) Coagulation
- 5) _____ Viscometer is the example of cone and plate Viscometer.
 a) Ferranti-Shirley b) Rotovisco
 c) Brookfield d) stromer
- 6) In a second-order reaction, the sum of the exponents in the rate law is equal to _____.
 a) Zero b) One
 c) Two d) Three
- 7) In the reaction, $H_2 + I_2 = 2HI$, the order of the reaction is _____.
 a) $1 + 1 = 2$ b) $2 + 2 = 4$
 c) $1 + 2 = 3$ d) None of these
- 8) Bingham bodies do not begin to flow till _____ exceeds yield value.
 a) Concentration b) Shearing stress
 c) Shearing strain d) All of these

- 9) Poor Flow of the powder is due to _____.
a) Cohesiveness
b) Adhesion between particles and container
c) Physical interlocking of particles
d) All of these
- 10) _____ is directly proportional to the molecular weight of lyophilic colloid.
a) Solubility
b) Turbidity
c) Density
d) None of these
- 11) Unit of kinematic Viscosity is _____.
a) Dynes
b) Stoke
c) cm
d) Gram/cc
- 12) Which of the following emulsion phenomena is usually reversible?
a) Breaking
b) Coalescence
c) Cracking
d) Creaming
- 13) _____ is used for measuring the particle volume.
a) Oven
b) Melting point apparatus
c) Coulter counter
d) None of these.
- 14) Thixotropic type of behavior is shown by the gel _____.
a) Bentonite
b) Pectin
c) Silica
d) Starch
- 15) Following are the types of emulsion except _____.
a) W/O emulsion
b) O/W emulsion
c) Microemulsion
d) Suspension
- 16) Translucent colloidal system is due to _____.
a) Tyndall effect
b) Splitting effect
c) Scattering
d) None of these
- 17) _____ is not the derived property of powder.
a) Particle shape
b) Tapped density
c) Bulk density
d) Carr's index
- 18) As the temperature increases, the viscosity of liquid _____.
a) Decreases
b) Increases
c) Sustain increases
d) Remains constant
- 19) The _____ colloids have strong attraction towards solvents.
a) Lyophilic
b) Lyophobic
c) Associated
d) All of these
- 20) Flocculated suspension exhibit _____ flow type.
a) Dilatant
b) Newtonian
c) Plastic
d) Pseudo plastic

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

- a) List the Kinetic properties of colloids. Explain any one of them.
- b) Explain in detail thixotropy in formulation.
- c) Differentiate between flocculated & deflocculated suspension.
- d) Describe the Anderson pipette method of analyzing the particle size.
- e) Write a note on Accelerated stability studies.
- f) Explain in detail Coulter - Counter method.
- g) Write a note on Brookfield Viscometer.
- h) Explain the factors influencing the rate of a reaction.
- i) Write a note on preservation of emulsion.

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

- a) Define First order reaction with suitable examples. Derive an equation for the determination of rate constant, half-life, and shelf life for first order reaction Kinetics.
- b) Discuss in detail the theories of emulsion.
- c) Define & explain Non Newtonian Flow of liquids.

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**B. Pharmacy (Semester - IV) (CBCS) Examination:
October/November – 2025
Pharmacology –I (801404)**

Day & Date: Monday, 24-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions.

20

- 1) Disulfiram inhibits ____ enzyme.
 - a) Alcohol dehydrogenase
 - b) Aldehyde dehydrogenase
 - c) Acetaldehyde dehydrogenase
 - d) All of the above
- 2) Half-life is doesn't depend on _____.
 - a) Time of drug absorption
 - b) Biotransformation
 - c) Concentration of first order reaction
 - d) Rate of drug elimination
- 3) ____ the substance which changes the activity of an effector element but doesn't belong to second messengers.
 - a) cAMP
 - b) cGMP
 - c) G-protein
 - d) Calcium ions
- 4) Which of the following is an excitatory neurotransmitter _____.
 - a) Glutamate
 - b) Dopamine
 - c) GABA
 - d) Serotonin
- 5) Which of the following sympathomimetics acts indirectly?
 - a) Epinephrine
 - b) Norepinephrine
 - c) Methoxamine
 - d) Ephedrine
- 6) ____ is a naturally occurring cholinesterase inhibitor.
 - a) Physostigmine
 - b) Edrophonium
 - c) Tacrine
 - d) Neostigmine
- 7) Therapeutic Index is calculated as _____.
 - a) ED/LD
 - b) LD/ED
 - c) ED_{50}/LD_{50}
 - d) LD_{50}/ED_{50}

- 8) Essential drugs are selected considering their _____.
a) Relevance to public health
b) Safety and efficacy
c) Comparative cost effectiveness
d) All of the above
- 9) Which of the following route of administration gives 100% bioavailability?
a) Intravenous
b) Sublingual
c) Inhalation
d) Oral
- 10) _____ is not a cholinomimetic natural alkaloid.
a) Arecholine
b) Pilocarpine
c) Muscarine
d) Methacholine
- 11) _____ is an abnormal reactivity to a drug due to some genetic disorder in the patient.
a) Antagonism
b) Allergy
c) Idiosyncrasy
d) Hypersensitivity
- 12) Histamine is present in _____.
a) Mast cells
b) Brain cells
c) Both A and B
d) Acinar cells
- 13) Which form of a weak acid drug will most readily cross cell membranes by passive diffusion?
a) Ionized
b) Non-ionized
c) Protein-bound
d) Hydrophilic form
- 14) The concept that "the effect of a drug is proportional to the number of receptors occupied" is best explained by which theory?
a) Lock and Key theory
b) Occupancy theory
c) Two-state model
d) Rate theory
- 15) Type B adverse drug reactions (ADRs) are typically _____.
a) Dose-dependent
b) Predictable
c) Unpredictable
d) Related to the pharmacological action of the drug
- 16) Pharmacovigilance is primarily concerned with _____.
a) Identifying new drug targets
b) Post-marketing surveillance of drug safety
c) Early-stage drug discovery
d) Drug distribution in the market
- 17) Sympatholytic drugs act by _____.
a) Stimulating alpha and beta adrenergic receptors
b) Blocking adrenergic receptors
c) Increasing norepinephrine release
d) Enhancing the effect of acetylcholine

- 18) Which of the following is a CNS stimulant commonly used to treat ADHD?
- | | |
|--------------|--------------------|
| a) Diazepam | b) Methylphenidate |
| c) Phenytoin | d) Lorazepam |
- 19) What is the mechanism of action of selegiline in Parkinson's disease?
- Inhibiting the degradation of dopamine by MAO-B
 - Increasing dopamine release from presynaptic neurons
 - Acting as a dopamine receptor agonist
 - Enhancing acetylcholine transmission
- 20) Lithium is primarily used in the treatment of ____.
- | | |
|------------------------------|---------------------------------|
| a) Schizophrenia | b) Bipolar disorder |
| c) Major depressive disorder | d) Generalized anxiety disorder |

Q.2 Answer any seven of the following questions.

35

- Write a note on the nature and sources of drugs.
- Write advantages and disadvantages of oral and parenteral route of administration.
- Classify skeletal muscle relaxants. Give their uses.
- Define:
 - Agonists.
 - Antagonists (competitive and non-competitive).
 - Tachyphylaxis.
 - Idiosyncrasy.
- Define and Classify Antidepressants agents.
- Write a short note on Neurohumoral transmission and co-transmission.
- Discuss in detail Drug discovery and clinical evaluation of new drugs.
- Write the pharmacological action of adrenaline on heart and various smooth muscles.
- Write a short note on sedative and hypnotic agents.

Q.3 Answer any two of the following questions.

20

- Define receptor, write general structure and general mechanism of G-protein coupled receptor.
- Classify Anticholinergic drugs with example. Discuss in detail pharmacology of Atropine.
- Describe the metabolism and distribution process of drugs.

Seat No.	
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**B. Pharmacy (Semester - IV) (CBCS) Examination:
October/November – 2025
Pharmacognosy and Phytochemistry –I (801405)**

Day & Date: Wednesday, 26-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

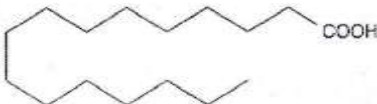

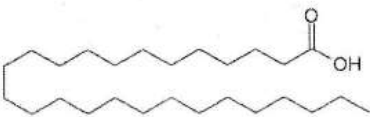

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions.

20

- 1) _____ belongs to Solanaceae family.
 - a) Atropa belladonna
 - b) Catharanthus roseus
 - c) Rauwolfia serpentina
 - d) All of the above
- 2) Select the unorganized crude drug belongs to glycoside class used in the formulation of various cosmetic products.
 - a) Turmeric
 - b) Aloe
 - c) Sandalwood
 - d) Musk
- 3) _____ is a mineral origin drug containing zinc oxide and 0.5% ferric oxide and used as a skin protectant.
 - a) Talc
 - b) Multani mitti
 - c) Calamine
 - d) Kaolin
- 4) Identification of paracytic stomata from the senna leaflet is based on the _____ method of evaluation.
 - a) Chemical
 - b) Physical
 - c) Organoleptic
 - d) Microscopical
- 5) _____ is not used in the determination of stomatal index of *Adhatoda vasica* leaf.
 - a) Stage micrometer and eye piece micrometer
 - b) Camera lucida
 - c) Compound microscope
 - d) All of the above
- 6) Select the false statement.
 - a) Dibbling and drilling are the sexual method of propagation.
 - b) Calcium, magnesium and sulphur are primary nutrients useful for the suitable growth of medicinal plants.
 - c) Altitude, temperature, day light and rainfall are exogenous factors affecting cultivation technology.
 - d) Removal of sand, dirt, foreign organic part from the crude drug is called as garbling.

- 7) Select the crude drug not to be stored in powdered form.
- Amla
 - Coriander
 - Squill
 - Cinnamon
- 8) _____ is the heritable condition of possessing more than two complete sets of chromosomes.
- Hybridization
 - Chemodemes
 - Mutation
 - Polyploidy
- When an average number of seeds are placed (sown) in the holes at equal distance manually in well prepared field, then the technique is known as _____.
- Dibbling
 - Drilling
 - Broadcasting
 - Dipping
- 10) _____ bark shows highest percentage of phytoconstituents if collected in rainy season.
- Wild cherry
 - Cinnamon
 - Cinchona
 - Kurchi
- 11) Totipotency refers to _____.
- Development of fruits from flowers in a culture
 - Flowering in a culture medium
 - Development of an organ from a cell in a culture medium
 - All of the above
- 12) The pair of hormones required for a callus to differentiate are _____.
- Ethylene and Auxin
 - GA and cytokinin
 - Auxin and Abscissic acid
 - Auxin and Cytokinin
- 13) Select the organic supplement as important component of nutrient media in the PTC.
- Vitamins like thiamine, niacin and pyridoxin
 - Auxins like NAA, IAA and IBA
 - Cytokinin like kinetin and zeatin
 - Gibberellins like GA5 and GA6
- 14) "*Law of Similars-Similae Similibus Curenture*" is the basic principle of _____ system of medicine.
- Unani
 - Chinese
 - Siddha
 - Homeopathy
- 15) _____ are a class of _____ compounds which is _____.
- Tannins, polyhydroxy ketone, secondary metabolite
 - Flavonoids, polyphenolic, primary metabolites
 - Flavonoids, polyphenolic, secondary metabolites
 - Tannins, polyphenolic, primary metabolites

- 16)** Select the example of crude drug belongs to anthracene glycoside _____.
a) Digitalis b) Senna
c) Bitter almond d) All of the above
- 17)** Select an enzyme useful in the treatment of thromboembolic diseases _____.
a) Streptokinase b) Serratiopeptidase
c) Papain d) All of the above
- 18)** *Hydnocarpus wightianus* is botanical name for _____.
a) Wool fat b) Chaulmoogra oil
c) Beeswax d) Castor oil
- 19)** Select the chemical structure of cerotic acid.
- a) 
- b) 
- c) 
- d) 
- 20)** _____ belongs to _____ family.
a) Ricinus communis, Gelidiaceae
b) Corchorus olitorius, Malvaceae
c) Astragalus gummifer, Euphorbiaceae
d) Gossypium herbaceum, Malvaceae

Q.2 Answer any seven of the following questions.

35

- a) Write scope of pharmacognosy in pharmaceutical industry and textile industry with examples.
- b) Define crude drug. Write a note on mineral drugs.
- c) Explain different types of adulteration with examples.
- d) Define cultivation. Write its merits and demerits over the wild sources.
- e) Write a note on edible vaccine.
- f) Explain Unani System of Medicine.
- g) Define Glycosides? Classify glycosides based on the presence of aglycone part with suitable examples.
- h) Write source, chemical constituents and uses of any one crude drug belongs to Apidae family.
- i) Brief note on novel medicinal agents from marine origin as anticancer agent.

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

- a)** Discuss basic principle, diagnosis and treatment involved in the Ayurvedic and Chinese system of medicine.
- b)** Describe various factors affecting cultivation technology.
- c)** Write biological source, chemical constituents and uses of any one crude drug of the following classes:
 - i) Belongs to Leguminosae family.
 - ii) Used as solidifying agent.
 - iii) Used in the preparation of capsules.
 - iv) Used in the preparation of skin care products.

Seat No.	
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**B. Pharmacy (Semester - V) (CBCS) Examination:
October/November – 2025
Medicinal Chemistry–II (801501)**

Day & Date: Tuesday, 18-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

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

- 1) Heart is said to be ischemic when ____ deficiency observed in it.

a) Oxygen	b) Carbon dioxide
c) Nitric oxide	d) Sulphur oxide
- 2) Identify nitro vasodilator from the following.

a) Amyl nitrite	b) Sodium nitrite
c) sodium nitrate	d) Nitric acid
- 3) Choose the drug which shows mechanism by blocking calcium channel.

a) Amlodipin	b) Clofibrate
c) Benzapril	d) Diphenhydramine
- 4) Acetazolamide is ____ diuretics.

a) Carbonic anhydrase inhibitors
b) Loop diuretics
c) osmotic diuretics
d) None of these
- 5) Select the drug from the following which is used in hypertension.

a) Diclofenac	b) Folic acid
c) Reserpine	d) Triamcinolone
- 6) Quinidine sulphate blocks ____ channel.

a) Sodium	b) Chloride
c) Calcium	d) Ampa
- 7) Which type of lipids is beneficial for the body?

a) HDL	b) LDL
c) VLDL	d) IDL
- 8) Testosterones, estrogen and progestin's contains _____ carbon in their nucleus.

a) 19,21,18	b) 21,18,19
c) 19,18 21	d) 18,19,21

- 9)** Identify the drug which inhibits HMG-CoA enzyme.
a) Lovastatin b) Clofibrates
c) Colestapol d) Tolbutamide
- 10)** Select the starting material used in the synthesis of chlorothiazide.
a) 3- chloroaniline b) 5- chloroaniline
c) Aniline d) Alcohol
- 11)** ____ is used as starting material in the synthesis of promethazine.
a) 4-hydroxy coumarin b) coumarin
c) 2 hydroxy benzene d) Phenothiazine
- 12)** Oxidation of estradiol gives _____.
a) Estrone b) 2- hydroxysterone
c) 4- hydroxysterone d) testosterone
- 13)** Identify androgens from the following:
a) Mepradine b) Mebendazole
c) Testosterone d) Nafedine
- 14)** Identify oral hypoglycemic agent from the following.
a) Estrol b) Acetohexamide
c) Clofibrate d) Tacrine
- 15)** Select local anesthetics from the following.
a) Cocaine b) Morphine
c) Fentanyl d) Sorbitol
- 16)** Identify H1 antagonist agent from the following.
a) Propranolol b) Meclizine
c) Cimetidine d) Ranitidine
- 17)** ____ is recognized as proton pump inhibitors.
a) Rabeprazole b) Promethazine
c) Alcohol d) Codeine
- 18)** ____ belongs to alkylating agents.
a) Digitalis b) Chloramucil
c) Cinchona d) Mercaptopurine
- 19)** In SAR of H1 antagonists, nature of "X" is important for which activity?
a) Pharmacophoric b) Hydrophobic
c) Retention d) None of these
- 20)** Identify oral contraceptives from the following.
a) Ethinylestradiol b) Codeine
c) Oxycodone d) Tacrine

Q.2 Solve the following. (Any Seven) 35

- a) Discuss SAR and MOA of antiarrhythmic drugs.
- b) Prepare a note on "Mineralocorticoids agents".
- c) Give complete account of anti-hyperlipidemics and anticoagulants.
- d) Explain chemistry of cardiac glycosides. Give importance of it in CHF.
- e) Give scheme of synthesis for mechloroethamine and acetazolamide.
- f) Give SAR and MOA of Local anesthetics.
- g) Explain anti-diabetic agents. Give synthetic scheme for Tolbutamide.
- h) Explain nitrovasodilators and give scheme for synthesis nitroglycerin.
- i) Give complete account of female sex hormones.

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

- a) Classify H_1 antagonists. Explain SAR and MOA of them.
- b) Classify anti-anginal drugs. Explain MOA and SAR of diuretics and antihypertensive agents.
- c) Classify antineoplastic agents. Explain SAR and MOA of alkylating agents with appropriate examples.

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**B. Pharmacy (Semester - V) (CBCS) Examination:
October/November - 2025
Industrial Pharmacy-I (801502)**

Day & Date: Thursday, 20-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

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

- 1) Ability of compound to exist in more than one crystalline form is known as _____.
 - a) Crystallization
 - b) Amorphous formation
 - c) Polymorphism
 - d) None of the above
- 2) During sugar coating of tablets, the colourants are added in one of the following steps _____.
 - a) Sealing
 - b) Subcoating
 - c) Syruping
 - d) Polishing
- 3) Flow property of powder can be determined by _____.
 - a) Angle of repose
 - b) Friability
 - c) Hardness tester
 - d) Screw gauge
- 4) The diameter of mesh aperture of disintegration test apparatus as per I.P is _____.
 - a) 2.00 mm
 - b) 4.00 mm
 - c) 1.00 mm
 - d) 1.50 mm
- 5) Among the following which has higher solubility _____.
 - a) Crystalline form of drug
 - b) Amorphous form of drug
 - c) Both (a) and (b)
 - d) None of the these
- 6) Pre-formulation is about ensuring the _____.
 - a) Stability
 - b) Safety
 - c) Efficacy
 - d) All of the above
- 7) Name of the equipment/s used to measure hardness of tablet _____.
 - a) Pfizer tester
 - b) Strong Cobb tester
 - c) Erweka tester
 - d) All of the above
- 8) Determination bloom strength is carried out for _____.
 - a) Tablets
 - b) Gelatin solution
 - c) Parenterals
 - d) All of the above

- 9) Method used for finishing the capsules ____.
- a) Pan polishing
 - b) Cloth dusting
 - c) Brushing
 - d) All of these
- 10) Slugs are prepared in which kind of granulation techniques?
- a) Wet granulation
 - b) Dry granulation
 - c) Stem granulation
 - d) Melt granulation
- 11) In which type of packaging system the product is in direct contact with packaging material?
- a) Primary Package
 - b) Secondary Package
 - c) Tertiary Package
 - d) All of the above
- 12) The hypertonic solution may induce ____.
- a) Shrinking of blood cells
 - b) Haemolysis
 - c) Fever
 - d) All of the above
- 13) ____ is the largest capsule size.
- a) 1
 - b) 2
 - c) 000
 - d) 00
- 14) Which one of the following is used as isotonicity adjuster?
- a) Dextrose
 - b) Boric acid
 - c) NaCl
 - d) All of these
- 15) Vanishing cream is ____ type of emulsion.
- a) Water in oil
 - b) Oil in water
 - c) Oil in water in oil
 - d) None of the above
- 16) Filling of aerosols with liquefied propellants is done by ____.
- a) Cold fill process
 - b) Pressure fill process
 - c) Both (a) and (b)
 - d) None of the above
- 17) Enteric coated tablet disintegrates in ____.
- a) Stomach
 - b) Mouth
 - c) Intestine
 - d) Liver
- 18) HLB system is used to classify ____.
- a) Surfactants
 - b) Preservative
 - c) Antioxidants
 - d) Sequestering agent
- 19) Biopharmaceutics Classification system (BCS) is done based on ____.
- a) Solubility
 - b) Permeability
 - c) Both (a) and (b)
 - d) None of these
- 20) The elixirs are ____ solution.
- a) Aqueous
 - b) Alcoholic
 - c) Hydroalcoholic
 - d) None of the above

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

- a) What is polymorphism? add a note on polymorphism.
- b) Define and classify tablets with suitable examples.
- c) What is pre-formulation? Give the objectives and physicochemical parameters of pre-formulation.
- d) Explain the steps involved in sugar coating.
- e) Explain the various instability conditions of emulsion.
- f) Briefly describe the production facilities for parenterals.
- g) Explain clarity test and leakage test for parenterals.
- h) Write the principle and procedure involved in the preparation of cold cream.
- i) What is bloom strength? Explain determination of bloom strength.

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

- a) Define aerosol and explain in detail methods of filling of aerosol.
- b) Describe in detail various excipients used in tablet formulation.
- c) Discuss different quality control tests of hard gelatine capsules.

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**B. Pharmacy (Semester - V) (CBCS) Examination:
October/November – 2025
Pharmacology–II (801503)**

Day & Date: Saturday, 22-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions. 20

- 1) _____ of the following answers is most correct for dobutamine for its preferable use in heart failure?
 - a) Prominent inotropic action
 - b) Do not raise vascular resistance
 - c) Renal vasodilation
 - d) Less development of tolerance

- 2) Which of the following treatments should be avoided in digitalis toxicity?
 - a) KCL infusion
 - b) Lignocaine
 - c) Diuretics
 - d) Propranolol

- 3) Spironolactone & ACE inhibitors are not use concurrently because of _____.
 - a) Hyperglycemia
 - b) Hypokalemia
 - c) Hyperkalemia
 - d) Hypoglycemia

- 4) The potency of oxytocin is measured by _____.
 - a) Contraction of uterus
 - b) Vasopressor activity
 - c) Depression of blood pressure
 - d) All of the above

- 5) Unstable angina is characterized by all, except one _____.
 - a) Recurrent attack at rest
 - b) Atherosclerosis plaque formation
 - c) Aggregation of platelet at rapture plaque
 - d) Chest pain which is unrelated to exercise

- 6) Transdermal nitroglycerine is contraindicated in which one of the following conditions.
 - a) Stable angina
 - b) Variant angina
 - c) In elevated CSF pressure
 - d) All of these

- 7) _____ following factors does not influences the automaticity.
- | | |
|--------------------------------|------------------|
| a) Hypokalemia | b) Acidosis |
| c) Activation of beta receptor | d) None of these |
- 8) _____ one of the following drugs inhibits HMG-COA reductase?
- | | |
|----------------|-------------------|
| a) Statin | b) Resin |
| c) Fibrin acid | d) Nicotinic acid |
- 9) _____ Hypolipidemic drugs given in lactose precursor form.
- | | |
|----------------|---------------------|
| a) Pravastatin | b) Atorvastatin |
| c) Lovastatin | d) All of the above |
- 10) _____ of the following shock condition is caused by microbial infection.
- | | |
|----------------------|-----------------------|
| a) Septic shock | b) Neurogenic shock |
| c) Cardiogenic shock | d) Anaphylactic shock |
- 11) Which drug interacts with oral anticoagulant & decreases its effect?
- | | |
|----------------|------------------------|
| a) Sulfonamide | b) Metronidazole |
| c) Tolbutamide | d) Oral contraceptives |
- 12) In women of childbearing age _____ much dose of folic acid should be given.
- | | |
|-----------|---------|
| a) 0.4 mg | b) 4 mg |
| c) 0.2 mg | d) 2 mg |
- 13) Which antiplatelet drug has vasodilating property?
- | | |
|----------------|------------------|
| a) Aspirin | b) Dipyridamol |
| c) Ticlopidine | d) None of these |
- 14) Is not an example of crystalloids type of plasma expander?
- | | |
|----------------------|---------------------|
| a) Saline solution | b) Ringer solution |
| c) Dextrose solution | d) Dextran solution |
- 15) _____ diuretic drug increases the intraocular tension.
- | | |
|---------------|-------------------|
| a) Mannitol | b) Spironolactone |
| c) Furosemide | d) Theophylline |
- 16) Which of the following phenothiazine derivative is devoid of neuroleptic properties?
- | | |
|-------------------|-----------------|
| a) Chlorpromazine | b) Fluphenazine |
| c) Promethazine | d) Thioridazine |
- 17) The vascular effect of prostaglandin are blocked by _____.
- | | |
|--------------------|----------------------|
| a) Atropine | b) Diphenhydramine |
| c) Phenoxybenzamin | d) None of the above |
- 18) Kallikrein falls under which enzyme category _____.
- | | |
|--------------------|--------------------|
| a) Peptidase | b) Serine protease |
| c) Tyrosine kinase | d) Hydroxylase |

- 19) Which of the following agent promote platelet aggregation?
- | | |
|------------------|---------------------|
| a) Epinephrine | b) Serotonin |
| c) Prostaglandin | d) All of the above |
- 20) Which of the following prostaglandin used for uterine motility?
- | | |
|-----------------|---------------------|
| a) Dinoprostone | b) Misoprostol |
| c) Carboprost | d) All of the above |

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

35

- a) Explain pharmacology of histamine.
- b) Write a note on warfarin sodium as an oral anticoagulant.
- c) Define bioassay, write its principle, application, types.
- d) Define cardiotonic drugs. Write the detail mechanism of action of digitalis with suitable diagram.
- e) Define and classify non-steroidal anti-inflammatory derivatives
- f) Classify oral hypoglycemic agent. Write mecha of acarbose and sulphonyl urea's.
- g) Explain steps involved in synthesis, storage & secretion of thyroid hormone along with uses of thyroid hormone.
- h) Classify anti-anginal drugs. Write the detail mechanism of action and adverse drug reaction of nitroglycerine.
- i) Classify anti-arrhythmic agents with suitable examples.

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

20

- a) Write the classification of antihypertensive agents. Describe the pharmacology of beta blockers.
- b) Define diuretic. Explain mechanism of action, therapeutic uses and adverse effects of thiazide diuretics.
- c) Discuss the biosynthesis, physiological role and pharmacological actions of prostaglandins .

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**B. Pharmacy (Semester - V) (CBCS) Examination:
October/November – 2025
Pharmacognosy and Phytochemistry - II (801504)**

Day & Date: Tuesday, 25-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

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

- 1) Which of the following statement for alkaloid is correct _____.
 a) Physiologically active
 b) Heterocyclic ring with at least one nitrogen
 c) Basic in nature
 d) All above
- 2) Gas chromatography is based on the principle of _____.
 a) Partition
 b) Adsorption
 c) Size exclusion
 d) Ion exchange
- 3) 1.3.7 trimethylxanthine is _____.
 a) Atropine
 b) Theobromine
 c) Caffeine
 d) Artemisine
- 4) In shikimic acid pathway, oxidative product of the 3-dehydroshikimic acid is _____.
 a) Gallic acid
 b) 3-dehydroquinic acid
 c) Cinnamic acid
 d) Chorismic acid
- 5) Citral is chemically _____.
 a) Acyclic monoterpenoid
 b) Cyclic monoterpenoid
 c) Cyclic diterpenoid
 d) Acyclic diterpenoid
- 6) Paclitaxel obtained from various taxus species (*Taxus brevifolia*) used for treatment of _____.
 a) Diabetes
 b) Cancer
 c) Hypertension
 d) Malaria
- 7) Soxhlet extraction is based on the principle _____.
 a) Direct heating
 b) Siphoning
 c) High pressure
 d) Ultra wave
- 8) Forskolin is also called as _____.
 a) Coleonol
 b) Geraneol
 c) Borneol
 d) Farnesol

- 20) Spectroscopy in which radio frequency waves are used _____.
a) Infra red spectroscopy
b) Nuclear Magnetic Resonance
c) Mass spectroscopy
d) UV/ Visible spectroscopy

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

35

- a) Briefly explain the different types of detectors used for identification of radiolabelled compound in biogenetic study.
- b) Write Brief note on carotenoids.
- c) Write biosource, chemical constituents and uses of deadly nightshade and Devil's dung.
- d) Explain method of isolation and identification of Quinine.
- e) Discuss the industrial production, estimation and utilization of Diosgenin.
- f) Give brief account on analysis of Rutin by TLC method.
- g) Write in detail pharmacognostic scheme of any two crude drugs belongs to umbelliferae family.
- h) Define electrophoresis. Write the principle and application of electrophoresis.
- i) Define extraction. Write brief note on conventional method of extraction of phytoconstituent.

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

20

- a) Explain in detail about Isoprenoid pathway.
- b) Write in detail about chromatographic techniques employed in analysis of crude drug.
- c) Write biosource, active constituents and uses of any one crude drug of the following classes:
 - i) used as counter irritant
 - ii) used as antiseptic
 - iii) used as CNS stimulant
 - iv) used as purgative
 - v) used as nervine tonic

Max. Marks: 75

Q.1 Multiple choice questions.

- 1) Drug and cosmetics rules were passed in _____.
a) 1940
b) 1944
c) 1948
d) 1945
- 2) Schedule H drugs belong to _____.
a) List of prescription drugs
b) Narcotic drugs
c) Misbranded drugs
d) Imported drugs
- 3) Central research institute situated at _____.
a) Lucknow
b) Kolkata
c) Kasauli
d) Izatnagar
- 4) Left hand top corner of the label of schedule X drugs contains symbol _____.
a) XR_x
b) R_x
c) RMP
d) TDS
- 5) Schedule _____ gives standards for ophthalmic preparation.
a) F
b) FF
c) FFF
d) None of these
- 6) _____ Chairman of DTAB?
a) President. AICTE
b) President. PCI
c) Director general of health service
d) None of these
- 7) License for the retail sale of schedule X drugs is given in form _____.
a) 20
b) 20F
c) 21
d) 22
- 8) Government analysts are appointed by the central or state govt under section _____.
a) 19
b) 20
c) 21
d) 22

- 9) The Standards for mechanical contraceptives are given in schedule ____.
- | | |
|------|------|
| a) S | b) R |
| c) Q | d) T |
- 10) Spurious drugs meaning which are ____.
- | | |
|-------------------------|---------------------|
| a) Imitation | b) Substitutes |
| c) Resemble other drugs | d) All of the above |
- 11) Pharmacy Act were passed in ____.
- | | |
|---------|---------|
| a) 1940 | b) 1944 |
| c) 1948 | d) 1945 |
- 12) Which is the governing body for pharmacy education and practice in India?
- | | |
|----------|--------|
| a) AICTE | b) UGC |
| c) MCI | d) PCI |
- 13) Which products are exempt from excise duties under the Act?
- a) Lifesaving drugs
b) Medicines for government hospital
c) Exported products
d) All of the above
- 14) What is considered a violation of professional integrity?
- a) Accepting gifts from patients
b) Providing free sample to patients
c) Dispensing medications without prescriptions
d) All of the above
- 15) What is national pharmaceutical pricing authority role in price control?
- a) fixing prices of essential medicines
b) Monitoring pharmaceutical company profit
c) Regulating pharmaceutical advertising
d) All of the above
- 16) Biologicals arc tested at ____.
- | | |
|------------|------------|
| a) Mumbai | b) Kolkata |
| c) Chennai | d) Kasauli |
- 17) Who is authorized to perform an abortion under the MTP Act?
- | | |
|-----------------------------------|-----------------------------|
| a) Any obstetricians | b) Any gynecologists |
| c) Register medical practitioners | d) Any medical practitioner |
- 18) In India first chemists shop started in ____ by Mr. Bathgate
- | | |
|---------|---------|
| a) 1811 | b) 1920 |
| c) 1940 | d) 1947 |
- 19) Which of the following is example of intellectual property?
- | | |
|-------------|----------|
| a) Building | b) Stock |
| c) Patent | d) Land |

- 20)** What is primary purpose of a trademark?
- a) To protect intellectual property
 - b) To promote brand recognition
 - c) To distinguish products or services
 - d) All of the above

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

35

- a)** Define the term "drugs". Discuss the classes of drugs that are prohibited to be imported as per drug and cosmetic act.
- b)** Describe the labeling conditions specified in the Drugs and Cosmetic rules and explain the labeling procedure for schedule H drugs preparation.
- c)** Write the constitution and function of DTAB as per D and C act.
- d)** Define magic remedies. Write the offences and penalties in contravention of D&MR Act.
- e)** Explain the recommendations of R.N. Chopra Committee.
- f)** Enumerate the objectives of DPCO. How is the retail price of formulations calculated as per the Act?
- g)** Write the organizational structure and functional mechanisms of the Pharmacy Council of India (PCI).
- h)** Describe the right to information and write salient features of RTI act.
- i)** What is a registered pharmacist? Provide the prerequisites for registration on the first pharmacy register.

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

20

- a)** Explain the conditions that are to be fulfilled for obtaining a license to manufacture schedule C and C1 drugs as per the Drug and Cosmetics act 1940.
- b)** Write the qualifications, duties, and powers of a drug inspector. Explain in brief inspection procedure.
- c)** What are the offences and penalties under the Narcotics drugs and psychotropic substances Act?

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**B. Pharmacy (Semester - VI) (CBCS) Examination:
October/November - 2025
Medicinal Chemistry-III (801601)**

Day & Date: Tuesday, 18-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) Identify the true broad spectrum antibiotics from the following.

a) Nystatin	b) Amoxicillin
c) Tetracycline	d) Natamycin
- 2) Identify the prodrug from the following list.

a) Amoxicillin	b) Azetidine
c) Cefpodoxime proxetil	d) Tetracycline
- 3) In the SAR of penicillin's increase the steric hindrance at alpha carbon atom increases _____.

a) Affinity	b) Polarity
c) Resistance to penicillinase	d) Gram negative activity
- 4) In the SAR of quinolones substitution of (R) at C-1 position is essential for _____.

a) Potency	b) Hydrophobicity
c) Pharmacophore activity	d) Ionization potential
- 5) Synthetic precursor for acyclovir _____.

a) Pamaquine	b) Guanine
c) Mepacrine	d) Cytosine
- 6) Hammetts constant used to find which parameter _____.

a) Hydrophilic	b) Steric
c) Electronic	d) Lipophilic
- 7) The basic ring structure for all sulphonamide _____.

a) Sulphanilamide	b) Purine
c) Benzoic acid	d) Pteridine
- 8) In the equation of Hansch, the logP stands for _____.

a) Hydrophilicity	b) Partition coefficient
c) Hammett's constant	d) electronic property

- 9) B-lactam antibiotics inhibit the synthesis by inhibiting.
- a) Peptoglycan
 - b) Polypeptide
 - c) Peptidoglycan
 - d) Peptidase
- 10) Pyrimidine analogue of antiviral drug is ____.
- a) Idoxuridine
 - b) Methisazone
 - c) Amantidine
 - d) Chloramphenicol
- 11) Isoniazide inhibits ____.
- a) Xanthine oxidase
 - b) Mycolase synthase
 - c) GABA
 - d) Choline esterase
- 12) Which is the precursor for the synthesis of chloramphenicol?
- a) P-nitro acetophenone
 - b) P-Amino acetophenone
 - c) O-nitro acetophenone
 - d) P-chloroacetophenone
- 13) Combinatorial synthesis is used mainly for the synthesis of ____.
- a) Beta lactam
 - b) Tetracycline
 - c) Monobactam
 - d) Peptide polymers
- 14) ____ drug inhibits DNA gyrase enzyme.
- a) Quinacrine
 - b) Norfloxacin
 - c) Sulphonamides
 - d) Ethionamide
- 15) Macrolide antibiotics are obtained from ____.
- a) Lactobacillus
 - b) Streptomyces nodus
 - c) Clostridium
 - d) Streptomyces erythraeus
- 16) Software used in verloop steric parameter is ____.
- a) Chemdraw
 - b) Marvin sketch
 - c) Argus
 - d) Sterimol
- 17) Clotrimazole is used for ____.
- a) Bacterial infection
 - b) Fever
 - c) Meningitis
 - d) Candidiasis
- 18) Metronidazole comes under which derivatives.
- a) Nitroazo
 - b) Nitro-imidazole
 - c) Amide
 - d) Nitro-amide
- 19) Drug which is used for leprosy.
- a) Sulphamethizole
 - b) Trimethoprim
 - c) Sulphapyridine
 - d) Dapsone
- 20) Example of Azole containing antifungal agent is ____.
- a) Ketoconazole
 - b) Griseofulvin
 - c) Nystatin
 - d) Aztreonam

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

- a) Write MOA, SAR & degradation of Tetracycline.
- b) Discuss in details of pharmacokinetic application of prodrugs.
- c) Write in details of viral replication process and reverse transcription inhibitors.

Q.3 Answer the following questions. (Any Seven) 35

- a) Write structure, MOA and uses of Ethambutal.
- b) Write the synthesis of Isoniazide and sulphacetamide.
- c) Write a note on Molecular modelling.
- d) Discuss SAR and MOA of Quinolone as antibacterial agent.
- e) Write in details of life cycle of malaria and drugs acting on it.
- f) Explain in detail of Sulphonamides.
- g) Discuss in detail of degradation of penicillin.
- h) Discuss in detail of structure, uses and MOA of 8 aminoquinolines.
- i) Write a note on Azol derivatives.

Max. Marks: 75

20

- Page 1 of 3

- 9) ____ is a β -lactam antibiotic that inhibits bacterial cell wall synthesis.
- a) Erythromycin
 - b) Penicillin G
 - c) Streptomycin
 - d) Chloramphenicol
- 10) ____ antibiotics inhibits bacterial protein synthesis by binding to the 50S ribosomal Subunit.
- a) Aminoglycosides
 - b) Tetracyclines
 - c) Cephalosporins
 - d) Macrolides
- 11) ____ is a first-line drug used in the treatment of tuberculosis.
- a) Streptomycin
 - b) Isoniazid
 - c) Ciprofloxacin
 - d) Amphotericin B
- 12) ____ drug is primarily used for the treatment of leprosy.
- a) Rifampicin
 - b) Dapsone
 - c) Isoniazid
 - d) Ketoconazole
- 13) ____ agent acts by binding to ergosterol and disrupting fungal cell membrane.
- a) Fluconazole
 - b) Amphotericin B
 - c) Griseofulvin
 - d) Nystatin
- 14) ____ an antiviral drug is used in the treatment of herpes virus infections.
- a) Zidovudine
 - b) Acyclovir
 - c) Oseltamivir
 - d) Ritonavir
- 15) ____ is an anthelmintic agent effective against roundworm infections.
- a) Albendazole
 - b) Metronidazole
 - c) Praziquantel
 - d) Mebendazole
- 16) ____ is effective against both amoebiasis and giardiasis.
- a) Metronidazole
 - b) Chloroquine
 - c) Mefloquine
 - d) Primaquine
- 17) ____ is a calcineurin inhibitor used as an immunosuppressant in organ transplantation.
- a) Azathioprine
 - b) Mycophenolate mofetil
 - c) Tacrolimus
 - d) Cyclophosphamide
- 18) ____ an antineoplastic agent acts by inhibiting DNA synthesis through folate antagonism.
- a) Cyclophosphamide
 - b) Doxorubicin
 - c) Methotrexate
 - d) Vincristine
- 19) ____ antibiotic is the drug of choice for treating syphilis.
- a) Azithromycin
 - b) Metronidazole
 - c) Penicillin G
 - d) Ciprofloxacin
- 20) ____ term describe the dose at which a drug produces 50% of its maximum toxic effect.
- a) ED₅₀
 - b) TD₅₀
 - c) LD₅₀
 - d) NOAEL

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

- a) Describe in detail the uses and adverse effects of chloroquine.
- b) Classify penicillin with examples and explain penicillin with probenecid drug interaction.
- c) Enlist the different generations of cephalosporin antibiotic with examples.
- d) Write in detail note on the multi-drug therapy of tuberculosis.
- e) Classify antiviral drugs with examples.
- f) Write a note on zidovudine and cyclophosphamide.
- g) What is the importance of protein binding?
- h) Give the mechanism of action of osmotic purgatives.
- i) Classify antiamoebic drugs. Give limitations of metronidazole.

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

- a) Classify tetracyclines with examples. Write mechanism of action, adverse effects and therapeutic uses of tetracycline.
- b) Define poison. What is organophosphorus poisoning? Describe in detail its treatment.
- c) What are the goals of antiulcer therapy? Add mechanism of action of sucralfate.

Max. Marks: 75

Q.1 Multiple choice questions.

- 1) Iodine value, Acid value are employed as Quality control for _____.
a) Oil b) Protein
c) Flavone d) Shampoo
- 2) Select the natural non excipient crude drug from the following _____.
a) karaya gum b) Tragacanth
c) Sterculia gum d) Pepper
- 3) Factors affecting stability of herbal medicine.
a) Physical b) chemical
c) Environmental d) All of the above
- 4) Schedule T relates with _____ Of herbal medicines.
a) GAP a) GMP
c) GACP d) GLP
- 5) Shelf life can be obtained from _____ test.
a) Stability b) Microbial
c) Pyrogen d) Physical status
- 6) Standard sample used for determination of Tannin content _____.
a) Cocaine b) Brucine
c) Quinine d) Gallic acid
- 7) Important documents in GMP as per guidelines is _____.
a) Manuals b) Protocols
c) Policies d) All
- 8) The residue remaining after incineration is use for determination of inorganic content is _____.
a) Ash b) extractive
c) moisture d) Foreign matter

- 9) _____ What is the full form of ICH.
a) International conference on harmonization
b) International council of harmonization
c) Internal council on harmonization
d) Internal conference on harmonization
- 10) Steroidal drug are confirmed from the following chemical test _____.
a) Tollens
b) Vitalis test
c) Libermann-Burchard test
d) Benedicts test
- 11) Trade Mark of Herbal product helps in _____.
a) Identifying Products
b) Turnover
c) Reduce Cost
d) Improve Quality
- 12) In quality control department the area must be _____ Sq feet as per GMP.
a) 200
b) 150
c) 100
d) 50
- 13) Which is not chromatographic technique _____.
a) TLC
b) HPTLC
c) IR
d) HPLC
- 14) Optical rotation is measured by _____.
a) Viscometer
b) Opticometer
c) Polarimeter
d) Microtome
- 15) Quality can be achieved by _____ system of the following?
a) Cleaning
b) Designing
c) Production
d) Evaluation
- 16) Gutika formula contain like karpura, kasturi are added _____ stage.
a) Final
b) Initial
c) In between
d) After rolling
- 17) Test parameters used in evaluation of herbal samples are _____.
a) Microbiological testing
b) Dissolution test
c) Test for heavy metal
d) All of the above
- 18) Polyherbal formulation is more popular in Ayurvedic preparation due to _____.
a) Synergistic
b) Quality
c) Adverse Effect
d) Low Value
- 19) As per ICH guidelines _____ tool used for Efficacy of herbal medicine.
a) Behavior studies
b) side effect
c) Clinical Trials
d) Therapeutic Data
- 20) Disintegration time and weight variation are important quality control tests used for _____ products.
a) Gutika
b) Taila
c) Bhasma
d) Lavana

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

- a)** Define processing and add a note on Processing of herbal raw material.
- b)** Write about method of preparation and standardization of Lehya.
- c)** What are Hair conditioners, name 4 herbal drugs used as conditioners.
- d)** Write Classification of Herbal-Drug and Herb-Food Interactions.
- e)** Discuss Bioprospecting and Biopiracy.
- f)** Discuss goal and any four components of GMP.
- g)** Write a note on Schedule Z of Drugs & Cosmetics Act for ASU drugs.
- h)** Write a short note on herbal syrup.
- i)** Write a note on herbal industry.

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

- a)** What are Nutraceuticals? Write health benefits and role of Nutraceuticals.
- b)** Write a note on
 - i) Hypercium
 - ii) Garlic
 - iii) Fenugreek
 - iv) Kava-kava
- c)** What are Ghutika & Churna write the method of preparation and evaluation.

Seat No.	
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Set **P**

**B. Pharmacy (Semester - VI) (CBCS) Examination:
October/November – 2025
Biopharmaceutics and Pharmacokinetics (801604)**

Day & Date: Tuesday, 25-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) Elimination process having which of following processes?
 - a) Excretion
 - b) Biotransformation
 - c) both A) & B)
 - d) None of the above
- 2) A agent that causes toxic effects on foetus called as _____.
 - a) Teratogen
 - b) Allergen
 - c) Antigen
 - d) Both B) and C)
- 3) C_{max} value depends on _____.
 - a) Dose Administered
 - b) Rate of adsorption
 - c) Rate of Elimination
 - d) All of these
- 4) Pore transport drug absorption mechanism is also called as _____.
 - a) Convective transport
 - b) Bulk flow
 - c) Filtration
 - d) All of these
- 5) Permeability is rate limiting step in absorption for which of following class of drug?
 - a) I
 - b) III
 - c) II
 - d) IV
- 6) _____ is also called Tamoxifen binding site.
 - a) Site-III
 - b) Site-I
 - c) Site-II
 - d) Site-IV
- 7) When the principle of conservation of energy is applied to the flow of fluids, the resulting equation is called:
 - a) Reynolds number
 - b) Bernoulli's theorem
 - c) Kick's theory
 - d) Hagen–Poiseuille's equation
- 8) Calculate the volume of distribution of drug, when 300 mg dose is administered showed the initial blood drug concentration of 30 microgram/mL?
 - a) 9 L
 - b) 10 L
 - c) 100 L
 - d) 90 L

- 20)** Causes of non linear Pharmacokinetics are _____.
 a) Absorption b) Distribution
 c) Both a) & b) d) None of the above

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

35

- a) How pharmaco-technical factors affected on gastrointestinal drug absorption?
- b) Define: -
 - i) Bioavailability
 - ii) Biopharmaceutics
 - iii) Pharmacokinetics
 - iv) Antiport
 - v) T_{max}
- c) Explain invitro- in vivo correlations.
- d) List USP In vitro dissolution test apparatus and illustrate any 4 apparatus.
- e) Compare active and passive transport of drug absorption mechanism.
- f) Write a brief note on Biopharmaceutical Classification System.
- g) Write a note on methods of measurement of bioavailability.
- h) Draw a typical time vs plasma drug concentration profile of drug after oral administration.
- i) Write a note on film theory as one of dissolution mechanism.

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

20

- a)** What is meant by Pharmacokinetics model? Classify and explain various pharmacokinetic and pharmacodynamic parameters in detail.
- b)** Define Bioavailability and bioequivalence. Explain Pharmacokinetic & Pharmacodynamic Methods of assessing bioavailability.
- c)** Discuss causes of Non-linearity in ADME. Explain Michaelis Menten equation.

Seat No.	
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Day & Date: Thursday, 27-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

20

- 1)** The PCR technique was developed by _____.
 - a) Karry Mullis
 - b) Kohler
 - c) Milstein
 - d) Boyer
- 2)** Plasmid is the circular piece of DNA most commonly present in _____.
 - a) Virus
 - b) Fungi
 - c) Bacteria
 - d) Algae
- 3)** Which of the following is the first transgenic crop?
 - a) Flax
 - b) Tobacco
 - c) Plastic
 - d) Cotton
- 4)** The 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
- 5)** _____ developed BCG vaccine in 1908.
 - a) Chain Weizmann
 - b) Selman Waksman
 - c) William Kolhe
 - d) Calmette and Guerin
- 6)** Identify the purine base present in DNA.
 - a) Adenine
 - b) Cytosine
 - c) Guanine
 - d) Both a & c
- 7)** _____ does not require aeration during their production by fermentation technology.
 - a) Penicillin
 - b) Streptomycin
 - c) Dextran
 - d) Cobalamine
- 8)** PCR is useful in the diagnosis of _____.
 - a) HIV
 - b) Fever
 - c) Diabetes
 - d) None of these

- 9) Northern blotting technique is used for the confirmation of ____.
- a) DNA
 - b) RNA
 - c) Both DNA & RNA
 - d) Proteins
- 10) Downstream processing (DSP) is carried out to ____.
- a) Separate cells and cell debris
 - b) Remove insoluble matter
 - c) Get pure product
 - d) All of these
- 11) UPT kit is useful to confirm ____.
- a) Diabetes
 - b) Pregnancy
 - c) Blood pressure
 - d) Hepatitis A
- 12) ____ discovered RNA in 1909.
- a) Phoebus Levene
 - b) Rous
 - c) Guarine
 - d) Weismann
- 13) Sparger is used in fermentation for addition/supply of ____.
- a) Antifoaming agent
 - b) Sterile air
 - c) Antimicrobial agents
 - d) Sterile medium
- 14) Alexander Fleming discovered penicillin in ____.
- a) 1919
 - b) 1928
 - c) 1939
 - d) 1949
- 15) Most suitable pH required for the commercial production of penicillin is ____.
- a) 6.2 to 6.8
 - b) 3.2 to 3.8
 - c) 10.2 to 10.8
 - d) 4.2 to 4.8
- 16) Identify an enzyme obtained from microbial source ____.
- a) Glucose oxidase
 - b) Streptokinase
 - c) Urokinase
 - d) Both a & b
- 17) Taq polymerase is used in PCR because of its ____.
- a) low thermal stability
 - b) high fidelity
 - c) high speed
 - d) high thermal stability
- 18) The extra-chromosomal circular DNA found in the E. coli is ____.
- a) Plasmid
 - b) DNA ligase
 - c) Vector
 - d) Cytokinin
- 19) Excision and insertion of a gene is called as ____.
- a) Cytology
 - b) Genetic engineering
 - c) Cytogenetics
 - d) Gene therapy
- 20) ____ proposed an idea that separate X and Y chromosomes determine sex.
- a) Louis Pasteur
 - b) Fleming
 - c) Wilson and Stevens
 - d) Earnst Seyler

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

- a) Discuss the scope of biotechnology.
- b) What is enzyme immobilization? Explain different methods of enzyme immobilization with suitable example.
- c) Explain the concept of hybridoma technology.
- d) Write basic principle and applications of r-DNA technology.
- e) Write the basic principle and applications of PCR.
- f) Define vector. Write its ideal properties and explain PBR322 vector.
- g) What is Fermentation? Write the general requirements for the success of fermentation process.
- h) Write a note on DNA cutting enzyme and DNA joining enzyme.
- i) Discuss the production of hepatitis B vaccine by r-DNA technology.

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

- a) Explain the production of vitamin B12 and griseofulvin.
- b) Discuss principle and procedure and applications ELISA test and Southern blotting.
- c) Describe microbial biotransformation and applications.

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**B. Pharmacy (Semester - VI) (CBCS) Examination:
October/November - 2025
Quality Assurance (801606)**

Day & Date: Saturday, 29-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions. 20

- 1) Which of the following represents India in ISO?
 - a) PFRDA
 - b) FSSAI
 - c) BIS
 - d) BCCI
- 2) Personnel should be regularly medically examined at least ____ a year.
 - a) Once
 - b) Twice
 - c) Thrice
 - d) Every five year
- 3) As per GMP requirement significant amendments to the manufacturing process _____.
 - a) Should be validated
 - b) Should be avoided
 - c) Should be informed to manager
 - d) All of the above
- 4) The guidelines that describe the stability testing of drug substances and drug products are?
 - a) ICH Q2
 - b) ICH Q1
 - c) ICH Q8
 - d) ICH Q9
- 5) Which of the following is not a quality management principle based on which ISO 9000:2015 and ISO 9001:2015 are based on?
 - a) Customer focus
 - b) Leadership
 - c) Customer dissatisfaction
 - d) Evidence based decision making
- 6) Which is correct temperature range for products to be stored at Refrigerated condition?
 - a) 20 to 25°C
 - b) 2 to 8°C
 - c) -15 to -25°C
 - d) 8 to 15°C
- 7) The lowest amount of analyte in a sample which can be detected and quantified is called as?
 - a) Limit of Detection
 - b) Accuracy
 - c) Limit of Quantitation
 - d) Specificity

- 8)** 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
- 9)** Calibration requirements are performed during _____.
a) Installation qualification b) Operational qualification
c) Performance qualification d) All of the above
- 10)** Which of the following statement is correct about QA?
a) QA is corrective tool
b) QA is proactive approach
c) QA is responsible for identifying defects in product
d) All of the above
- 11)** The objective of ISO-9000 family of Quality management is _____.
a) Customer satisfaction b) Employee satisfaction
c) Skill enhancement d) Environmental issues
- 12)** Which of the following is for Environment management?
a) ISO-9000 b) ISO-14000
c) ISO-26000 d) ISO-31000
- 13)** The term calibration in validation is used for _____.
a) Equipment b) Processes
c) Both a and b d) None of these
- 14)** Which of the following should be avoided during the feed of laboratory animals?
a) Crude fiber
b) Contaminated food
c) Perishable items such as meat, fruits, and vegetables
d) All of the above
- 15)** Documents related to the audit, include:
a) Checklists b) Deficiency reports
c) Corrective action responses d) All the above
- 16)** ISO cannot be applied by _____.
a) Private industries b) Local Governments
c) Equipment Manufacturers d) None of these
- 17)** If any alterations are made to the entry on a document:
a) Must be scrapped into dustbin
b) Must be signed and dated
c) Must be scratched and kept in recyclable paper
d) Kept as it is

- 18)** QTPP stands for _____.
a) Quality Target Product Profile
b) Quality Testing Product Packaging
c) Quality Target Planning Product
d) None of the above
- 19)** Physical dimension of equipment and accessories- comes under which qualification?
a) Design qualification (DQ)
b) Installation qualification (IQ)
c) Operational qualification
d) Performance qualification (PQ)
- 20)** The site development plan will include which of the following _____.
a) Water system and waste management
b) Site Security and access
c) Utilities
d) All of the above

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

35

- a) Discuss the requirements of good warehousing practices.
b) What is ISO? Explain the principles of ISO.
c) Elaborate on scope and benefits of NABL.
d) Give ten principles of Good Manufacturing Practices.
e) Define Calibration and write a note on its significance.
f) Discuss protocol for conduct of a nonclinical laboratory study.
g) Define Drug Stability. Write objectives and scope of stability testing.
h) What is Batch Manufacturing Record (BMR)? Explain content of BMR.
i) Distinguish between QA and QC.

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

20

- a) Enlist ICH Q-series guidelines and explain any one in detail.
b) Define Validation. Write in detail about Analytical Method Validation.
c) Explain in detail Quality Control tests for containers and rubber closures.

Seat No.	
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Set **P**

**B. Pharmacy (Semester - VII) (CBCS) Examination:
October/November - 2025
Instrumental Methods of Analysis (801701)**

Day & Date: Monday, 17-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

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

- 1) Aromatic compound shows which transition.

a) $\pi \Rightarrow \pi^*$	b) $\sigma \Rightarrow \sigma^*$
c) $n \Rightarrow \sigma^*$	d) $n \Rightarrow \pi^*$
- 2) In flame emission photometer, the measurement of ____ is used for qualitative analysis.

a) Color	b) Intensity
c) Velocity	d) Frequency
- 3) Lambert's law states that the intensity of light decreases with respect to _____.

a) Concentration	b) Thickness of medium
c) Composition	d) Volume
- 4) IR - absorption occurs only when there is change in _____.

a) bond angle	b) bond length
c) bond polarity (dipole moment)	d) bond strength
- 5) In Atomic Absorption Spectroscopy, what material is the cathode in Hollow cathode lamp constructed?

a) Tungsten	b) Quartz
c) Element to be investigated	d) Aluminum
- 6) To minimize chemical interference in AAS, it is necessary to carry out _____.

a) Matrix modification	b) Addition of ionization
c) Increase of flame temperature	d) Using of inert gas
- 7) Which filter used as secondary filter in nephelometry?

a) Visible filter	b) Absorption filter
c) A and B	d) None

- 8) Which is not the requirement of mobile phase?
- It should be non-toxic
 - It should be easily available
 - It should be chemically active
 - It should be chemically inactive
- 9) Which of the following development technique used in column chromatography?
- Frontal analysis
 - Displacement technique
 - Elution technique
 - All of these
- 10) A typical example of Chromophore is ____.
- $-NH_2$
 - $-OH$
 - $-Cl$
 - $-NO_2$
- 11) Identification of spots on the TLC plate by all of the following except ____.
- Spraying with reagent
 - Under Microscope
 - Fluorescence
 - Fluorescent adsorbent
- 12) Which force is responsible for the separation of the components in descending paper chromatography.
- Partition
 - Adsorption
 - Gravity
 - All of these
- 13) In electrophoresis separation depends on ____.
- Partition
 - Affinity
 - Movement of ions under influence of electric field
 - All of these
- 14) Which two important criteria for compound to be analysed by gas chromatography?
- Volatility and thermolability
 - Volatility and thermostability
 - Non- Volatility and thermolability
 - Polarity and thermostability
- 15) Which of the following is a bulk property detector used in HPLC?
- Fluorescence detector
 - Mass spectrometer
 - UV spectrometer
 - Refractometer
- 16) Non-polar stationary phase is used in ____ phase chromatography.
- Reverse
 - Normal
 - Isocratic
 - All of these
- 17) The Soft gel used in Gel Chromatography is ____.
- Porous glass
 - Polymers
 - Dextran
 - Biobeads

- 18) Non- reciprocating pump is also called as ____.
- | | |
|---------------------------|-----------------------|
| a) Constant pressure pump | b) Constant flow pump |
| c) Syringe type pump | d) Single head pump |
- 19) Isocratic separation method in HPLC is based on ____.
- | | |
|-----------------------|-----------------------|
| a) Mode | b) Principle |
| c) Elution technology | d) Scale of operation |
- 20) ____ type of electronic transitions requires least energy.
- | | |
|----------------------------------|----------------------------|
| a) $\sigma \rightarrow \sigma^*$ | b) $\pi \rightarrow \pi^*$ |
| c) $n \rightarrow \sigma^*$ | d) $n \rightarrow \pi^*$ |

Q.2 Answer any seven of the following questions.

35

- a) Explain the principle involved in fluorimetry with Jablonski diagram.
- b) Explain in detail carrier gas used in Gas chromatography.
- c) Describe the working principle of hollow cathode lamp with neat diagram.
- d) Write a short notes on Gel Electrophoresis.
- e) Give short notes on method of preparation and activation of TLC plates.
- f) Write application of ion exchange chromatography.
- g) Describe with neat diagram the working principles of Nepheloturbidimeter.
- h) Write a note on interferences in Flame Photometry.
- i) Write short notes on Photomultiplier tube and photovoltaic cell.

Q.3 Answer any two of the following questions.

20

- a) Explain various types of stretching and bending vibrations. Explain the sampling techniques in IR spectroscopy.
- b) Explain in detail development techniques used in paper chromatography. Add a note on evaluation of chromatogram for paper chromatography.
- c) Discuss the different pumping System. Mobile phase reservoir and columns employed in HPLC.

Max. Marks: 75

Q.1 Multiple choice questions.

a) One way b) Two ways
c) Both a & b d) None

- 9) Which tool can be used to establish pathway to root cause of failure?

 - a) FMECA
 - b) FMEA
 - c) FTA
 - d) All of above
- 10) VMP stand for ____.

 - a) Validation master plan
 - b) Verification master plan
 - c) Verification master procedure
 - d) Validation manufacture procedure
- 11) Thalidomide tragedy was detected in year ____.

 - a) 1965
 - b) 1967
 - c) 1991
 - d) 1996
- 12) One IND is submitted and study can be initiated after ____ days.

 - a) 30
 - b) 16
 - c) 25
 - d) 60
- 13) Empty gelatin capsule have recommended storage condition at ____.

 - a) 15 – 25°C
 - b) 5 – 25°C
 - c) 15 – 35°C
 - d) 5 – 10°C
- 14) IND stands for ____.

 - a) Indian New Drug
 - b) International New Drug
 - c) Investigational New Drug
 - d) None of the above
- 15) After granting of NABL accreditation to laboratory if remains valid for how many years?

 - a) 2 years
 - b) 2.5 years
 - c) 3 years
 - d) 3.5 years
- 16) Which of the following application form is required by testing laboratories to apply for NABL.

 - a) Form 152
 - b) Form 180
 - c) Form 190
 - d) Form 151
- 17) Common Technical Document (CTD) is developed by ____.

 - a) USFDA
 - b) MHLW
 - c) ICH
 - d) TGA
- 18) Pharmacy Act comes in existence in year of ____.

 - a) 1945
 - b) 1948
 - c) 1940
 - d) 1954
- 19) Format for COPP is recommended by ____.

 - a) ICH
 - b) WHO
 - c) CDSCO
 - d) US-FDA
- 20) Head office of CDSCO is located in which city?

 - a) New Delhi
 - b) Mumbai
 - c) Pune
 - d) Bangalore

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

- a) Explain various methods of Bioequivalence study.
- b) What are various responsibilities of regulatory affairs professionals?
- c) Write a note on Investigator brochure.
- 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) Write in brief about changes as per SUPAC.
- i) Discuss in detail clinical research protocol.

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

- a) Describe in detail Technology Transfer Process & its elements.
- b) What is a pilot plant? Explain the factors to be considered in the organization of a pharmaceutical pilot plant.
- c) What is the importance of COPP? Describe the method to obtain COPP.

Seat No.	
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**B. Pharmacy (Semester - VII) (CBCS) Examination:
October/November – 2025
Pharmacy Practice (801703)**

Day & Date: Friday, 21-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

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

- 1) The objective of Hospital pharmacy is _____.
 - a) To teach hospital pharmacist about ethics of Hospital Pharmacy
 - b) To ensure the availability of right medication at reasonable cost
 - c) To attract greater number of qualified pharmacist in the hospital
 - d) All of the above

- 2) First and foremost function of a hospital is to give proper care to the sick and injured without any _____ discrimination.
 - a) Social
 - b) Racial
 - c) Economical
 - d) All

- 3) In hospital bed strength 300, How many pharmacists are required?
 - a) 5
 - b) 3
 - c) 8
 - d) 10

- 4) Potent medicines when abused or misused may cause _____.
 - a) ADR
 - b) Death
 - c) Both A & B
 - c) none of these

- 5) Difference in the _____ from different formulations or brands of the drug may also cause the adverse drug resections.
 - a) Disintegration
 - b) Release pattern
 - c) Bioavailability
 - d) Both A & B

- 6) "Counter checking" means checking all the medicines prepared for dispensing against _____.
 - a) Billing
 - b) Prescription
 - c) Profit
 - d) None of these

- 7) One of the basic services provided by hospital pharmacy department is _____.
 - a) Drug storage
 - b) Drug retention
 - c) Drug distribution
 - d) None of these

- 8) ____ test used to identify bacterial infection.
- a) Dipstick test
 - b) Microscopic examination
 - c) Visual examination
 - d) All of these
- 9) Multiple drug therapy ____ the probability of drug induced disease.
- a) Does not affects
 - b) Decreases
 - c) Increases
 - d) None of these
- 10) Unit dose drug distribution system have significantly reduced the occurrence of ____.
- a) Medication errors
 - b) ADR'S
 - c) Side effect
 - d) None of these
- 11) The licenses for restricted sale of drugs those specified in schedule C & C1 but not in schedule X are issued in form ____.
- a) 20
 - b) 20F
 - c) 20A
 - d) 21A
- 12) The ____ of medication history has historically been undertaken mainly by physicians and some time nurses.
- a) Storage
 - b) Documentation
 - c) Retention
 - d) Review
- 13) In Community pharmacy Layout, "Process layout" is also known as ____.
- a) Functional layout
 - b) Straight-line layout
 - c) Product layout
 - d) Combination layout
- 14) Which of the following is the important aspect for materials management?
- a) Coding
 - b) Stocking
 - c) Both a & b
 - d) None of these
- 15) All order for narcotics, sedative and hypnotics must be re-written every ____ hours.
- a) 6
 - b) 18
 - c) 12
 - d) 24
- 16) ____ providing this service is called as "Pharmaceutical Care service provider".
- a) Doctor
 - b) Nurse
 - c) Pharmacist
 - d) All
- 17) Hospital pharmacist because of his ____ can takes part in both 'internal' and external teaching activities.
- a) Education
 - b) Experience
 - c) Training
 - d) All
- 18) The cost of premises depends upon the ____ of the premises.
- a) Location
 - b) Design
 - c) Surroundings
 - d) None

- 19) Which of the following responsibility of the clinical pharmacist is in direct patient care area?
- a) Supervision of drug administration techniques.
 - b) Providing drug information to physicians and nurses.
 - c) Identify drugs brought into the hospital by patients.
 - d) Reviewing of each patient's drug administration forms periodically to ensure all doses have been administered.
- 20) Hematocrit is percentage of ____.
- a) WBC
 - b) RBC
 - c) Both A & B
 - d) None

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

- a) Discuss in details the drug distribution system for in-patient department.
- b) Write the composition and function of pharmacy and therapeutic committee.
- c) Write short note on drug information services.
- d) Define Budget. Write objectives, advantages of Budget.
- e) Explain various techniques of inventory control.
- f) Discuss in detail the role of pharmacist in community health education.
- g) Write various precautionary cares for effective patient counselling.
- h) Explain in details the various laboratory test used for Urine analysis.
- i) Define therapeutic drug monitoring (TDM). Write need and limitation of therapeutic drug monitoring.

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

- a) Define Hospital Pharmacy. Write the role and responsibility of hospital pharmacist.
- b) Define drug interaction. Explain pharmacokinetic drug interactions.
- c) What is clinical Pharmacy? Describe the requirements, activities and duties of clinical pharmacist.

Set

P

**B. Pharmacy (Semester - VII) (CBCS) Examination:
October/November – 2025
Novel Drug Delivery System (801704)**

Day & Date: Monday, 24-11-2025
Time: 02:30 PM To 05:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions.

20

- 1) In case of bioadhesive systems, gastric motility is considered as _____.
a) dislocating force b) Binding force
c) Both a) & b) d) None of these
- 2) Drug absorption under the influence of electric current is called as _____.
a) Tonophoresis b) phonophoresis
c) Chlorophoresis d) Iontophoresis
- 3) Which component is not included in the combination of SEDDS formulation?
a) Oil b) Drug
c) Lipid d) Wax
- 4) Use of monoclonal antibodies for drug delivery to tumors is called as _____.
a) active targeting b) passive targeting
c) triggered drug targeting d) vector targeting
- 5) A monoclonal antibody is an antibody made by cloning a unique _____.
a) RBC b) Calcium
c) WBC d) Serum
- 6) Dissolution-controlled matrix systems can be prepared by _____.
a) encapsulation b) binding
c) congealing d) None of these
- 7) _____ is an example of parenteral controlled drug delivery.
a) Implant b) insert
c) IUD d) ear solution
- 8) Microspheres are prepared by coacervation by using _____ method.
a) Non-solvent b) trituration
c) pH modification d) pressure

- 20) _____ can be added in OROS to improve drug release of poorly soluble drugs.
- | | |
|-------------|----------------|
| a) Tonifier | b) Osmogen |
| c) Buffer | d) Plasticizer |

Q.2 Answer any seven of the following questions.

35

- a) Write a note on diffusion controlled drug release systems.
- b) Classify and discuss the applications of polymers used in formulation of oral CRDDS.
- c) Discuss the various approaches employed for floating drug delivery.
- d) Write a note on air-suspension technique of microencapsulation.
- e) Explain the methods of preparation for oral osmotics.
- f) Give a note on formulation consideration of buccal delivery systems.
- g) Describe the monoclonal antibodies with its applications.
- h) Give an evaluation parameter for transdermal patches in detail.
- i) Write a short note on ocusert and lacrisert.

Q.3 Answer any two of the following questions.

20

- a) Define transdermal drug delivery system? Describe various basic components of TDDS.
- b) Classify and describe various intrauterine devices. Discuss the risks associated with its use.
- c) Describe the dissolution test methods to evaluate drug release from oral CRDDS.

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**B. Pharmacy (Semester - VIII) (CBCS) Examination:
October/November – 2025
Biostatistics and Research Methodology (801801)**

Day & Date: Monday, 17-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

Q.1 Multiple choice questions.

20

- 1) If class interval is not given, then it is _____.
 a) Discrete frequency distribution
 b) Continuous frequency distribution
 c) Grouped frequency distribution
 d) Regrouped frequency distribution
- 2) Types of class intervals are _____.
 a) Inclusive
 b) Discrete
 c) Exclusive
 d) Both A) & C)
- 3) Age & salary are the examples of _____.
 a) Continuous variable
 b) Variable
 c) Facilities
 d) Continuous mode
- 4) Which of the following measures the central tendency?
 a) Mean
 b) Mode
 c) Median
 d) All
- 5) Mode is that of observation which occurs most _____.
 a) Frequently
 b) Rarely
 c) Average
 d) Below average
- 6) Subjects serve as their own control in _____.
 a) Factorial research design
 b) Cross-over research design
 c) Randomized research
 d) Case control study
- 7) The most effective way to control extraneous variables is _____.
 a) Analysis of covariance
 b) Matching
 c) Randomization
 d) Use of control group

- 8) A study was conducted to evaluate an antibiotic for treatment of bacteremia. 500 children with fever but no focal infection were randomly assigned to the antibiotic or to placebo. All patients were re-evaluated after 48 hr. The design used in this trial was _____.
a) Randomized clinical trial b) Placebo control trial
c) Cohort study d) Control random study
- 9) One of the major limitations of cross-over study of a drug in human is _____.
a) The study is conducted during a specific time window
b) Require a washout period to remove residual effect from previous drug treatments
c) If a drug induces a permanent effect, cross-over designs cannot be used
d) Both A & C
- 10) When the researcher simultaneously manipulates two independent variables, then design is _____.
a) Factorial Design b) Randomized control trial
c) Cross-over design d) Control study
- 11) Non-probability sampling includes all of the following except: _____.
a) Convenience sampling b) Stratified sampling
c) Purposive sampling d) Quota sampling
- 12) When p values are not statistically significant, following conclusions are made: _____.
a) The amount of type II error should be evaluated
b) P value is greater than significance level
c) Both A & B
d) Zero probability
- 13) If you decide to reject null hypothesis when null hypothesis was false, you made _____.
a) Correct decision b) Wrong decision
c) Type I error d) Type II error
- 14) Mann Whitney U test is a non-parametric test version of _____.
a) t-test b) Z test
c) ANOVA d) F test
- 15) The conceptual framework in which a research is conducted is called as _____.
a) Research design b) Research flow
c) Process flow d) Process methodology
- 16) A researcher is interested in the prospectus of a particular political party. Which tool should be used for the study?
a) Rating scale b) Questionnaire
c) Schedule d) Telephonic communication

- 17) In DoE, input variables & output variables are called as ____ respectively.
- a) Factors & responses b) Factors & reactions
c) Reaction d) Responses and feedback
- 18) A process by which we estimate the value of a dependent variable on the basis of one or more independent variables is called as ____.
- a) Coefficient b) Regression
c) Residual d) Slope value
- 19) If a dice is rolled. What is the probability of getting even number?
- a) 1 b) 0.5
c) $\frac{3}{4}$ d) Zero
- 20) Which of the following is an example of a random experiment?
- a) Rolling of a dice b) Tossing of a coin
c) Both A & B d) None of the above

Q.2 Answer any seven of the following questions.

35

- a) Obtain a line of regression of Y on X:

X	1	2	3	4
Y	12	4	17	18

- b) Distinguish between Parametric Tests & Non-parametric Tests.
- c) What is plagiarism? Explain its types and give techniques to avoid plagiarism.
- d) Write a note on different methods of data collection.
- e) Find the mean using step deviation method for the given data: 20, 40, 60, 80, 100.
- f) Calculate the median for following data:

Marks	No. of students	Marks	No. of students
Less than 10	4	Less than 50	96
Less than 20	16	Less than 60	112
Less than 30	40	Less than 70	120
Less than 40	76	Less than 80	125

- g) What is 2^2 factorial design? Explain with suitable example.
- h) Write a note on historical design.
- i) What is SPSS? Explain importance of SPSS models.

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

- a) Explain various phases in designing of clinical trials.
- b) Evaluate the given dataset to fit a multiple regression model:

Y	X_1	X_2
-3.7	3	8
3.5	4	5
2.5	5	7
11.5	6	3
5.7	2	1

- c) In order to the following data represents the number of units of tablet production (in thousands) per day by 5 different technicians by using 3 different machines:

Technicians	Machine X	Machine Y	Machine Z
A	54	48	57
B	56	50	62
C	44	46	54
D	53	48	56
E	48	52	59

Conduct a Friedman test & judge whether there is any difference amongst the machine. (Given: $X^2_{0.05} = 5.99$).

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Set **P**

**B. Pharmacy (Semester - VIII) (CBCS) Examination:
October/November – 2025
Social and Preventive Pharmacy (801802)**

Day & Date: Wednesday, 19-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) _____ means to watch over with great attention, authority and with suspicion.

a) Control	b) Surveillance
c) Monitoring	d) Evaluation
- 2) Ability to understand our own feelings accept our limitation is _____.

a) Intellectual health	b) Spiritual health
c) Emotional health	d) Social Health
- 3) Substance present in food and consumed by human for it's vital functions called as _____.

a) Proteins	b) Fibers
c) Fats	d) Nutrients
- 4) _____ Means "sickness of the weaning".

a) Marasmus	b) Kwashiorkor
c) Obesity	d) Malnutrition
- 5) Cholera has two main reservoirs _____.

a) Man and animals	b) Man and water
c) Water and animals	d) None of the above
- 6) SARS is caused by _____.

a) Virus	b) Fungi
c) Bacteria	d) Protozoa
- 7) Pneumonia. Primary influenza, Reye syndrome. Myocarditis are complications of _____.

a) Cholera	b) Influenza
c) Malaria	d) Dengue
- 8) Cold stage, hot stage, sweating stage of fever are the symptoms of _____.

a) Pneumonia	b) Lymphatic Filariasis
c) Malaria	d) Influenza

- 9) _____ Vaccine is used to prevent Pneumonia.

a) Pneumovax23	b) Dukoral
c) OPV	d) MR
- 10) Lymphatic Filariasis caused by _____.

a) Paralytic worm	b) Filarial worm
c) Round worm	d) Hookworm
- 11) India was certified as polio free country in year _____.

a) 2005	b) 2010
c) 2014	d) 2019
- 12) What is a full name of programme NTCP.

a) New Tobacco Control Programme
b) New Tobacco and Cigarettes Control Programme
c) National Tobacco and Cigarettes Control Programme
d) National Tobacco Control Programme
- 13) PHC serves for the population of _____ people.

a) 2,000 to 3,000	b) 20,000 to 30,000
c) 20,000 to 50,000	d) 30,000 to 50,000
- 14) Full name of programme NRHM is _____.

a) New Rural Health Mission
b) New Right to Health Mission
c) National Right to health Mission
d) National Rural Health Mission
- 15) National AIDS Control Programme started in the year _____.

a) 1992	b) 1999
c) 2007	d) 2012
- 16) _____ refers to clean drinking water, adequate treatment and disposal of human excreta and sewage.

a) Hygiene	b) Sanitation
c) Public health	d) Disinfection
- 17) _____ refers to a diet that provides all nutrients without too much of any one component.

a) Healthy diet	b) Balanced diet
c) Rich protein diet	d) Rich carb diet
- 18) Chikungunya is primarily spread by _____.

a) Viruses	b) Bacteria
c) Molluscs	d) Protozoa
- 19) _____ is the first country that initiate family planning programme.

a) America	b) Japan
c) China	d) India

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

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

- a)** Define health; explain the concept of disease prevention.
- b)** Write a note on central Rural Sanitation Programme.
- c)** Write the objectives, and describe national programme for healthcare for the; elderly.
- d)** Explain the cause, symptoms and prevention of Lymphatic Filariasis.
- e)** Classify vitamins; write functions and sources of it.
- f)** Write a note on influenza.
- g)** Explain objectives, strategies and activities of the National Programme for Control of Blindness.

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

- a)** Write a detailed note on cholera.
- b)** Explain in detail the TB control programme.
- c)** Define primary health care. Explain goals, principles and functions of primary health care.

Seat No.	
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Set **P**

**B. Pharmacy (Semester - VIII) (CBCS) Examination:
October/November – 2025
Pharmaceutical Marketing Management (801804)**

Day & Date: Friday, 21-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) The controllable variables a company puts together to satisfy a target group is called the _____.

a) Marketing strategy	b) Marketing mix
c) Strategic planning	d) Marketing concept
- 2) Which of the following involves designing and manufacturing the container or wrapper for a product?

a) Labelling	b) Packaging
c) Branding	d) Product line
- 3) The basic role of promotion is _____.

a) Information	b) Manipulation
c) Communication	d) Interpretation
- 4) Rural consumers are _____.

a) Price sensitive	b) Less price sensitive
c) Quality conscious	d) None of these
- 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) Which is a key factor of financial investigation _____.

a) Product mix decision	b) Product positioning
c) Product portfolio	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) _____ is suitable for the branded and popular products.

 - a) Advertising
 - b) promotion
 - c) consumer
 - d) sale
- 9) Qualitative market research provides reasoning for _____.

 - a) Consumer action
 - b) Opinion
 - c) Wants and needs
 - d) All of above
- 10) _____ is the process where by individuals decides what, when, where, how and from whom to purchase goods and services

 - a) Buying behaviour
 - b) Psychological behaviour
 - c) Consumer behaviour
 - d) None of the above
- 11) The personal selling aims to make a _____ link with buyer.

 - a) Familiar
 - b) Good
 - c) Friendly
 - d) None
- 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) Marketing is _____.

 - a) Art
 - b) Science
 - c) Both A & B
 - d) None
- 14) _____ refers to addition of new product into existing product line at lesser price.

 - a) Downward stretching
 - b) Upward stretching
 - c) Two way stretching
 - d) None
- 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) The various activities of government and non government organization to protect the rights of customer are called _____.

 - a) Vertical market
 - b) Consumerism
 - c) Advertising
 - d) None of the above

- 18)** Following which is the example of functional middleman _____.
a) Retailer b) Wholesaler
c) Both A & B d) None
- 19)** Which model is available to explain organizational buying behavior _____.
a) Webster and Wind Model b) Sheth Model
c) Both A & B d) None of the above
- 20)** _____ include selling of agriculture tools, cattle carts and others to another village in its proximity.
a) Urban to rural marketing b) Rural to urban marketing
c) Rural to rural marketing d) None

Q.2 Answer any seven of the following questions.

35

- a) Discuss the role of market research.
- b) Write a note on scope of marketing.
- c) Differentiate horizontal and vertical marketing.
- d) Define product? classify products.
- e) What are the roles of advertising? How is it advantageous?
- f) What are channel conflicts? Explain possible reasons of these conflicts
- g) Write short Note on National pharmaceutical pricing authority (NPPA).
- h) What are different methods of promotion?
- i) Discuss in brief consumer responsibilities and consumer rights.

Q.3 Answer any two of the following questions.

20

- What is industrial marketing? Explain types and characteristics of Industrial marketing.
- Explain emerging concepts in market.
- Define Pricing. Give a detail note on its objective and pricing method.

Seat No.	
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Set **P**

**B. Pharmacy (Semester - VIII) (CBCS) Examination:
October/November - 2025
Pharmacovigilance (801806)**

Day & Date: Monday, 24-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) The Uppasala Monitoring Center is located in which of the following country?
 - a) China
 - b) Japan
 - c) Sweden
 - d) India
- 2) S-Series in ICH guidelines for pharmacovigilance represents _____.
 - a) Development safety uptake report
 - b) Periodic Benefit-Risk evaluation report
 - c) Pre-Clinical Studies
 - d) Clinical Studies
- 3) WHO-ART available in _____ Languages.
 - a) FOUR
 - b) FIVE
 - c) SIX
 - d) SEVEN
- 4) Schedule Y stands for _____.
 - a) Manufacturing of drug
 - b) Reporting of ADR
 - c) Conduct of clinical trials
 - d) Marketing of Drug
- 5) According to ICH-GCP investigator should qualified by _____.
 - a) Training & experience
 - b) Education. & experience
 - c) Education. training & experience
 - d) Education. & training
- 6) The minimum information to be provided for the assessment of ADR is _____.
 - a) Patient information and description of reaction
 - b) Information about drug
 - c) Information about reporter and how it managed
 - d) All of above
- 7) Type D adverse reaction is _____.
 - a) Exaggerated
 - b) Rare
 - c) Chronic
 - d) Delayed

- 8) Pharmacovigilance in USA _____.
 - a) ADROIT
 - b) Eudra vigilance
 - c) Yellow card scheme
 - d) MED WATCH
- 9) Which of following is method of casualty assessment?
 - a) Naranjo Scale
 - b) WHO probability Scale
 - c) Jones Scale
 - d) All are correct
- 10) CDSCO stands for _____.
 - a) Control Drugs Standard Central Organization
 - b) Central Drugs Section Control Organization
 - c) Control Drugs Section Central Organization
 - d) Central Drugs Standard Control Organization
- 11) Which of following is a method of communication in pharmacovigilance?
 - a) Letter
 - b) Social media
 - c) Call
 - d) None of above
- 12) What is the role of tin IRB/IEC?
 - a) To design the protocol for a clinical trial
 - b) To assess whether a clinical trial is ethical to perform in the given subject population
 - c) To analyse the data from a clinical trial
 - d) To assess whether a medicinal product should be granted a marketing authorization
- 13) According To ICH GCP Section 2: The Principles of GCP which of the following is not one of the 13 staled principles?
 - a) The confidentiality of records that could identify subjects should be protected. Respecting the privacy and confidentiality rules in accordance with the applicable regulatory requirements.
 - b) A clinical trial should be conducted using the smallest number of trial subjects considering adequate to provide a robust and accurate answer to the trial objectives
 - c) The medical care given to. and medical decision made on the half of subjects should always be the responsibility of a qualified physician or when appropriate, of a qualified dentist
 - d) Trial should be conducted in compliance with the protocol that has received prior institutional review board (IRB / IEC) approval/ favorable opinion
- 14) Time frame to report fetal ADR in expedited reporting is _____.
 - a) 60 days
 - b) 7 days
 - c) 30 days
 - d) 90 days
- 15) ICH secretrait is located at _____.
 - a) Newyork
 - b) Geneva
 - c) Britan
 - d) Tokyo

- 16) What is AEFI?
- Its medical event that takes place after immunization
 - Its medical event that takes place before immunization
 - Both A) & B)
 - None of above
- 17) Pharmacovigilance Continue Throughout ____.
- Pre and post marketing surveillance
 - Post marketing surveillance
 - Pre marketing surveillance
 - None of the above
- 18) Section IV of the CIOMS form includes ____.
- Manufacturer Information
 - Reaction information
 - Suspect Drug information
 - None of above
- 19) following are the limitations of Causality Assessment EXCEPT ____.
- Can identify individual case report
 - It cannot give accurate quantitative measurement of possible relationship
 - It fails to distinguish valid from invalid cases
 - It does not prove the connection between drug and event
- 20) The ICH guideline E2C indicates ____.
- Data Management of Periodic safety update report for marketed drug
 - Dose-response information to support drug registration
 - Good clinical practice
 - Extent of population exposure to assess clinical safety

Q.2 Answer any seven of the following questions.

35

- Write a note on History of pharmacovigilance.
- Give the governance & role of CDSCO in pharmacovigilance.
- Write note on ATC & international classification of disease.
- Explain in detail Vaccination failure.
- Outline the content of pharmacovigilance programme of India.
- Organization and functions of ICH.
- Explain in detail CIOMS working groups.
- Write note on drug safely evaluation in Pregnancy and lactating mother.
- Write a note on Schedule Y.

Q.3 Answer any two of the following questions.

20

- Define pharmacovigilance. Discuss in detail reporting and management of ADRs along with causality assessment scales.
- What is Vaccine safely surveillance? Explain in detail different types of pharmacovigilance methods used for passive and active surveillance.
- Write note on MedDRA & queries.

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**B. Pharmacy (Semester - VIII) (CBCS) Examination:
October/November – 2025
Cosmetic Science (801810)**

Day & Date: Wednesday, 26-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) Principle of _____ is based on grease spot photometry.
 - a) Corneometer
 - b) Sebumeter
 - c) Tewameter
 - d) All of above
- 2) Determination of Foam height is given _____.
 - a) Annexure D
 - b) Annexure A
 - c) Annexure B
 - d) Annexure E
- 3) Bromhidrosis is _____.
 - a) Body odour
 - b) Sebum
 - c) Skin discoloration
 - d) None of above
- 4) First sign of Catagen phase is _____.
 - a) Cessation of Melanin production in hair bulb
 - b) Apoptosis of follicular melanocytes
 - c) Both a and b
 - d) None of above
- 5) _____ is refereed as Fruit acids.
 - a) AHAs
 - b) BHAs
 - c) Alpha Tocopherol
 - d) Retinoid
- 6) _____ agents put a layer of oil on skin surface and slowing down water loss.
 - a) Humectant
 - b) Occlusive
 - c) Lubricant
 - d) All of above
- 7) Which of the following is not considered as cosmetic under FD and C Act, sec.201 (i) _____.
 - a) Skin moisturizers
 - b) Perfumes
 - c) Soap
 - d) Lipsticks

- 8) The function of skin lightening /whitening quasi drug is _____.
a) Remove cosmetic hyperpigmentary disorders
b) Reducing excess melanin production
c) Promoting clearing of accumulated melanin from the epidermis
d) All of the above
- 9) Which of the following is not the oral cavity disease _____.
a) Mouth ulcer
b) Halitosis
c) Goiter
d) Bleeding gums
- 10) ISI stands for _____.
a) International standards institute
b) Indian standards institute
c) Indian standards implementation
d) None of these
- 11) Certain materials used in cosmetic products could cause and aggravate acne is known as _____.
a) Carcinogenic
b) Comedogenic
c) Acnegenic
d) Both b & c
- 12) Followings are the examples of antiperspirant, except _____.
a) Aluminium chlorohydrate
b) Aluminium zirconium octachlorohydrate
c) Aluminium hydroxide
d) Aluminium chloride
- 13) _____ are important components of clove, except.
a) Flavanoids
b) Hidroxibenzoic acid
c) Nimbidin
d) Eugenol
- 14) Example of humectant is _____.
a) Di ethylene glycol
b) Triethylene glycol
c) Polyethylene glycol
d) All of the above
- 15) Following country has a specific category of products that are in between cosmetics and drugs called quasi drugs.
a) Japan
b) India
c) Russia
d) Turkey
- 16) Vanishing Cream is an ointment that may be classified as _____.
a) Water soluble base
b) Oleaginous base
c) Absorption base
d) Emulsion base
- 17) A moisturizing product includes _____.
a) Moisturizers
b) Emulsifier system
c) Water and preservatives
d) All of the above

- 18) _____ type of dermatitis involves skin changes due to poor blood circulation.
- | | |
|------------------------|-----------------------|
| a) Nummular dermatitis | b) Stasis dermatitis |
| c) Atopic dermatitis | d) Contact dermatitis |
- 19) Wavy to curly hairs are shown by _____ hairs.
- | | |
|----------------|--------------|
| a) Asian | b) Caucasian |
| c) Afro ethnic | d) None |
- 20) Following are the types of Miliaria species causing Prickly heat except _____.
- | | |
|-------------|----------------|
| a) Rubra | b) Crystallina |
| c) Profunda | d) Furfur |

Q.2 Solve (Any Seven)**35**

- a) List out herbs used in hair care cosmetic preparations. Explain any one herb in hair care preparation.
- b) What are the important causes of body odour? How will you prevent it.
- c) Describes the formulation aspects of tooth paste for bleeding gums?
- d) Explain the formulation and building blocks for antidandruff shampoos.
- e) Discuss actives used in formulation of Antiperspirant and Deodorant.
- f) Outline the structure of hair and hair growth cycle.
- g) Write function and appearance benefits of skin moisturization.
- h) Differentiate Sebumeter and Corneometer.
- i) Elaborate causes and treatment for wrinkle as associated problem of skin.

Q.3 Solve (Any Two)**20**

- a) What are the creams in cosmetics? Compare and contrast vanishing cream, cold cream and moisturizing creams.
- b) Summarize excipients used in cosmetics and add note on rheology modifiers.
- c) Describe BIS general specifications for shampoos.

Seat No.	
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B. Pharmacy (Semester - VIII) (CBCS)
Examination: October/November – 2025
Quality Control & Standardization of Herbals (801807)

Day & Date: Friday, 28-11-2025
 Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) Quality control department helps to establish _____ data.
 - a) Cleaning
 - b) Designing
 - c) Production
 - d) Evaluation
- 2) Stability testing procedure helps to define _____ of a drug.
 - a) Shelf life
 - b) efficacy
 - c) Drug reaction
 - d) Toxicity
- 3) For marketing of new drug an application submitted to _____.
 - a) PCI
 - b) CTD
 - c) CDSCO
 - d) FDA
- 4) The intension of stability testing is to know drug modifications due to _____ changes.
 - a) Temperature
 - b) Moisture
 - c) Light
 - d) All of the above
- 5) GLP is a formal regulation that was created by the FDA in _____.
 - a) 1988
 - b) 1990
 - c) 1940
 - d) 1978
- 6) Ferric chloride test is used to detect _____.
 - a) Glycoside
 - b) Alkaloids
 - c) Phenolic compound
 - d) Fatty acidl
- 7) Chemical marker used for standardization of herbal product _____.
 - a) Biochemical constituent
 - b) Secondary metabolite
 - c) Primary metabolite
 - d) All of these
- 8) Herbal Pharmacopeia is a _____.
 - a) Book of Pharmacognosy
 - b) Monographs on botanicals
 - c) Books on herbs
 - d) None

- 9) Marker used in DNA analysis "RAPD" Stands for _____.
a) Random Amplified polymorphic DNA
b) Restriction Amplified polymorphic DNA
c) Random Amplified poly DNA
d) Rapid Amplified polymorphic DNA
- 10) The TTC refers to _____ of the following.
a) Threshold of toxicological concern
b) Threshold of Toxicity concern
c) Threshold of Toxic concern
d) None of these
- 11) Disposal of waste in herbal drug industry should be as per the guidelines of _____.
a) company norms
b) WHO guidelines
c) Local authority
d) Pollution control board
- 12) Ware house to store Herbal drug should provide _____.
a) Free from Rodents
b) Free from moisture
c) Free from birds
d) all of the above
- 13) Magnesium sulfate is a _____ crystals.
a) Pale brown
b) Light green
c) Cream
d) Colorless
- 14) Ruthenium red test is used to detect _____?
a) Tropane
b) anthraquinones
c) Gums & mucilage
d) Fixed oil & Fats
- 15) Microscopical evaluation of crude drugs involves _____.
a) Stomata
b) Calcium oxalate
c) Trichome
d) all of the above
- 16) In c GMP as per industrial concept "C" refers to _____.
a) common
b) Control
c) current
d) all of the above
- 17) The plant species used for formulation should be the same as that specified in _____.
a) National pharmacopoeia
b) Ayurvedic Book of reference
c) Pharmacognosy Book
d) WHO Guidelines
- 18) Formulation area for the production of sterile Ayurvedic product should be _____.
a) Aseptic
b) Dust free
c) Moisture free
d) all of these

- 19) In Industry Quarantine means _____.
a) Storage of finished goods
b) Storage of documents
c) Storage of fresh herbal material
d) Storage of reference items
- 20) Medicinal plants should not be grown in soil contaminated with _____.
a) Heavy metals
b) Industrial waste
c) Chemical and drainages
d) All of these

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

35

- a) Brief the guidelines on safety monitoring of herbal medicines.
- b) Write importance of Pharmacovigilance system in herbal medicine.
- c) Give the requirements of GMP as per D&C Act.
- d) How do you evaluate the commercial herbal raw materials.
- e) Write the Role of markers in evaluating herbal medicines.
- f) Write Quality control guidelines of herbal drugs as per ICH.
- g) Explain in detail pharmacological parameters for quality control of herbal drugs.
- h) What is meant by monograph analysis as per Pharmacopoeia.
- i) What is GMP? Explain detailed GMP procedure.

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

20

- a) Explain various aspects of Quality assurance in herbal drug industry.
- b) Write in detail WHO Guidelines on GACP for medicinal plants.
- c) Explain various Regulatory requirements for Herbal medicines in India. write a note on Herbal Pharmacopoeia.

Seat No.	
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Set

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**B. Pharmacy (Semester - VIII) (CBCS) Examination:
October/November - 2025
Pharmaceutical Regulatory Science (801805)**

Day & Date: Friday, 28-11-2025
Time: 10:30 AM To 01:30 PM

Max. Marks: 75

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

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

- 1) Which of the following Country is not part of ASEAN-CTD?

a) Vietnam	b) Bangladesh
c) Cambodia	d) Singapore
- 2) Type III of DMF in USA includes _____.

a) Manufacturing facility
b) Information on colorants
c) Information on drug molecule
d) Material for packaging
- 3) The constitution of Institutional Review Board (IRB) includes at least _____ members.

a) 4	b) 5
c) 6	d) 7
- 4) The concept of generic drug includes _____.

a) Line Extension	b) Retargeting
c) New Product	d) All of the above
- 5) How many volunteers are in Phase II trials?

a) 20-300	b) 300-500
c) 500-700	d) 300-3000
- 6) Manufacture for sale and distribution application to CDSCO made through form _____.

a) 24	b) 44
c) 46	d) 40
- 7) Document mandatory to enroll subjects/Volunteers in clinical research study is _____.

a) Protocol	b) Informed Consent
c) Case report Form	d) none of the above

- 8) The AP Code in orange book is for _____.
a) Topical Products
b) Injectable aqueous solution
c) Injectable oil solutions
d) Solution
- 9) Identify the relevant regulatory body in USFDA for approval of drugs.
a) BLA
b) IND
c) CBER
d) CDER
- 10) Purple book contains which type of product?
a) Bio similar
b) Interchangeable biological products
c) Both A and B
d) None
- 11) Which of the following series of 21 CFR involves everything from labeling to research of cosmetics?
a) 500
b) 600
c) 700
d) 800
- 12) Orphan drug exclusivity lasts for _____ years.
a) 20
b) 7
c) 10
d) 15
- 13) Australian Regulatory body is _____.
a) TGA
b) EMA
c) MHLW
d) ANVISA
- 14) Module 4 of CTD includes _____.
a) Quality
b) Clinical study reports
c) Non clinical study reports
d) Clinical Summary
- 15) Biological Products are licensed exclusivity rights for the period of _____ years.
a) 12
b) 13
c) 14
d) 15
- 16) Animal Studies and Clinical Trials are part of which applications?
a) IND
b) NDA
c) Both A and B
d) None of the Above
- 17) ACTD is divided into _____ Parts.
a) 3
b) 4
c) 5
d) 6
- 18) Which of the following is drug regulatory authority of UK?
a) Medicines and Healthcare Products Regulatory Agency
b) US-Food and Drug Administration
c) Central Drugs Standard Control Organization
d) European Medicines Agency

- 19) EDMF is divided into _____ parts.
- | | |
|------|------|
| a) 2 | b) 3 |
| c) 4 | d) 5 |
- 20) Common Technical Document was developed by _____.
- | | |
|----------|--------|
| a) WHO | b) ICH |
| c) CDSCO | d) FDA |

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

35

- a) Describe the organizational structure of CDSCO.
- b) What is GCP Obligations? List them.
- c) Differentiate between Innovators and generic drug product.
- d) Discuss safety monitoring in clinical trials.
- e) What is "Purple Book"? Elaborate
- f) Describe various changes to approved NDA and ANDA.
- g) Discuss CFR in Pharmaceuticals.
- h) Give responsibilities and functions of Institutional Review Board.
- i) Give organizational structure of US FDA. Enlist types of applications submitted to US FDA.

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

20

- a) What are the different stages of clinical trials? Discuss them in detail.
- b) Write about DMF in the USA along with its types and status.
- c) What is IND? Explain in detail contents of IND. Give importance of IND.