



ARKAJAIN
University
Jharkhand

16/6/22

4th Semester End Term Examination: 2021-22.

Subject : Pharmaceutical Organic Chemistry- III **Roll No:**

Course : B. Pharmacy

Full Marks : 75 **Time** : 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Start writing from 2nd page onwards; Don't Write On The 1st Page Backside.
- Question Paper is divided into Three Parts -A, B & C.
- Part-A is containing 20 multiple choice questions.
- Part- B containing THREE questions out of which TWO questions are to be answered.
- Part C containing NINE questions out of which SEVEN questions are to be answered.
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PART - A

Multiple Choice Questions

[20x1=20]

1. How many types of reaction can be shown by a chiral molecule?
a) 4 b) 3
c) 2 d) 1
2. Racemic mixture is denoted as:
a) D b) D/L
c) L d) None of these
3. Geometrical Isomerism is applicable for
a) C-C b) C=C
c) Both a & b d) None of these
4. Enantiomerism is the phenomenon of existence of enantiomers in a single structural formula, in _____ configuration.
a) Same b) Opposite
c) Same as well as Opposite d) Sometimes Opposite
5. Diastereomers are _____.
a) Geometrical isomers b) Mirror images
c) Non-mirror Images d) Unstable Molecules

17. The reaction in which stereo chemically different molecules react differently is called _____
- Dynamic selective
 - Stereo selective
 - Regioselective
 - Stereospecific
18. The substituent groups that are commonly associated with benzene ring are
- Phenyl and benzyl
 - Methyl and benzyl
 - Propyl and Phenyl
 - Butyl and Phenyl
19. Which of the following can make difference in optical isomers
- UV light
 - Polarized light
 - Temperature
 - Pressure
20. Which of the following derivative of pyridine is mostly found in mammals?
- Strychnine
 - Nicotinamide
 - Nicotinic acid
 - Vitamin B6

PART - B

Answer any TWO out of THREE

[2x10=20]

- Write the Methods of determination of Configuration of Geometrical isomers?
- Write types of Optical Isomerism and explain R/S Configuration?
- Write the Synthesis reaction, Chemical Reaction and Medicinal use of Furan?

PART - C

Answer any SEVEN out of NINE

[7x5=35]

- What is Chirality and Explain types of reactions on chiral compound?
- Explain Clemmensen reduction with Mechanism of reaction.
- Write the Chemical Reaction for Synthesis of Pyrrole.
- Explain Schmidt reaction with reaction Mechanism.
- What is Geometrical Isomerism? Explain E-Z Configuration.
- Explain Stereo selective Reactions.
- Write Oppenauer-oxidation Reaction?
- Write the Synthesis and Medicinal Use of Imidazole?
- Write the Synthesis and Medicinal Use of Quinoline?

6. Which of the following compound would show optical isomerism?
- $\text{CH}_3 - \text{CH}(\text{OH})\text{COOH}$
 - $\text{H}_2\text{NCH}_2\text{COOH}$
 - $\text{H}_2\text{NCH}(\text{CH}_3)_2$
 - $(\text{CH}_3)_2\text{CHCHO}$
7. Furan on treatment of acetic anhydride in presence of diethyl ether gives
- 2-Acetyl Furan
 - 3-Acetyl Furan
 - 2, 3-diacetyl Furan
 - 2, 4-diacetyl Furan
8. Which of the following Reaction is also known as Cross aldol condensation
- Clemmensen reduction
 - Dakin reaction
 - Schmidt reaction
 - Birch reaction
9. Bromination of Thiophene in presence of Benzene gives:
- 2, 3-dibromo thiophene
 - 2, 4-dibromo thiophene
 - 2, 5-dibromo thiophene
 - 2-bromothiophene
10. For C=N & N=N, which type of Nomenclature is used?
- Cis-Trans Nomenclature
 - E-Z Nomenclature
 - Syn Anti Nomenclature
 - R/S Nomenclature
11. Beckmanns rearrangement is Useful for Synthesis of
- Alcohol
 - Amide
 - Phenols
 - Oxime
12. Which of the Following is Strong Hydride Donor:
- NaBH_4
 - LiAlH_4
 - NH_2NH_2
 - None of the above
13. Dakin reaction given final product as
- Phenols
 - Carboxylic acid
 - Amines
 - Ethers
14. Clemmensen reduction of a ketone is Carried out in the presence of which of the following
- Hydrogen & Platinum as Catalyst
 - Lithium aluminum hydride
 - Glycol & KOH
 - Zn-Hg with HCl
15. The term Chiral was Introduced by _____
- Cahn, Ingold & Prelog
 - Wedge
 - Fischer
 - Rosanoof
16. D & L Configuration is used for Which type compounds ?
- All Optical active Compounds.
 - For Amino acids and Carbohydrates
 - Compounds having double Bonds
 - Compounds having Single Bonds in Cyclic Structures.

PART - C

Answer any SEVEN out of NINE

[7x5=35]

1. Write notes on Myasthenia gravis.
2. Write synthesis, storage & destruction of Acetylcholine.
3. Write notes on Preanaesthetic medication.
4. Write mechanism of action of GABA, Benzodiazepines and barbiturates.
5. Write notes on Drugs affecting brain dopaminergic system.
6. Write notes on Opioid receptors.
7. Write mechanism of action of Lithium.
8. Write notes on cerebroactive drugs.
9. Write notes on Anticholinesterase poisoning.



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4th Semester End Term Examination: 2021-22.

Subject : Pharmacology-I
Course : B. Pharmacy
Full Marks : 75
Roll No:
Time : 3 Hours.

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PART - A

Multiple Choice Questions

[20x1=20]

1. Which of the following is susceptible to Cholinesterase?
a) Carbachol
b) Acetylcholine
c) Bethanechol
d) Methacholine
2. Myasthenic crisis and Cholinergic crisis can be differentiated by
a) Provocative test
b) Edrophonium test
c) TOF test
d) CT scan
3. Selective serotonin reuptake inhibitors
a) Desipramine
b) Amoxapine
c) Citalopram
d) Phenelzine
4. Requirements and regulations to conduct clinical trials on a new drug in India
a) Schedule H
b) Schedule M
c) Schedule Y
d) Schedule C

5. Depolarizing blocker used as skeletal muscle relaxant have
 a) Affinity as well as maximal intrinsic activity at Nm cholinococeptors.
 b) Affinity as well as submaximal intrinsic activity at Nm cholinococeptors.
 c) Affinity but no intrinsic activity at Nm cholinococeptors.
 d) Affinity as well as maximal intrinsic activity at Nn cholinococeptors.
6. Antidote for organophosphate poisoning are
 a) Atropine
 b) Pralidoxime
 c) Both a & b
 d) Dyflos
7. Hyoscine has antinotion sickness property
 a) Due to blockade of M2 receptors on the SA node
 b) By depresses vestibular excitation.
 c) Due to blockade of α receptors on the AV node
 d) Due to blockade of β receptors on the SA node
8. Manifestation of Belladona poisoning are
 a) Dry mouth, Difficulty in swallowing and talking.
 b) Dry, flushed and hot skin (especially over face and neck), fever, Difficulty in micturition, decreased bowel sounds.
 c) Dilated pupil, photophobia, blurring of near vision.
 d) All of the above
9. Vasicoselective drugs is
 a) Oxybutynin
 b) Terfinadine
 c) Pantaprazole
 d) Ranitidine
10. Mechanism of action of Dantrolene
 a) Binding to Nm receptor.
 b) Binding to M1 receptor.
 c) Binding to RyR1 receptor.
 d) Binding to Nn receptor.
11. Anticholinergic drug used as Mydriatics
 a) Tropicamide
 b) Physostigmine
 c) Galantamine
 d) Donepezil
12. Sedative-hypnotic effect of phenobarbital is through?
 a) Increase the affinity of GABA for GABA receptors
 b) Decrease the affinity of GABA for GABA receptors
 c) α -inhibition
 d) β -inhibition
13. Benzodiazepine antagonist
 a) Flumazenil
 b) Carboline
 c) Clonazepam
 d) Amobarbital
14. Alcohol should not be consumed along with
 a) Sedative drugs
 b) Hypnotics drugs
 c) Antihistaminic drugs
 d) All of the above
15. Serotonin receptor agonist
 a) Zaleplon
 b) Estazolam
 c) Secobarbital
 d) Buspirone
16. Alzheimer's disease is associated with
 a) Loss of memory
 b) Neurodegeneration
 c) Aging
 d) All of the above
17. Drug used for methanol poisoning
 a) Physostigmine
 b) Pralidoxime
 c) Fomepizole
 d) Activated charcoal
18. Mechanism of action of antianxiety drugs is based on
 a) GABA mediated receptors
 b) Increasing the opening time of Cl⁻ channel
 c) By causing hyperpolarization
 d) All of the above
19. Potassium channel opener is
 a) Gabapentin
 b) Pregabalin
 c) Retigabine
 d) Diazepam
20. D2 receptor agonist is
 a) Selegiline
 b) Bromocriptine
 c) Amantadine
 d) Biperiden

PART - B

Answer any TWO out of THREE

[2x10=20]

- Write in detail about synthesis, storage, release, reuptake and metabolism of catecholamines.
- Define Glaucoma. Write notes on treatment for Open angle & Angle closure Glaucoma.
- Define Epilepsy. Classify Antiepileptic drugs and write mechanisms of anticonvulsant action.



Subject : Physical Pharmaceutics II
Course : B. Pharmacy
Full Marks : 75
Roll No:
Time : 3 Hours.

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PART - A

Multiple Choice Questions

[20x1=20]

1. The diameter of an equivalent sphere undergoing sedimentation at the same rate as the symmetric particle is known as-
 - a) Stoke's diameter
 - b) Sieve diameter
 - c) Volume diameter
 - d) Projected diameter
2. True density is-
 - a) Weight of the powder/
true volume of powder
 - b) True volume of powder/
weight of the powder
 - c) Mass of powder/
bulk volume
 - d) Bulk volume/
mass of the powder
3. % compressibility for excellent flow powder is-
 - a) 5-15
 - b) 16-18
 - c) 22-35
 - d) 36-40
4. The creaming & coalescence problem is associated with-
 - a) Tablet
 - b) Capsule
 - c) Emulsion
 - d) Syrup

16. In suspension when the individual particle form network like structure, called -
 a) De-flocculated suspension b) Flocculated suspension
 c) Both d) None
17. Angle of repose for excellent flow powder is-
 a) 31-35 b) 25-30
 c) 36-40 d) 56-65
18. Which one of the following method is used to estimate particle sizes-
 a) Optical microscopy b) Sieving method
 c) Sedimentation method d) All
19. The w/o type emulsion remains stable when diluted with-
 a) Oil b) Water
 c) Tween d) All
20. The identification test for emulsion include-
 a) Dilution test b) Dye test
 c) Conductivity test d) All.

PART - B

Answer any TWO out of THREE

[2x10=20]

1. Explain viscosity with mathematical treatment.
2. Elaborate Non-Newtonian flow with Rheogram.
3. Explain Oxidative degradation with protection against oxidation.

PART - C

Answer any SEVEN out of NINE

[7x5=35]

1. Shortly write about the lyophilic colloids
2. Briefly write about the Newtonian flow with Rheogram.
3. Shortly write about Plastic and elastic deformation with diagram.
4. Write short notes on Angle of repose.
5. Mention the different stability problems of emulsion and preventive measure.
6. Shortly write about the optical properties of colloids.
7. Shortly write about Thixotropy with rheogram.
8. Write short notes on Hackel equation.
9. Briefly write about First order kinetics.

5. Micro emulsion are-
 a) Transparent b) Hazy
 c) Cloudy d) None.
6. Centipoises is equal to-
 a) 0.01 poise b) 10 poise
 c) 100 poise d) 0.1 poise
7. Shear stress and shear rate relationship is represented in the form of a curve known as-
 a) Rheogram b) Consistency curve
 c) Both a & b d) None.
8. The unit of kinematic viscosity is-
 a) Stokes b) Poise
 c) Centistokes d) Both a & c.
9. The dispersed phase and dispersed medium in foam are-
 a) Gas and liquid b) Gas and solid
 c) Liquid and gas d) Solid and gas
10. Elastic deformation is governed by-
 a) Hooke's law b) kick's law
 c) Fick's law d) All
11. Which one of the following is colloidal drug delivery system-
 a) Liposomes b) Niosomes
 c) Nanoparticles d) All
12. Tyndall effect is the-
 a) Optical properties of colloids b) Mechanical properties of colloids
 c) Electrical properties of colloid d) None
13. Newtonian fluids include-
 a) Water b) Glycerin
 c) Chloroform d) All.
14. Based on the pattern of consistency curves non- Newtonian fluids are categorized as-
 a) Plastic flow b) Pseudoplastic flow
 c) Dilatants flow d) All
15. The basic unit of stress is-
 a) Pascal b) N/m²
 c) Both a & b d) None



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University
Jharkhand

22/6/22

4th Semester End Term Examination: 2021-22.

Subject : Computer Applications in Pharmacy **Roll No:**

Course : B. Pharmacy (LE)

Full Marks : 50 **Time** : 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Start writing from 2nd page onwards; **Don't Write On The 1st Page Backside.**
- Question Paper is divided into Two Parts -A & B
- Part- A containing EIGHT questions out of which SIX questions are to be answered.
- Part B containing FOUR questions out of which TWO questions are to be answered.
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PART - A

Answer any SIX out of EIGHT

[6x5=30]

1. Write down the characteristics of Information System. Explain in brief.
2. What do you mean by BINARY ADDITION and BINARY SUBTRACTION?
Convert the following Decimal numbers into Binary number system.
(a) $84 = (\quad ? \quad)_2$
(b) $43 = (\quad ? \quad)_2$
(c) $12 = (\quad ? \quad)_2$
3. Write down the characteristics of questionnaire.
4. Define System requirement. What are the various types of system requirement?
Explain in details.
5. What is Pharmacokinetics? Explain in details.
6. What do you mean Lab Diagnostic System? List the different diagnostic tests.
7. Write a short note on: (a) Patient monitoring system.
(b) Pharmacy information system.
8. Write down the advantages of Barcode in Healthcare industry.

PART - B

[2x10=20]

Answer any TWO out of FOUR

1. Explain the concept of Information Gathering and Feasibility Analysis of Software System.
2. What do you mean by a questionnaire? What are the various types of questionnaire? Explain in details.
3. What do you mean by Drug Information Retrieval? What are the Major Components of Drug Information Retrieval using computers? Explain in details.
4. What do you mean by Software? What are the various types of Software? Write down the definition of various types of software with example.



Subject : Medicinal chemistry-I

Roll No:

Course : B. Pharmacy

Full Marks : 75

Time : 3 Hours.

PART - B

Answer any TWO out of THREE

[2x10=20]

1. Define and classify sedatives and hypnotic giving examples with one structure from each class. Discuss the SAR of benzodiazepam?
2. Define and Classify NSAIDS with suitable examples from each class. Write the synthesis of ibuprofen?
3. Define and classify adrenergic agents. Discuss the SAR of adrenergic agents and Write the synthesis of phenylephrine?

PART - C

Answer any SEVEN out of NINE

[7x5=35]

1. Explain the role of solubility and Hydrogen bonding in relation to biological action of drug?
2. Write a note on alpha adrenergic antagonists and structure and use of any one ?
3. Define sedative and hypnotics write synthesis of barbital?
4. Explain the role of protein binding and partition coefficient in relation to biological action?
5. Define anti-inflammatory drugs, Write the structure and use of any three drugs?
6. Write the structure and uses of parathion and malathion?
7. Explain the role of choline esterase enzyme . write the synthesis, MOA and uses of neostigmine?
8. What is phase-I biotransformation. Discuss any two oxidative reactions?
9. What are indirect acting sympathomimetic agents . write the structure and uses of any two drugs?

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PART - A

Multiple Choice Questions

[20x1=20]

1. Which of the following is a carbamates derivative?
a) Physostigmine b) Neostigmine
c) Pyridostigmine d) All of these
2. Which type of drug Pilocarpine is?
a) Anti cholinergic drug b) Cholinergic drug
c) Adenergetic drug d) None of these
3. Benzodiazepines binds to the -----receptor on the cell membrane?
a) CTZ receptor b) GABA receptor
c) Muscarinic receptor d) Nicotinic receptor
4. Which of the following is not a phase-I reaction?
a) Oxidation b) Reduction
c) Hydrolysis d) Acylation
5. Pyridostigmine is used for treatment of -----?
a) Hypertension b) Alzheimers
c) Myasthenia gravis d) None of these

6. Propoxur used as -----?

- a) Sympathomimetic agent
- b) Parasympathomimetic agent
- c) Sedative & Hypnotic
- d) None of these

7. Which is not a physicochemical properties of a drug affecting drug action?

- a) Solubility
- b) Partition coefficient
- c) Hydrogen bonding
- d) Metabolism

8. Hypnotic effect produces-----?

- a) Sleep
- b) Calmness
- c) Drowsiness
- d) None of these

9. Phenobarbital used as----- drug?

- a) Sedative
- b) Hypnotic
- c) Antiepileptic
- d) All of these

10. Ketorolac is a _____ type of drug?

- a) NSAIDS
- b) Anticonvulsant
- c) Antipyretic
- d) Antipsychotic

11. _____ was the first NSAIDS nad fever reducer to be marketed?

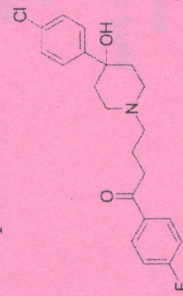
- a) Aspirin
- b) Paracetamol
- c) Aceclofenac
- d) Phenacetin

12. Mefenamic acid synthesized from _____?

- a) O-chloro benzoic acid
- b) 1 butynyl magnesium bromide
- c) O-chlorobenzonitrile
- d) None of these

13. Ethosuximide mainly used for treatment of _____ type of seizures?

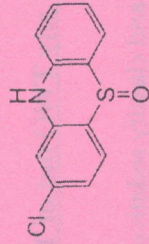
- a) Grand-mal
- b) Petit mal
- c) Complex Partial
- d) All of these



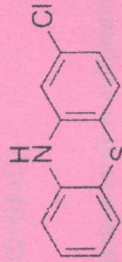
14. This is the structure of _____?

- a) Haloperidol
- b) Droperidol
- c) Risperidone
- d) Sulpiride

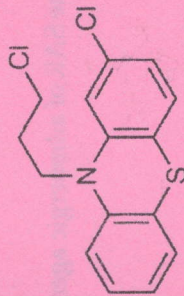
15. Chlorpromazine hydrochloride synthesized from _____?



b)



a)



c)

d) None of these

16. Which groups are attached at position no7 of benzodiazepam A ring to gave anti-anxiety properties?

- a) Electron withdrawing
- b) Electron accepting
- c) Both of these
- d) None of these

17. When in barbiturate ring at 5 position replaced with phenyl group Causes _____ properties?

- a) Anticonvulsant
- b) Anesthetic
- c) Anti diabetic
- d) None of these

18. EDTA mainly used as _____?

- a) Chelating agent
- b) Oxidising agent
- c) Reductive agent
- d) None of these

19. Epinephrine metabolise by _____?

- a) MAO
- b) Trasferase
- c) Oxidase
- d) Hydroxylase

20. Proguanil is metabolised by _____?

- a) Oxidation
- b) Reduction
- c) Hydrolysis
- d) Cyclisation



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21/6/22

4th Semester End Term Examination: 2021-22.

Subject : Pharmacognosy and Phytochemistry-I Roll No:

Course : B. Pharmacy

Full Marks : 75

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PART - A

Multiple Choice Questions

[20x1=20]

1. Deliberate addition of inferior or spurious material to the original drug
a) Substitution b) Inferiority
c) Admixture d) Sophistication
2. De Materia Medica was written by
a) Aristotle b) Elder
c) Dioscorides d) Hippocrates
3. Leaf based crude drug is
a) Belladonna b) Clove
c) Cinchona d) Vinca
4. It is an average number of stomata present in sq.mm of epidermis is known as
a) Stomatal number b) Stomatal index
c) Vein islet number d) Palisade ratio
5. Which evaluation, drugs are evaluated by means of our sensory organs?
a) Physical evaluation b) Chemical evaluation
c) Microscopic evaluation d) Organoleptic evaluation

18. Gold beater skin test is used for identification of
- Alkaloids
 - Glycosides
 - Tannins
 - Resins
19. Who is known as the father of tissue culture?
- Bonner
 - Laibach
 - Haberlandt
 - Gautheret
20. Tannic acid is antidote in which poisoning
- Iodine
 - Cyanide
 - Alkaloid
 - Arsenic

PART - B

Answer any TWO out of THREE

[2x10=20]

- Give a descriptive note on the factors influencing drug cultivation.
- Briefly describe the morphological and taxonomical classification system of drugs with examples.
- Discuss the complete Pharmacognostical study of agar.

PART - C

Answer any SEVEN out of NINE

[7x5=35]

- Write about any five parameters of Physical evaluation of drugs.
- Write short note on unorganized drugs.
- Give a short review on sexual method of propagation of crude drugs.
- Write a note on need for conservation of medicinal plants.
- How preparation and surface sterilization of explant is performed?
- Write a note on the components of plant cell culture media.
- Write note on the history of Ayurvedic medicine system.
- Give the classification and properties of resins.
- Discuss the macroscopic properties and uses of papain.

6. Seed Propagation are also called as _____
- Sexual Propagation
 - Asexual Propagation
 - Micro propagation
 - Hybridization
7. Digitalis is grown an altitude of _____
- 4000-5000 Mts
 - 3700-4000 Mts
 - 1600-3000 Mts
 - 1000-1500 Mts
8. Which is not the asexual method of Propagation?
- Cutting
 - Grafting
 - Budding
 - By Seeds
9. The formation of embryoids from the pollen grains in the tissue culture medium is due to _____
- Organogenesis
 - Test tube culture
 - Double fertilization
 - Cellular totipotency
10. The production of secondary metabolites requires the use of _____
- Meristem
 - Protoplast
 - Axillary buds
 - Cell suspension
11. Which of the following growth hormones produces apical dominance?
- Ethylene
 - Cytokinin
 - Auxin
 - Gibberellin
12. The major amino acid present in Honey is _____
- Leucine
 - Proline
 - Aspartic acid
 - Glycine
13. Agar reacts with Ruthenium red and gives _____
- Yellow colour
 - White colour
 - No reaction
 - Red colour
14. The reagent mixture of copper acetate and acetic acid is known as _____
- Benedict's reagent
 - Barfoed reagent
 - Bial's reagent
 - Selwanoff's reagent
15. Castor oil is useful in the treatment of one of the following
- Hypertension
 - Hypotension
 - Constipation
 - Dysentery
16. Which of the following is cultured to obtain haploid plants?
- Embryo
 - Nucleus
 - Apical bud
 - Entire anther
17. Seed Propagation are also called as _____
- Sexual Propagation
 - Asexual Propagation
 - Micro propagation
 - Micro propagation