Question Paper

Exam Date & Time: 12-May-2023 (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) What structural nature of bethanecol makes it hydrolytically more stable? (1)

- presence of carbamoyl group
- Presence of α-methyl group
- Presence of β-methyl group
- Presence of carbamoyl and β-methyl group

2) Which among the following statement is not true with respect to chemical nature of atropine? (1)

- Atropine is tropine ester of tropic acid
- Atropine is a racemic mixture of D-hyoscyamine and L-hyoscyamine
- Pyridine-pyrrolidine fused heterocyclic ring system is present in atropine
- Atropine consist of seven membered ring system

3) Which of the following opioid drug is a Morphinan derivative? (1)

- Fentanyl
- Metazocine
- Pethidine
- Levorphanol

4) Identify the IUPAC name of Mefenamic acid (1)

- 2(2, 3-dimethylphenylamino)-phenyl acetic acid
- 2(2, 3-dimethylphenylamino)-benzoic acid
- 2(2, 6-dimethylphenylamino)-benzoic acid
- 2(2, 6-dimethylphenylamino)- phenyl acetic acid

5) What structural modification on barbituric acid is required to make it active as sedative and hypnotic drug? (1)

- The replacement of both hydrogens at position 5 with alkyl or aryl groups
- Replacement of one of the carbonyl oxygen with sulphur
- Introducing alkyl group on one of the nitrogen

The replacement of one of the hydrogens at position 5 with alkyl or aryl groups

6) Which among the following is not a metabolite of chlordiazepoxide (1)

Nordiazepam
Lorazepam
Oxazepam
Demoxepam

7) Replacement of oxygen at C-2 of barbiturates by a sulphur atom results in (1)

Increases the binding affinity to the GABA A receptor
Increase in the onset and shortens the duration of action
Increase in the onset and duration of action
Decrease in the onset and increase in duration of action

8) Which among the following drug is used as a narcotic antagonist? (1)

Pethidine
Fentanyl
Levallorphan
Diphenoxylate

9) Which among the following drug synthesis involves Mannich reaction? (1)

Procyclidine
Dicyclomine
Fentanyl
Neostigmine

10) Which among the following is an irreversible COX inhibitor? (1)

Naproxen
Meclofenamate
Piroxicam
Aspirin

11) Iproniazid (antidepressant) is dealkylated to (1)

Isoniazid
alpanoic acid
Imipramine
Desipramine

12) Isosterism is the process of (1)

Replacement with similar group
Replacement with similar valence group
Replacement similar mass number group
Addition of group having different mass number .

13) Name one drug with benzodiazepine structure (1)

Chlorpromazine
Clozepine
Phenacemide
Clonazepam

14) The drug which act by blocking dopamine receptor especially D2 receptor is (1)

Haloperidol
Clozapine
Prochlorperazine maleate
Loxapine

15) Phenytoin is prepared by condensation of (1)

Benzil and urea
Diethyl malonate and urea
Malonic acid and methyl urea
Diethyl malonate and methyl urea.

16) Alpha 2 receptor activate G protein gated (1)

Calcium channels
Pottasium channels
Sodium channels
Chloride channels

17) Ethosuximide is used for the treatment of (1)

Petitmal epilepsy
Grandmal epilepsy
Myoclonic seizures
None of the above

18) Which factor influences drug receptor interactions? (1)

Complexation
Hydrogen bonding
Molar refractivity
Moleclar weight

19) Which type of hydrogen bonding present when hydrogen bonding occurs between molecules? (1)

Intermolecular
Intramolecular
A and B both
Ligands

20) Which of the following is a CNS stimulant? (1)

Naphazoline
Methamphitamine
Phenyl ephedrine
Sibutramine

II Long Answers

Answer all the questions.

1) Classify anticholinergics giving one structure from each class (5)

A)

B) Outline the synthesis of procyclidine and neostigmine (5)

2) Explain three important physicochemical properties involved in drug action (5)

A)

B) Classify antiepileptic drugs giving one structure from each class and explain the MOA of Phenytoin and Carbamazepine (5)

III Short Answers

Answer all the questions.

1) Write the common structural features or SAR of NSAIDs and outline the synthesis of mefenamic acid (5)

2) Discuss the SAR of barbiturates as sedative and hypnotics (5)

3) Explain the various morphine modifications and their effect on narcotic analgesic activity (5)

4) Discuss in detail phase-II drug metabolism (5)

5) Explain the SAR and mechanism of actions of antipsychotic drugs (5)

6) Write the structure and uses of two alpha adrenergic blockers and two beta adrenergic blockers (5)

7) Explain how aryl carbamates acts a anticholinesterase agents (2.5)

A)

B) Outline the method of synthesis Salbutamol (2.5)

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