

Exam Date &amp; Time: 13-Jun-2022 (10:00 AM - 01:00 PM)



# MANIPAL ACADEMY OF HIGHER EDUCATION

## Medicinal Chemistry - I [PCH-BP402T-S1]

Marks: 75

Duration: 180 mins.

### I Multiple Choice Questions (MCQs)

Answer all the questions:

Section Duration: 30 mins

1) Which one is wrong statement about methacholine

1) Its actions on the cardiovascular system are more marked and pronounced than on the genitourinary and gastro-intestinal systems	2) It is more hydrolytically stable than bethanechol	3) It has a beta methyl substitution	4) It is more muscarinic specific	(1)
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2) What is the role of histidine residue in the active site of acetylcholinesterase enzyme

1) Acts as nucleophile	2) Forms a hydrogen bond with acetylcholine	3) Acts as an acid base catalyst	4) None of the above	(1)
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3) Which of the following opioid drug is a benzomorphan derivative

1) Fentanyl	2) Metazocine	3) Pethidine	4) Levorphanol	(1)
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4) Which among the following drug has the IUPAC name 2-(diethylamino)ethyl-1-cyclohexylcyclohexane-1-carboxylate

1) Procyclidine	2) Dicyclomine	3) Fentanyl	4) Neostigmine	(1)
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5) Which among the following is not true with respect to SAR of NSAID

1) Molecule must have an ionizable acid group and an	2) A two atom separation between the anionic charge and	3) Introduction of a methyl at the first carbon increases potency and	4) A second coplanar aromatic ring or hetero aromatic	(1)
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	aromatic ring system			the aromatic ring			introduces a chiral center			ring increases potency	
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- 6) What is the effect of introducing polar groups on the phenyl group at the 5th position of barbiturates

1)	Increases the toxicity	2)	Increases hypnotic and sedative activity, increases the onset of action and decreases the duration of action	3)	Increases hypnotic and sedative activity, decreases the onset of action and increases the duration of action	4)	Decrease hypnotic and sedative activity, increases the duration of action	(1)
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- 7) Which of the following is SAR feature for benzodiazepines decreases the duration of action

1)	A hydroxyl group on 3rd position of benzodiazepine ring	2)	A electron withdrawing group at position seven	3)	A phenyl group at position five of benzodiazepine ring	4)	A carbonyl group at position 2 of benzodiazepine ring	(1)
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- 8) Which of the following NSAID drug is naphthalene derivative

1)	Piroxicam	2)	Naproxen	3)	Celecoxib	4)	Tolmetin	(1)
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- 9) Which among the following is a irreversible cyclooxygenase inhibitor

1)	Meloxicam	2)	Celecoxib	3)	Aspirin	4)	Acetaminophen	(1)
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- 10) Which among the following non-benzodiazepine drug which binds to benzodiazepine binding site on GABA-A receptor

1)	Carbamazepine	2)	Chlorazepate	3)	Zolpidem	4)	Alprazolam	(1)
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- 11) Bioisosteres are similar in their

1)	Physical character	2)	Chemical character	3)	Biochemical character	4)	Both character A & B	(1)
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- 12) Which type of hydrogen bonding when hydrogen bonding occurs between molecules

1)	Intramolecular	2)	Intermolecular	3)	A&B both	4)	None of them	(1)
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- 13) ----- reaction is most common in drugs having amide or ester functional groups

(1)

1)	Oxidation	2)	Reduction	3)	Nitration	4)	Hydrolysis
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14) Propanolol is prepared by condensing

1)	Alpha naphthol and epichlorhydrin	2)	Beta naphthol and epichlorhydrin	3)	Phenol and epichlorhydrin	4)	Chlorophenol and epichlorhydrin	(1)
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15) Phenoxy benzamine inhibits the uptake of

1)	Histamine	2)	Catecholamines	3)	Catalase	4)	Esterase	(1)
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16) Antipsychotic drugs are also known as

1)	CNS stimulants	2)	CNS depressants	3)	Neuroleptic agents	4)	Antidepressant	(1)
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17) An example for dihydroindolone derivative

1)	Haloperidol	2)	Risperidone	3)	Molindone HCL	4)	Thioiridazine	(1)
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18) Epilepsy is a disorder of

1)	Brain	2)	Heart	3)	Kidney	4)	Lung	(1)
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19) Beta 2 receptors are predominantly found in

1)	CNS	2)	Vascular system	3)	Endocrine system	4)	Respiratory system	(1)
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20) Which of the following is not a Bronchodilator

1)	Terbutaline	2)	Adrenaline	3)	Dobutamine	4)	Isoprenaline	(1)
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## II Long Answers

Answer all the questions.

- 21) Discuss the structural feature and SAR of Morphine and its derivatives (6)
- A)
- B) Give the synthesis of methadone and mefenamic acid (4)
- 22) Classify antipsychotic drugs giving one structure from each class and explain the SAR of Phenothiazine derivatives (5)
- A)
- B) Classify adrenergic blockers giving one structure from each class and outline the synthesis of one alpha receptor blocking agent (5)

## III Short Answers

**Answer all the questions.**

- 23) Discuss how aryl carbamates act as reversible cholinesterase inhibitors. Outline the synthesis of neostigmine (5)
- 24) Explain the SAR of Benzodiazepines as Hypnotics and sedatives (5)
- 25) Classify anticholinergics giving one structure from each class (5)
- 26) Outline the synthesis of dicyclomine (2.5)
- A)
- B) Outline the synthesis of Phenytoin (2.5)
- 27) Write the structure and uses of the following (5)  
a) Phenylephrine b) clonidine c) Salbutamol d) Naphazoline
- 28) Discuss the importance of physicochemical properties on biological activity of drug molecules (5)
- 29) Explain various enzymes involved in drug metabolism and their importance (5)

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