

Course: B. Pharmacy

Sem: IV

Subject Name: Pharmaceutical Organic Chemistry-III

Subject Code: BP401T

Max Marks: 75

Date: 24/08/2022

Duration: 3.45 Hrs.

Instructions –

1. All questions are compulsory
2. Answers to MCQs should be written in full sentences
3. Draw diagrams / figures wherever necessary
4. Figures to right indicate full marks

I. Multiple Choice Questions

(20 Marks)

- 1) Which of the following prefix is used for Sulphur?
a) Oxa b) Aza c) Thia d) Sila
- 2) Number of optical active isomers in tartaric acid are
a) 2 b) 4 c) 6 d) 8
- 3) Furan react with Ammonia in the presence of aluminum trioxide at 400°C to give
a) Pyridine b) Furfural c) Pyrrole d) Furoic acid
- 4) Enantiomers are ---
a) Mirror images of each other b) Not mirror images of each other
c) Not concern with mirror images d) Diastereomers of each other
- 5) Suffix used for three membered heterocyclic saturated compound containing N is
a) Etidine b) Epidine c) Iridine d) Inidine
- 6) Notation used for dextro rotatory compounds is
a) D b) L c) d d) l
- 7) Electrophilic substitution in Thiophene usually occurs at
a) O atom b) C-2 Position c) C-3 Position d) Both A&B
- 8) Which of the following reagent reacts with pyrrole to form 2-formylpyrrole
a) HCOOH b) CHCl_3 & KOH c) H_2O_2 d) $(\text{CH}_3\text{CO})_2\text{O}$
- 9) Conversion of ketoximes to N-substituted amides takes place in ----- reaction
a) Beckmann b) Birch c) Claisen Schmidt d) Dakin

- 10)) n-Propyl alcohol and isopropyl alcohol are examples of isomerism.
 a) Functional b) Position c) Chain d) Metamerism
- 11) In -----synthesis 1,4- diketone is used as starting material
 a) Fiest Benary b) Paal Knorr c) Traube d) Bischler
- 12) The synonym for pyrrole is _____.
 a) Furan b) Pyrrole c) Pyridine d) Benzopyridine
- 13) Thiophene contains following heteroatom
 a) S b) N c) O d) C
- 14) Following is the core component in structure of chloroquine
 a) Isoquinoline b) Quinoline c) Thiophene d) Pyridine
- 15) Pyridine is ----- in nature
 a) Weakly acidic b) Weakly basic c) Strong Acidic d) Neutral
- 16) What is the order of reactivity of pyrrole, furan & thiophene towards electrophile
 a) furan, pyrrole, thiophene b)pyrrole, furan, thiophene
 c) thiophene, pyrrole, furan d) furan, thiophene, pyrrole
- 17) Zinc amalgam & HCl is used as reagent in
 a) Wolf-Kishner reduction b) Clemmensen reduction c) Birch reduction d) Dakin reaction
- 18) Wolff Kishner reduction mechanism begins with the formation of a
 a) Hydride ion b) Hydrazone anion c) Nitrogen anion d) Nitrogen cation
- 19) ----- isomerism is observed in doubly bonded compounds
 a) Structural b) Stereo c) Geometrical d)Optical
- 20) Identify the chiral molecule among the following
 a) Isopropyl alcohol b) 2-pentanol c) 1-bromo 3-butene d) Isobutyl alcohol

II. Long Answers (Answer any Two)

(20 Marks)

- 1) Define and explain with examples the asymmetric synthesis.
- 2) Explain in detail conformations and conformational analysis of n-Butane and Cyclohexane.
- 3) Give principle, reaction and mechanism of Birch reduction and Wolf Kishner reduction.

III. Short Answers (Answer any Seven)

(35 Marks)

- 1) Define Biphenyl compounds and explain atropisomerism.
- 2) Explain the elements of symmetry with suitable examples.
- 3) Define Stereospecific reaction and explain it with examples.

- 4) Write the EAS reactions and medicinal uses of furan.
- 5) Write methods of preparation & reactions of Thiophene.
- 6) Give reaction mechanism of Paal-Knorr synthesis in pyrrole.
- 7) Why pyridine is much basic than pyrrole; explain on the basis of resonance.
- 8) Outline the method of synthesis of Indole.
- 9) Write methods of preparation & medicinal uses of pyrimidine.

-----END OF THE PAPER-----

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – Summer 2022

Course: B. Pharmacy

Sem:IV

Subject Name: Medicinal Chemistry-I

Subject Code: BP402T

Max Marks: 75

Date:27/08/2022

Duration: 3.45 Hr.

Instructions –

1. All questions are compulsory
2. Answers to MCQs should be written in full sentences
3. Draw diagrams / figures wherever necessary
4. Figures to right indicate full marks

Q. 1. Multiple Choice Questions (MCQs) = 20 x 1 = 20. (All the questions are compulsory)

i) Gaseous and volatile drugs and their metabolites are excreted through _____.

- a) Skin
- b) Lungs
- c) Billiary route
- d) Saliva

ii) Major site of drug metabolism is _____.

- a) Lung
- b) Liver
- c) Skin
- d) Gastrointestinal tract

iii) Conversion of alcohols to aldehydes is _____ metabolic reaction.

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

iv) Enzyme used for glucuronic acid conjugation is _____.

- a) Glutathione S-transferase
- b) UDP-Glucuronyl transferase
- c) SAM
- d) PAPS

v) Henderson-Hasselbalch equation is used to determine _____ of drug.

- a) Partition Coefficient
- b) Solubility
- c) % ionization
- d) pH.

vi) % ionisation of drug depends upon _____.

- a) pKa of the drug
- b) pH of the body fluid
- c) Partition coefficient of drug
- d) Both a. and b.

vii) β_2 receptors are found in _____.

c) Trop
xviii

- a) Heart
b) Bronchi
c) Adipose tissue
d) Skeletal muscles.
- viii) Muscarinic receptors are _____ receptor.
a) Nuclear
b) G-protein Coupled
c) Enzyme
d) Ligand gated Ion Chanel.
- ix) Which of the following drug is a direct acting sympathomimetic drug.
a) Phenylephrine
b) Pseudoephedrine
c) Propylhexedrine
d) Ephedrine
- x) Which of the drug is alpha adrenergic blocker?
a) Propranolol
b) Metibranolol
c) Atenolol
d) Tolazoline
- xi) Acetylcholine on hydrolysis gives...
a) Serine and acetic acid
b) Choline and carbamic acid
c) Acetic acid and serine
d) Choline and acetic acid
- xii) Chlordiazepoxide, a psychotherapeutic agent belongs to class of _____.
a) Carbamates
b) Propanediol
c) Benzodiazepine
d) Phenothiazine
- xiii) Acetylcholine is biosynthesized from _____.
a) L-Cysteine
b) L-Codeine
c) L-Serine
d) L-Cholic acid
- xiv) Hypnotics are _____.
a) Strong depressant of CNS
b) Strong stimulant of CNS
c) Mild depressant of CNS
d) Mild stimulant of CNS
- xv) Chemical name 5-ethyl, 5-phenyl barbituric acid belong to
a) Hexobarbital
b) Phenobarbital
c) Pentobarbital
d) Secobarbital
- xvi) Which one of the following receptor is block by Neuroleptic agent?
a) Cholinergic
b) Adrenergic
c) GABA
d) Dopaminergic
- xvii) Which of the Anticholinergic agent useful as a spasmolytic drug?
a) Pyridostigmine
b) Dicyclomine

c) Tropicamide

d) Glycopyrrolate

xviii) Phenobarbital is orally administered in the treatment of:

a) Grand mal epilepsy

b) Petit mal epilepsy

c) Jackson epilepsy

d) Psychomotor epilepsy.

xix) Which of the following barbiturate derivative acts as anticonvulsant agent?

a) Hexobarbital

b) Phenobarbital

c) Pentobarbital

d) Secobarbital

xx) Which of the following drugs is acts as Cholinergic Blocking agent?

a) Physostigmine

b) Neostigmine

c) Pyridostigmine

d) Dicyclomine

Q. 2. Long Answers = $2 \times 10 = 20$ (Answer 2 out of 3)

i) Discuss the various physicochemical properties affecting the biological activity of drugs.

ii) Classify sedatives and hypnotics. Add a note on SAR and MOA of Barbiturates.

iii) Discuss the SAR of Parasympathomimetic agents and add a note on cholinergic receptors.

Q. 3. Short Answers = $7 \times 5 = 35$ (Answer 7 out of 9)

i) Discuss SAR of sympathomimetic drugs. Add a note on direct acting sympathomimetic drugs.

ii) Describe SAR of Morphine analogues. Add a note on Narcotic antagonists.

iii) Describe the factors that affect drug metabolism.

iv) Define Epilepsy and describe general mechanism of action of anticonvulsant drugs.

v) Classify anticonvulsant drugs and add a note on hydantoin derivatives.

vi) Classify antipsychotic drugs. Add a note on SAR and MOA of phenothiazine derivatives.

vii) Write a note on Biosynthesis and catabolism of catecholamine.

viii) Outline the synthesis of Phenytoin and Barbitol.

ix) Write a note on adrenergic receptor. Classify sympathomimetic drugs with examples

-----END OF THE PAPER-----

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
End Semester Examination – Summer 2022

Course	: B. Pharmacy (Second Year)	Sem.	: IV
Subject Name	: Physical Pharmaceutics-II	Subject Code	: BP403T
Max Marks	: 75	Date:30/08/2022	Duration : 3.45 Hr

Instructions –

1. All questions are compulsory
2. Answers to MCQs should be written in full sentences
3. Draw diagrams / figures wherever necessary
4. Figures to right indicate full marks

Q.No.1. Attempt the following Multiple choice questions. (MCQs) (20X1= 20 Marks)
(All the questions are compulsory)

- i. Gold number is defined as number of milligram of protective colloid required in 10 mL of red gold sol to prevent the change in colour from red to violet on addition of 1 mL of..... Solution.
 - a. 10 % NaCl
 - b. 0.1 % NaCl
 - c. 10 % KCl
 - d. 0.1 % KCl
- ii. Sedimentation velocity of spherical particles is governed by.....
 - a. Charle's Law
 - b. Stoke's Law
 - c. Osmotic Pressure
 - d. None of the above
- iii. is the difference in the potential between the shear plane & the electroneutral region in the dispersion
 - a. Peptization
 - b. Nernst potential
 - c. Electrokinetic Potential
 - d. Steady State
- iv. For an ideal suspension, the sedimentation volume should be...
 - a. Zero
 - b. Less than 1
 - c. More than 1
 - d. Equal to 1
- v.is the process of formation of light, fluffy aggregates held together by physical forces.
 - a. Flocculation
 - b. Deflocculation
 - c. Coalescence
 - d. All of these
- vi. η_{sp}/c is used for viscosity determination by using.....viscometer
 - a. Capillary
 - b. Falling Sphere
 - c. Cup & Bob
 - d. Cone & Plate

- vii. Shear thickening system is also known as.....flow
- Plastic
 - Pseudoplastic
 - Dilatant
 - Spurs
- viii. $\mu = \frac{\text{Lateral Strain}}{\text{Linear Strain}}$
- Elastic modulus
 - Hookes law
 - Heckel equation
 - Poisson's ratio
- ix. The reciprocal of viscosity is known as.....
- Fluidity
 - Mobility
 - Ductility
 - Plug flow
- x. The change in velocity between two planes of liquid which is separated by distance is
- Shearing stress
 - Rate of shear
 - Strain
 - Yield value
- xi. The unit of specific reaction rate constant for Second order reaction is
- Litre Moles⁻¹ Second⁻²
 - Litre Moles⁻¹ Second⁻¹
 - Second⁻¹
 - Moles.Litre⁻¹ Second⁻¹
- xii. Wet gum method is also known as
- Continental Method
 - Forbe's method
 - English method
 - Bottle method
- xiii. A drug suspension decomposes by zero-order kinetics with a rate constant of 2 mg mL⁻¹ month⁻¹. If the initial concentration is 100 mg mL⁻¹, what is the shelf life?
- 2 months
 - 3 months
 - 4 months
 - 5 months
- xiv. '-----' is the ability of a pharmaceutical product to retain the physical, chemical, microbiological and biopharmaceutical properties
- Drug stability
 - Chemical kinetics
 - Order of reaction
 - Micromeritics
- xv. Hausner ratio is
- Tapped Density/Bulk density
 - Bulk density/ Tapped Density
 - Bulk Density/ Void volume
 - Void volume/ Bulk Density
- xvi. Which of the following is the identification test for emulsion
- Dilution Test
 - Cobalt Chloride test
 - Conductivity Test
 - All of the Above

xvii.

The density of the dispersed phase is more than that of the dispersion medium.

According to Stoke's equation, the creaming is:

- At the center of emulsion
- In both the directions
- In upward direction
- In downward direction

xviii.

The rate equation for a chemical reaction is reported as $(-dc/dt)=kc$.

The order of reaction is....

- Zero order
- Pseudo Zero order
- Pseudo first order
- First order

xix.

The Carr's compressibility index value 26 - 31 indicate that the flow will be...

- Excellent
- Passable
- Good
- Poor

xx.

In coulter-counter method, as the particles travelled through the orifice the event that occurs is...

- Conductance between the electrodes increases
- Electronic scanners produces photographs for volume measurement
- Resistance between the electrodes increase
- Sedimentation increase

Q.No.2 Solve any TWO from following questions (Long Answers) (2 X 10 = 20 Marks)

- What is rheology and elaborate different types of flows in liquids.
- What are the properties of colloids? Explain electrical properties in detail.
- What is Molecularity & Order of Reaction? Explain the different methods used for determination of 'order of reaction'.

Q.No.3 Solve any SEVEN from following questions (Short Answers) (7 X 5 = 35 Marks)

- Define following terms:
a. Angle of repose b. Porosity, c. True density d. Electrophoresis e. Stability testing
- Explain the Van't Hoff equation.
- Describe different types of Particle diameters.
- Differentiate between Plastic & Elastic deformation. Add a note on Heckel equation.
- Elaborate the concept of Thixotropy.
- Derive the derivation of Zero order reaction rate constant.
- Explain the importance of Micrometrics in pharmacy with the help of suitable examples.
- Explain the concept of Controlled Flocculation.
- Write a detail note on Accelerated stability testing for pharmaceutical products.

The End

Course: B. Pharmacy

Sem: IV

Subject Name: Pharmacology - I

Subject Code: BP404T

Max Marks: 75

Date: 06/09/2022

Duration: 3.45 Hr.

Instructions –

1. All questions are compulsory
 2. Answers to MCQs should be written in full sentences
 3. Draw diagrams / figures wherever necessary
 4. Figures to right indicate full marks
-

Q. 1. Multiple Choice Questions (MCQs) = 20 x 1 = 20 (All the questions are compulsory)

i) Pharmacokinetics involves study of the _____ of a drug.

- | | |
|-----------------|------------------------|
| a) Side effects | b) Mechanism of action |
| c) Distribution | d) Therapeutic effects |

ii) By which route of administration, the extensive first-pass metabolism of the drugs occurs?

- | | |
|------------------|----------------|
| a) Oral | b) Intravenous |
| c) Intramuscular | d) Inhalation |

iii) Which is the fastest route of administration in terms of the effect of a drug?

- | | |
|------------------|-----------------|
| a) Intramuscular | b) Subcutaneous |
| c) Intravenous | d) Intradermal |

iv) Which organ is involved in the excretion of the drugs?

- | | |
|----------|-----------|
| a) Heart | b) Spleen |
| c) Brain | d) Kidney |

v) Which statement is CORRECT for the agonist?

- a) It binds to a receptor and produces the biological effect
- b) It binds to a receptor and does not produce the biological effect
- c) It binds to a receptor and produces the biological effect opposite to that of the natural ligand
- d) None of the above

vi) On repeated use if the effect of a drug decreases progressively, the mechanism is called

- | | |
|----------------|--------------|
| a) Antagonism | b) Tolerance |
| c) Anaphylaxis | d) Synergism |

vii) The ability of a drug to cause abnormalities in the developing fetus when administered to a pregnant woman is called _____.

- a) Teratogenicity
- b) Tachyphylaxis
- c) Superinfection
- d) Anaphylaxis

viii) Clinical trials are carried out in _____.

- a) Rats
- b) Mice
- c) Rabbits
- d) Humans

ix) Which is an adrenergic receptor?

- a) Nicotinic receptor
- b) Mu receptor
- c) Beta receptor
- d) GABA-A receptor

x) Which drug is used for the treatment of myasthenia gravis?

- a) Neostigmine
- b) Atropine
- c) Donepezil
- d) Rivastigmine

xi) Which of the following is NOT the effect of acetylcholine?

- a) Miosis
- b) Increase in rate and force of contraction of the heart
- c) Bronchoconstriction
- d) Gastric acid secretion

xii) By inhibiting which ion channels local anesthetics block nerve conduction?

- a) Na^+
- b) Mg^{2+}
- c) Ca^{2+}
- d) Cl^-

xiii) Which adverse effect is associated with chronic alcoholism?

- a) Fatty liver
- b) Gastritis
- c) Impotency
- d) All of the above

xiv) Disulfiram is used for the treatment of _____ dependence.

- a) Opioid
- b) Nicotine
- c) Alcohol
- d) Benzodiazepine

xv) Sympathetic hyperactivity associated with anxiety disorders can be treated by _____.

- a) Propranolol
- b) Oxazepam
- c) Alprazolam
- d) Chlordiazepoxide

xvi) Which of the following drug is an opioid antagonist?

- a) Methadone
- b) Naloxone
- c) Ephedrine
- d) Fentanyl

xvii) Which drug is used as a first-line drug in the absence seizures?

- a) Phenytoin
- b) Carbamazepine
- c) Ethosuximide
- d) All of the above

xviii) Which is the common adverse effect of selective serotonin reuptake inhibitors (SSRIs)?

- administered
- a) Hypotension
 - b) Sexual dysfunction
 - c) Seizures
 - d) Arrhythmia

xix) Which antiviral drug is used in the treatment of Parkinson's disease?

- a) Entacapone
- b) Amantadine
- c) Bromocriptine
- d) Selegiline

xx) Which centrally acting anticholinesterase is not approved for Alzheimer's disease?

- a) Rivastigmine
- b) Donepezil
- c) Galantamine
- d) Physostigmine

Q. 2. Long Answers) = 2 x 10 = 20 (Answer 2 out of 3)

- i) Define drug absorption. Explain the factors affecting drug absorption.
- ii) Define neurohumoral transmission. Explain different steps involved in the neurohumoral transmission of acetylcholine.
- iii) Classify antipsychotic drugs. Explain the mechanism of action, uses, and side effects of chlorpromazine.

Q. 3. Short Answers = 7 x 5 = 35 (Answer 7 out of 9)

- i) Define drug. Write different sources of drugs with suitable examples.
- ii) Write the advantages and disadvantages of the oral route of drug administration.
- iii) Classify receptors with suitable examples. Draw a schematic diagram showing G protein-coupled receptors signaling pathway.
- iv) Explain pharmacotherapy of glaucoma.
- v) Classify cholinergic receptors, and give their distribution.
- vi) Write the mechanism of action of benzodiazepines. Why benzodiazepines are preferred over barbiturates?
- vii) Describe different stages of inhalational general anesthesia.
- viii) Classify drugs used for the treatment of Alzheimer's disease. Explain the mechanism of action of memantine.
- ix) Classify antiparkinsonian drugs. Why levodopa is given in combination with carbidopa?

-----END OF THE PAPER-----

Regular

Course: B. Pharmacy

Sem : IV

Subject Name: Pharmacognosy & Phytochemistry – I

Subject Code: BP405T

Max Marks: 75

Date: 08/09/2022

Duration: 3.45 Hr.

Instructions –

- All questions are compulsory
- Answers to MCQs should be written in full sentences
- Draw diagrams / figures wherever necessary
- Figures to right indicate full marks

Q. 1. Multiple Choice Questions (MCQs) = 20 x 1 = 20 (All the questions are compulsory)

- Which of these is an organized drug?
a) Senna b) Gelatin c) Papain d) Benzoin
- Glycosides are condensation products of
a) Sugar+protein b) Sugar+ lipid c) Sugar+agyclone d) Sugar+alkaloid
- Stomatal number is number of stomata per----- of epidermis of leaf.
a) sq.m b) sq.mm c) sq.km d) sq.cm
- Size of lycopodium spore is _____
a) 20 micron b) 30 micron c) 25 micron d) 35 micron
- _____ is considered as father of medicine.
a) Hippocrates b) Aristotle c) Dioscorides d) Charaka
- Taste and colour of agar comes under _____ evaluation of drug.
a) Chemical b) Biological c) Organoleptic d) Physical
- Hemp contains

- a) High cellulose and low protein b) High cellulose and low lignin
High lignin and low cellulose d) High lignin and low protein

18. Siddha m
a) Kam
19. Sowir

8. Acid value is defined as

- a) number of kilogram of KOH required to neutralise 1 g of fat or oil
b) number of milligram of KOH required to neutralise 1 g of fat or oil
c) number of gram of KOH required to neutralise 1 g of fat or oil
d) number of ml of KOH required to neutralise 1 g of fat or oil

9. _____ belongs to the family of Apidae.

- a) Agar b) Acacia c) Tragacanth d) Honey

10. Waxes are example of.....

- a) Simple lipids b) Compound lipids c) Derived lipids d) Prostaglandins

11. Goldbeaters skin test is used for identification of.....

- a) Carbohydrates b) Lipids c) Tannins d) Glycosides

12. Tissue Culture medium should not be containing-----

- a) Pesticides b) Inorganic salts c) Vitamins d) Growth regulators

13. Indian origin therapy is

- a) Homeopathy b) Unani c) Allopathy d) Ayurveda

14. _____ oil is having laxative property

- a) Arachis oil b) Sesame oil c) Castor oil d) Corn oil

15. One of the four humours is

- a) White bile b) Phlegm c) Air d) Water

16. Fabric is prepared from.....

- a) Chitin b) Cellulose c) Hemicellulose d) None of these

17. Citral gum is used as adulterant of.....

- a) Acacia b) Agar c) Gelatin d) Tragacanth

18. Siddha medicine system originated from

- a) Karnataka b) Kerala c) Tamil Nadu d) Telangana

19. Sowing of rhizomes is

- a) Vegetative propagation b) seed propagation
c) sexual propagation d) Tissue culture

20. Bassorin is.....

- a) Water soluble b) Alcohol soluble c) Alcohol insoluble d) Water insoluble

Q. 2. Long Answers:

2 x 10 = 20 (Answer 2 out of 3)

- a) What is cultivation? Explain the factors affecting cultivation of crude drugs.
b) Define Evaluation. Explain microscopic evaluation.
c) Define tissue culture. Explain the steps involved in Tissue culture. Mention its application.

Q. 3. Short Answers:

7 x 5 = 35 (Answer 7 out of 9)

- a) Define, classify and mention the identification tests for alkaloids.
b) Write the principle, diagnosis and treatment involved in Ayurveda.
c) What is Pharmacological classification of crude drugs? Mention its merits and demerits with examples.
d) State the biological source, chemical constituents of Tragacanth and Honey
e) Illustrate the pharmacognostic scheme on Cotton.
f) Differentiate between organized and unorganized crude drugs.
g) Explain the concept of polyploidy. Mention its applications.
h) Write a note on edible vaccines.
i) Define Pharmagony. Explain its scope and development.

-----END OF THE PAPER-----