

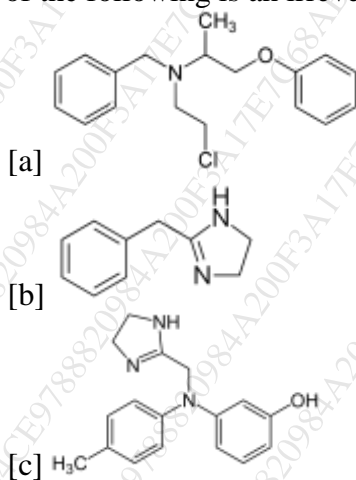
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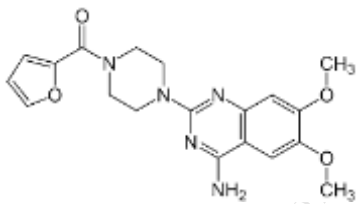
Total marks: 75

- N.B . : 1. All questions are compulsory.**
2. Figures to the right indicate full marks.

Q.1 Choose the appropriate option for following multiple choice-based questions. (20)
Each question carries one mark.

- Following are the Phase I metabolism reactions except
 - oxidation of olefins
 - Sulfate conjugation
 - Hydration of epoxides
 - oxidation of olefins
- The shortest duration of action of the following benzodiazepines is of
 - Chlordiazepoxide
 - Diazepam
 - Clorazepate
 - Lorazepam
- Which of the following is a nonselective β -adrenergic agonist?
 - Oxymetazoline
 - Naphazoline
 - Xylometazoline
 - Isoproterenol
- Which of the following is an example of inhalation anaesthetics
 - Halothane
 - Ketamine
 - Thiopental
 - Methohexital
- Which of the following is an irreversible α -adrenoceptor antagonist?



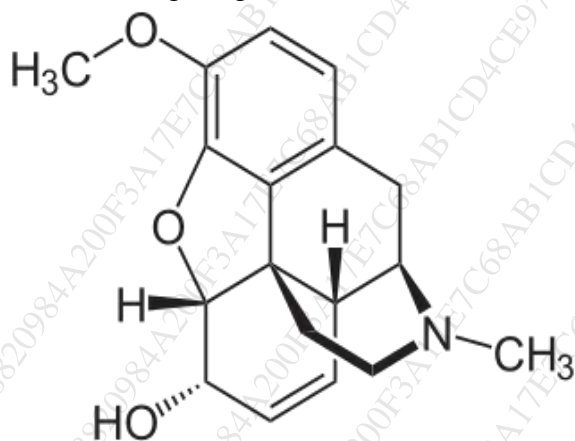


[d]

- 6 Typical antipsychotics cause extrapyramidal side effects by strongly blocking
- D1 receptors
 - D2 receptors
 - D3 receptors
 - D4 receptors
- 7 N-demethylation of Mephobarbital gives
- Phenobarbital
 - Secobarbital
 - Pentobarbital
 - Amobarbital
- 8 Name the prodrug of phenytoin
- Phenoxybate
 - Fosphenytoin
 - Hydroxy phenytoin
 - Phenytoin sodium
- 9 Morphine metabolized by CYP3A4-mediated N-dealkylation to
- Normorphine
 - 5-hydroxymorphine
 - Codeine
 - Levorphanol
- 10 Which of the following has mixed action with antagonist activity at mu receptor and agonist activity at kappa receptor
- Morphine
 - Naloxone
 - Codeine
 - Nalorphine
- 11 Carbamoyl- β -methylcholine is also known as _____?
- Methacholine
 - Carbachol
 - Bethanechol
 - Acetylcholine
- 12 Which of the following is the incorrect pair of NSAIDs
- Propionic acid derivative: Ibuprofen
 - Pyrazolidinediones: phenylbutazone
 - Salicylates: Indomethacin
 - Oxicam: Piroxicam

- 13 Which of the following drug is having 4-phenylpiperidine pharmacophore and is an opioid agonist
- [a] Pentazocine
 - [b] Naloxone
 - [c] Meperidine
 - [d] Fentanyl

- 14 Identify the following drug



- [a] Morphine
- [b] Naloxone
- [c] Codeine
- [d] Nalorphine

- 15 Which of the following reaction sequence will produce oxazepam from diazepam
- [a] N-demethylation & hydroxylation
 - [b] N-demethylation & Reduction
 - [c] N-oxidation and N-dealkylation
 - [d] Hydrolysis and N-dealkylation

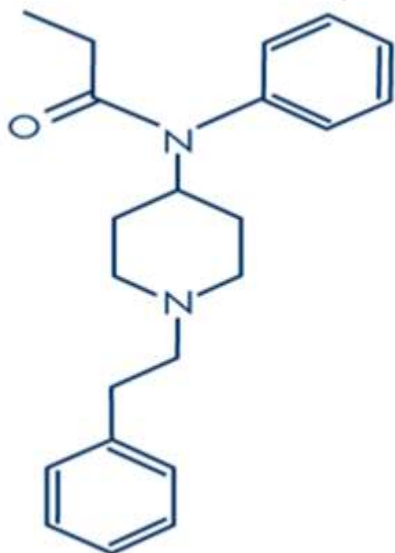
- 16 Solanaceous alkaloids are the esters of bicyclic amino alcohol that is _____.
- [a] 3-hydroxy tropane
 - [b] 2-hydroxy tropane.
 - [c] 4-hydroxy tropane
 - [d] 6-hydroxy tropane

- 17 Which of the following NSAIDS belong to aryl and heteroaryl propionic acid class
- [a] Piroxicam
 - [b] Nabumetone
 - [c] Aspirin
 - [d] Naproxen

18 Select the benzisoxazole and piperidine containing drug from the following

- [a] Risperidone
- [b] Loxapine
- [c] Clozapine
- [d] Sulpiride

19 Identify the drug



- [a] Morphine
- [b] Meperidine
- [c] Levorphanol
- [d] Fentanyl

20 Which of the following is an example of NSAIDs belonging to Indole Acetic acids?

- [a] Indomethacin
- [b] Aspirin
- [c] Ibuprofen
- [d] Naproxen

Q.2 Answer any two of the following three questions.

(20)

Answer the following –

(5)

A [i] Discuss SAR of Morphine analogues with suitable examples. (Draw structures wherever required.)

(5)

[ii] Discuss the influence of Optical and Geometrical isomerism on biological activity of drugs along with examples.

- B** i) Give the chemical classification of α -adrennergic agonist with suitable examples. Draw the structure of at least one example from each class. (5)
 ii) Describe the development of first generation β -blocker, propranolol. Support your answer with relevant structures. (5)

- C** Classify anticonvulsants based on their chemical structures. Give any one suitable example with structures from each class. Outline the metabolic scheme of phenytoin and indicate the metabolites responsible for toxicity. Depict the synthesis of Ethoxsuximide indicating the reagents and reaction conditions used. (10)

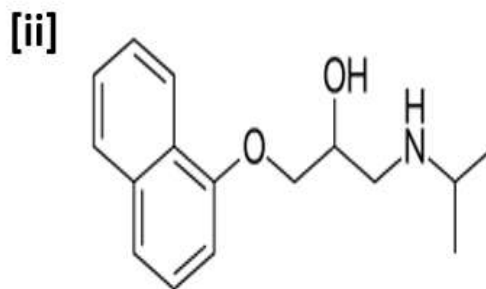
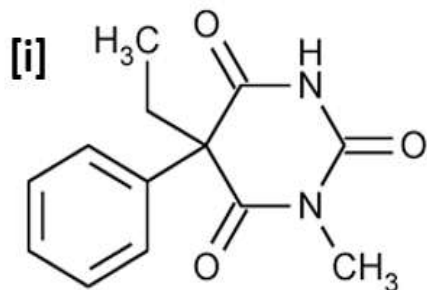
Q.3 Answer **any seven** of the following nine questions. (35)

- A** The list of sympathomimetic agents given below includes both selective and non-selective agents. Draw their structures and classify them as selective or non-selective. For those that are selective, state the receptor subtype. Clonidine, Isoproterenol and Xylometazoline. (5)
- B** Match the following drugs to their chemical classes- (5)

	Drug		Chemical class
1.	Glutethimide	a.	carbamate derivative
2.	Meprobamate	b.	alcohol derivative
3.	Ethchlorvynol	c.	glutarimide derivative
4.	Zolpidem	d.	triazolo-fused derivative
5.	Alprazolam	e.	imidazopyridine derivative

- C** Give mechanism of action and uses of Salbutamol. Outline its synthesis along with the reaction conditions and necessary reagents. (5)

- D** Predict any two Phase-I and one Phase -II metabolites for each of the following (draw structures): (5)



- E** Match the following with respect to their chemical class and mechanism (5)

Sr. No.	Name of Drug		Column A		Column B
1	Tacrine	i	Contains Pyridine nucleus	a	Long acting AChEI
2	Echothiophate	ii	Acridine	b	Direct acting cholinomimetic agent
3	Physostigmine	iii	Carbamoyl choline	c	AChE reactivator
4	2-PAM	iv	Indole alkaloid	d	Reversible Carbamate AChEI
5	Carbachol	v	Organophosphate	e	Anti-Alzheimer agent

- F** Discuss ultra short acting barbiturates and dissociative anaesthetics with examples. (5)

[Draw structures]

- G** Discuss the effect of substitutions at the 1,2 and 4 positions on the phenothiazine ring on their antipsychotic activity. Draw the protonated form of chlorpromazine and compare the basicity of the two nitrogens in the structure. (5)

- H** [i] Discuss factors affecting drug metabolism (3)
[ii] Enlist Phase i metabolic reaction pathways (2)

- I** Classify the parasympatholytic agents based on their chemical structures with suitable examples. Discuss the metabolism of atropine. (5)
