



Important Instructions to examiners:

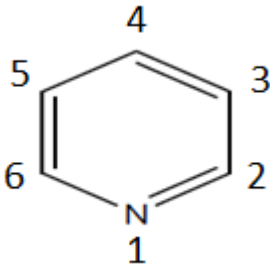
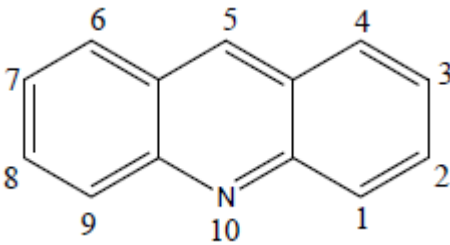
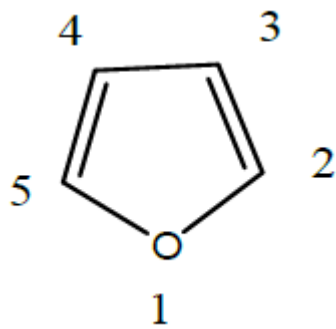
- 1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.
- 2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
- 3) The language errors such as grammatical, spelling errors should not be given more Importance (Not applicable for subject English and Communication Skills).
- 4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by candidate and model answer may vary. The examiner may give credit for anyequivalent figure drawn.
- 5) Credits may be given step wise for numerical problems. In some cases, the assumed constant values may vary and there may be some difference in the candidate's answers and model answer.
- 6) In case of some questions credit may be given by judgement on part of examiner of relevant answer based on candidate's understanding.
- 7) For programming language papers, credit may be given to any other program based on equivalent concept.

**MODEL ANSWER**

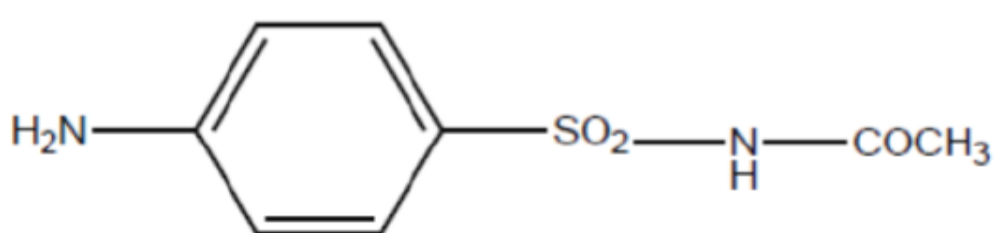
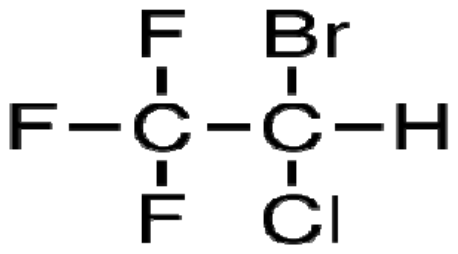
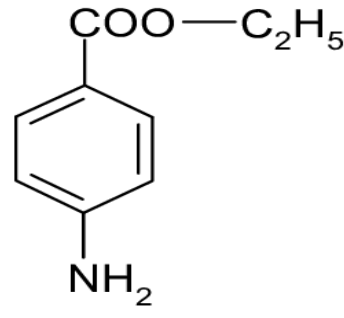
WINTER – 19 EXAMINATION

Subject Title: PHARMACEUTICAL CHEMISTRY-II

Subject Code: 0812

1	Attempt any <u>EIGHT</u> of the following:	16 M (8X2M)
1 a)	Give structure and method of numbering for (any two) (i) Pyridine  (ii) Acridine  (iii) Furan 	1 M each



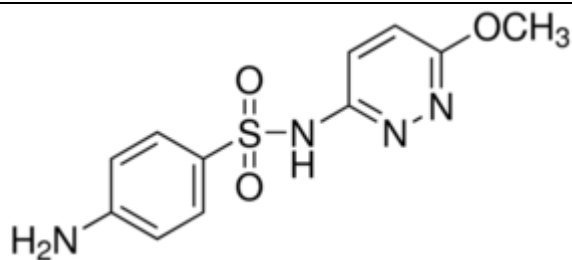
1	<p>b) Draw structure from given chemical name. (any two)</p> <p>(i) N-acetyl sulfanilamide</p>  <p>(ii) 2-Bromo, 2-Chloro-1,1,1-trifluoroethane</p>  <p>(iii) Ethyl – P- amino benzoate</p> 	1 M each
1	<p>c) Write name and structure of the drug containing following heterocycle. (any two)</p> <p>(i) Pyridazine</p> <p>Name of drug: Sulfamethoxy pyridazine, Hydralazine</p> <p>Structure Sulfamethoxy pyridazine</p>	1 M each

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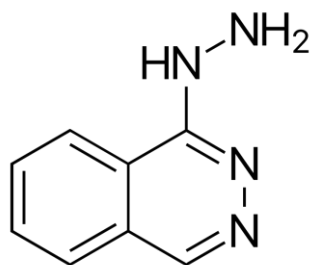
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OR

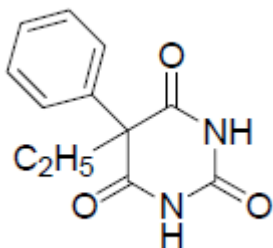
Structure: Hydralazine



(ii) Barbituric acid

Name of drug: Phenobarbitone

Structure:



(iii) Penam

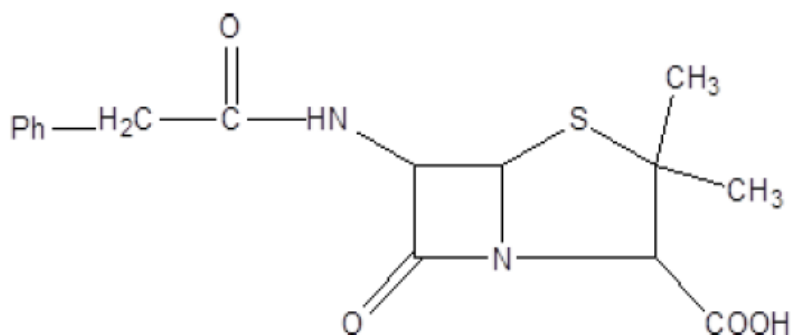
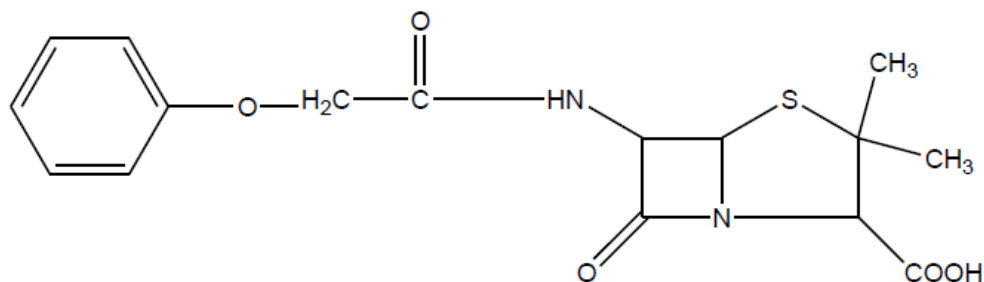
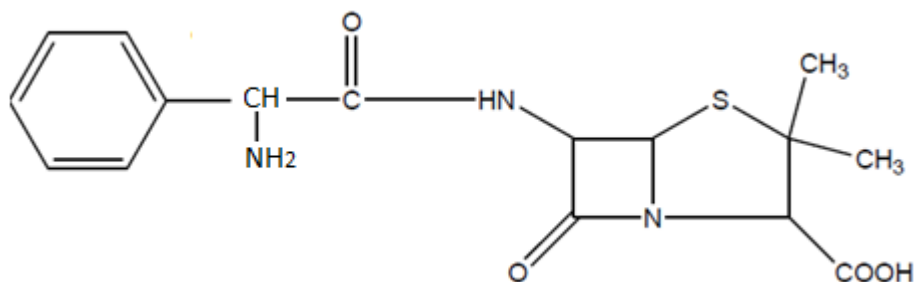
Name of drug: Penicilline-G, Penicilline-V, Ampicillin,

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Structure:**Penicilline-G****OR****Penicilline-V****OR****Ampicillin**

**MODEL ANSWER**

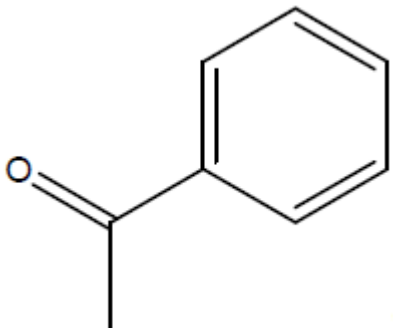
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1	<p>d) Define the following terms with example (any two)</p> <p>(i) Cardiotonic: The drugs or compounds which increase force of contraction without increasing its oxygen consumption are known as cardiotonic e.g. Digitalis, stropanthus like Digoxin, Digitoxin, Gitoxin.</p> <p>(ii) Vasodilator: These are the drugs which produces dilation of blood vessels by relaxing smooth muscle cells. e.g. Hydralazine, Minoxidil, Nifedipine, Verapamil, Nitroglycerine, Losartan, Prazosin, Doxazosin</p> <p>(iii) Antidepressants Antidepressants are drugs which counteract or overcome mental depression. These drugs are therapeutically useful in a variety of cases pertaining to mentally ill patients. Mental depression is a phenomenon which may arise in normal individuals or in mentally ill persons. E.g. Imipramine, Amitriptyline, Nortriptyline, Phenelzinesulphate, Isocarboxid, Tranylcypromine, Mitrazapine, Trazodone</p>	1 M each
1	<p>e) Give two brand names of following drugs (any two)</p> <p>(i) Paracetamol: Tylenol, Calpol, panadol, crocin, metacin, valadol, paldesic, Dolo</p> <p>(ii) Metronidazole: Aristogyl, Flagyl, Metrogyl, Aldezol, Unimezol</p> <p>(iii) Salbutamol: Ashtalin, Respira, Salbetol, Ambrodil, Sobrex,, Salbuton, Asthasol</p>	1 M each
1	<p>f) In what dosage form the following drugs are given (any two)</p> <p>(i) Insulin :</p> <ol style="list-style-type: none">1) Insulin Injection,2) Insulin Injection Biphasic3) Neutral Insulin Injection4) Globin zinc Insulin Injection5) Isophane Insulin Injection6) Protamin zinc Insulin Injection7) Insulin zinc Suspension <p>(ii) Mebendazole</p> <ol style="list-style-type: none">1) Mebendazole Tablet2) Mebensazole Syrup <p>(iii) Procaine : Procaine Injection</p>	1 M each



1	<p>g) Write structure of the following groups (any two)</p> <p>(i) Benzoyl</p> <div style="text-align: center;"> OR $\text{—CO—C}_6\text{H}_5$</div> <p>(ii) Vinyl</p> <div style="text-align: center;">—CH=CH_2</div> <p>(iii) Amino</p> <div style="text-align: center;">—NH_2</div>	1 M each
1	<p>h) Give uses of Evans blue and Indigo-carmine.</p> <p>Evans blue:-</p> <ol style="list-style-type: none">1) Evans Blue Dye is a di-azo compound and has been the principal method of determining blood volume in humans and animals.2) The dye combines firmly with plasma albumin when injected into the blood stream and leaves the circulation very slowly. <p>Indigo-carmine.</p> <ol style="list-style-type: none">1) It is administered intravenously to test renal function (by estimating the rate of excretion in urine) & to locate the urethral orifices.2) In the lab it is used as coloring agents.	1 M each
1	<p>i) Classify antitubercular drugs with examples.</p> <p>Classification</p> <ol style="list-style-type: none">i) p-amino salicylic acid derivative – e.g. PASii) Pyridine derivatives – e.g. Isoniazid, Ethionamide	2 M



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- iii) Pyrazine derivatives- e.g. Pyrazinamide
- iv) Ethylene diamine derivatives – e.g. Ethambutol
- v) Antibiotics – e.g. Cycloserine, Streptomycin, Rifampicin

OR

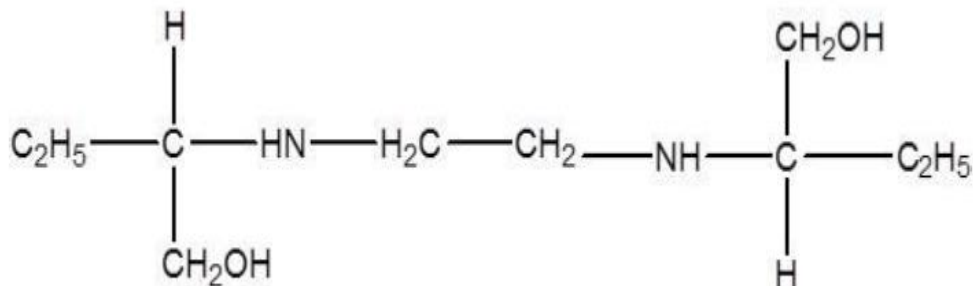
- i) First line drugs: e.g. Isoniazid, Rifampin, Ethambutol, Pyrazinamide, Streptomycin, Thioacetazone etc.
- ii) Second line drugs e.g. Ethionamide, Kanamycin, capreomycin, Cycloserin, Para amino salicylic acid etc.
- iii) Third line drugs e.g. Clarithromycin, Thioacetazone

OR

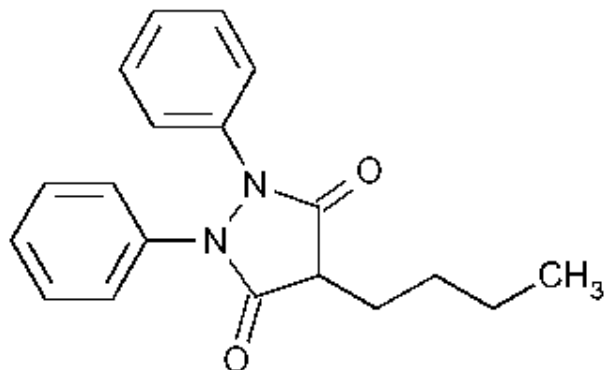
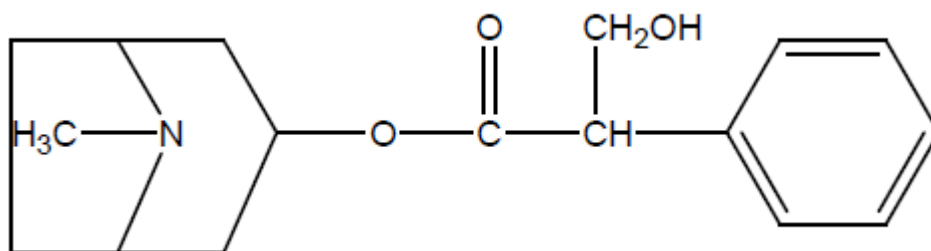
- 1. **Synthetic anti-tubercular drugs:** Para Amino Salicylic acid (PAS), Isoniazide, Ethambutol, Pyrazinamide, Ethionamide
- 2. **Antibiotics:** Streptomycin, Cycloserine, Rifampin, Clarithromycin

1 j) Write structure of the following drugs. (any two)

(i) Ethambutol



1 M
each

**(ii) Phenbutazone****(iii) Atropine**

1	k) Name the drug present in following brands. (any two) (i) Mebex: Mebendazole (ii) Valium: Diazepam (iii) Corex: Chlorpheniramine maleate and Codeine phosphate	1 M each
1	l) Write uses of the following (any two) (i) Thiambutosine 1. It is use as antileprotic drug 2. It is also used as a second line drug in dapsone resistant cases. (ii) Thyroxin 1. Treatment of metabolic insufficiency. 2. Treatment of Hypothyroidism.	1 M each



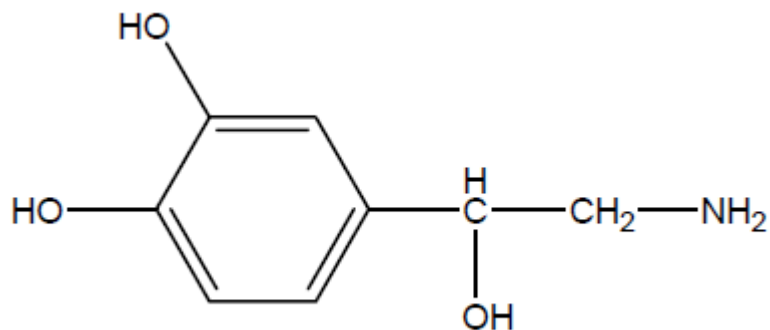
	<p>3. Treatment of thyroid carcinoma.</p> <p>4. Treatment of obesity.</p> <p>5. It increases metabolism of carbohydrates, protein.</p> <p>6. Rarely used in the treatment of male infertility and some gynaecological disorders.</p> <p>7. It decreases serum cholesterol level.</p> <p>(iii)Thrombin</p> <p>1. Blood Coagulant.</p> <p>2. Topically to control minor oozing due to superficial cuts.</p> <p>3. Orally to prevent GIT bleeding.</p>	
2	Attempt any <u>FOUR</u> of the following:	12M (4X3M)
2	<p>a) Classify Antimalarial drugs. Give structure of chloroquine</p> <p>Classification:</p> <p>a) Alkaloids – e.g. Quinine</p> <p>b) 4-amino quinolines – e.g. Chloroquine, Amodiaquine</p> <p>c) 8-amino quinolines – e.g. Primaquine</p> <p>d) 9- aminoAcridine : e.g. Mepacrine</p> <p>e) Biguanides – e.g. Proguanil</p> <p>f) Pyrimidines – e.g. Pyrimethamine, Trimethoprim</p> <p>g) Miscellaneous – e.g Protonsil, Dapsone, Artesunate, Artemether etc.</p> <p>Structure of Chloroquine :</p> <p><chem>CCN(CC)CCCCNC1=CC=C2C=C(Cl)N=CN=C12</chem></p>	2 M Classifi cation, 1M- Structu re-
2	<p>b) Name one drug used for :</p> <p>(i) Candidiasis: - Nystatin, Amphotericin-B, Fluconazole, Ketoconazole, Itraconazole, Clotrimazole.</p>	1 M each



	<p>(ii) Amoebiasis: Emetine, Clioquinol, Diiodohydroxyquinoline, Metronidazole, Tinidazole, Ornidazole, Carbarsone, Diloxanide furoate, Paramomycin, Erythromycin.</p> <p>(iii) Leprosy : Dapsone, Rifampicin, Clofazimine, Thiambutosine, Solapsona, Thiacetazone.</p>	
2	<p>c) Classify Adrenergic drugs. Draw structure of any one Catecholamine.</p> <p>The adrenergic drugs can be classified based on their chemical structure.</p> <ol style="list-style-type: none">1) Catecholamines e.g : Adrenaline, Nor-adrenaline, Isoprenaline2) Non-Catecholamines e.g. Phenylephrine, Salbutamol, Terbutaline, Ephedrine, Pseudoephedrine.3) Imidazoline derivatives eg. Naphazoline, Tetrahydrozolum <p>OR</p> <ol style="list-style-type: none">1. Vasoconstrictors (↑ B. P.): Noradrenaline (Norepinephrine), Dopamine, Ephedrine etc.2. Cardiac stimulants: Dopamine, Adrenaline, Isoprenaline3. CNS stimulants: Amphetamine4. Smooth muscle relaxants: Adrenaline, Isoprenaline, salbutamol etc.5. Drugs used in allergic reactions: Ephedrine6. Local vasoconstrictor/ nasal decongestants: Phenylephrine, pseudoephedrine7. Anorectics: Amphetamine, Phentermine. <p>Catecholamine: (Any one Structure will carry ONE mark)</p> <p>Adrenaline</p> <p>OR</p>	2 M Classifi cation, 1M- Structu re-

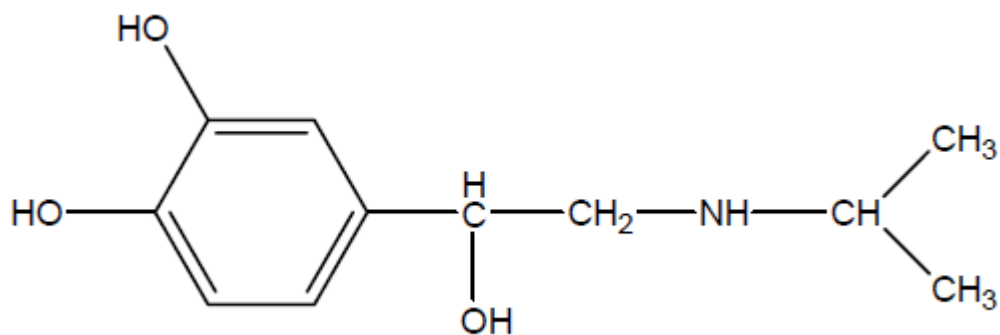


Nor adrenaline



OR

Isoprenaline

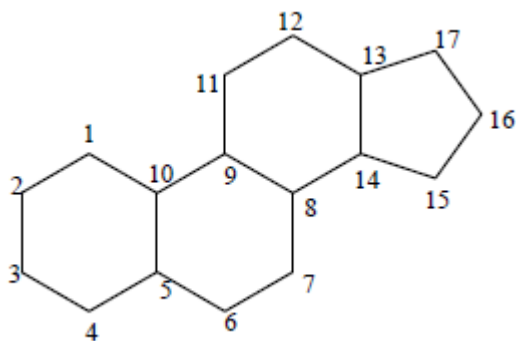


2

d) Draw the basic steroidal nucleus with numbering. Give properties and uses of testosterone.

1 M
each

Basic steroidal nucleus:



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	<p>Properties:</p> <ol style="list-style-type: none">1. It occurs as an odorless, white crystalline powder.2. It is very slightly soluble in water, freely soluble in alcohol.3. It is dextrorotatory. <p>Uses of testosterone :</p> <ol style="list-style-type: none">1. It has both androgenic and anabolic activity. Its primary use is as androgen replacement therapy in men at maturity age in case of testosterone deficiency.2. It is useful in certain anemias, osteoporosis and to stimulate growth in undergrown boys.3. It is used to increase athletic performance and maintain muscle tone.4. Used in palliative treatment of disseminated breast cancer in postmenopausal women.5. Used in treatment of gynaecomastia.	
2	<p>e) Define diuretics? Give any one method of classification for diuretics with example.</p> <p>Diuretics: Drugs which promote excretion of water & electrolytes from body through kidneys in the form of urine are called diuretics.</p> <p>Classification:-</p> <ol style="list-style-type: none">1) Water & Osmotic agents<ol style="list-style-type: none">a) Electrolytes:-Sodium & Potassium saltsb) Non electrolytes:- Mannitol, Urea2) Organic mercurials:- Mersalyl acid3) Acidifying agents:-Ammonium chloride, Arginine hydrochloride4) Alpha-beta unsaturated ketones:- Ethacrynic acid5) Purinase & related compound: Caffeine6) Sulphonamides:-<ol style="list-style-type: none">a) Carbonic anhydrase inhibitors-e.g. Acetazolamideb) Benzothiazines: - Chlorthiazide, Hydrochlorthiazidec) Sulphamoyl benzoic acid derivatives e.g. Frusemide7) Endocrine antagonists: (aldosterone antagonists) e.g. Spironolactone8) Miscellaneous agents: - Trimaterene	1M- Define, 2 M Classifi cation,



OR

Diuretics can also be classified as

1) Weak diuretics –

- a) Osmotic diuretics:- Sodium & Potassium salts
- b) Xanthine deri.: - Aminophylline
- c) Carbonic anhydrase inhibitors-e.g. Acetazolamide

2) Moderatly efficacious diuretics: -

- a) Osmotic diuretics: - Mannitol, Sucrose, Glycerol
- b) Benzothiadiazines deri.- Chlorthalidone, Chloroxozone

3) Very efficacious diuretics (High ceiling diuretics) e.g. Frusemide & Ethacrynic acid

4) Potassium sparing diuretics:

- a) Aldostrone antagonists: - Spironolactone
- b) Renal epithelial sodium channel inhibitors: - Trimaterene, Amiloride

2 f) What are antihistaminics? Give classification of antihistaminics with examples.

An antihistaminic is an agent that inhibits the release or action of histamine and can be used to describe any histamine antagonist, but it is usually reserved for the classical antihistamines that act upon the H1 histamine receptor and H2 receptor blockers are used in the treatment of stomach ulcer, gastric ulcer, heart burn etc.

Classification of Antihistaminics:

1. H1 blockers or H1 antagonist:

- a. Aminoalkylethers/Ethanolamines e.g. Diphenhydramine, Doxylamine
- b. Ethylenediamine e.g. Mepyramine, Tripeleennamine, Pyrilamine
- c. Alkylamines/Propylamines e.g. Pheniramine, Chlorpheniramine, Triprolidine
- d. Phenothiazine derivatives e.g. Promethazine, Trimeprazine
- e. Piperazine derivatives. e.g. Meclizine, Cyclizine, Chlorcyclizine
- f. Dibenzocycloheptenes: Cyproheptadine, Azatadine
- g. Second generation antihistaminics: e.g. Cetrizine, Levocetizine, Fexofenadine, Terfenadine

2. H2 Blockers or H2 receptor antagonist e.g. Ranitidine, Cimetidine, Famotidine

3. An inhibitor of histamine release e. e.g. Sodium Cromoglycate

**1M-
Meanin
g**

**2 M
Classifi
cation,**

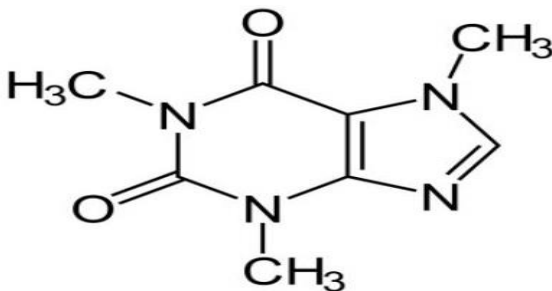


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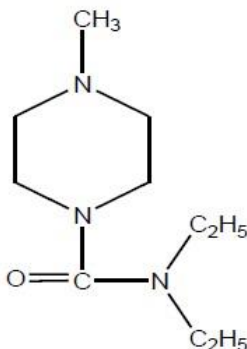
3	Attempt any FOUR of the following:	(12 M) (4x3M)
3	a) Write structure, Give chemical name, properties, and uses of Caffeine? Structure of Caffeine:  Chemical name :- 1,3,7 trimethyl xanthine Properties: <ol style="list-style-type: none">1. It occurs as white crystalline powder having bitter taste.2. It sublimes on heating.3. Sparingly soluble in water but very soluble in boiling water.4. It is a very weak base. Uses: <ol style="list-style-type: none">1. Stimulation of central nervous system.2. Used as diuretic.3. Vasodilation of peripheral vessels.4. Decreases drowsiness.5. Relieve mental fatigue and headache of certain kind like neuralgia, rheumatism, migraine etc.	1 M 1 M 0.5 M 0.5 M
3	b) Name any two halogenated hydroxyl Quinolines. Draw structure and Give chemical name of DEC? Halogenated hydroxyl Quinolines: Iodoquinol (Di-iodohydroxyquinoline), clioquinol(chloroiodoquinol), Cloxyquin (chlorohydroxyquinoline)	1 M each

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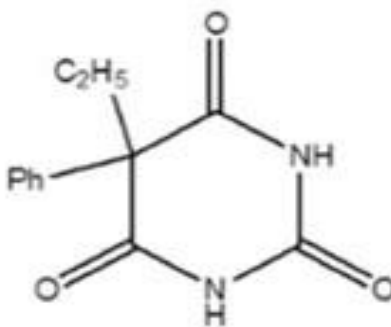
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Structure:**Chemical Name:** N,N-diethyl, 4-methyl, piperazine-1-carboxamide

3 c) Name the two barbiturates used as “General anaesthetics”. Draw structure and Give chemical name of Phenobarbitone.

Barbiturates used as General anaesthetics: Methohexitone, Thiopentone sodium**Structure:****Chemical name:** 5-ethyl, 5-phenyl barbituric acid.**1 M
each**



3	<p>d) Give structure, chemical name and storage condition of Aspirin?</p> <p>Structure:</p> <div data-bbox="589 499 1055 703" data-label="Chemical-Block"><chem>CC(=O)Oc1ccccc1C(=O)O</chem></div> <p>Chemical name: Acetyl salicylic acid</p> <p>Storage conditions: It should be stored in air tight containers, in a cool, dry place.</p>	1 M each
3	<p>e) What are narcotic analgesics? Give classification of narcotic analgesic with examples.</p> <p>Narcotic analgesics</p> <p>Narcotic analgesics are derivatives of opium, semi synthetic or synthetic agents having potent analgesic & narcotic activity and effective for the treatment of severe pain.</p> <p>Classification of Narcotic analgesics:</p> <p>Narcotic analgesic are classified as:-</p> <ol style="list-style-type: none">1. Morphine and related compounds (Natural alkaloids of opium) e.g. Morphine, Codeine.2. Semi-synthetic derivatives of morphine- Heroin, Brown Sugar3. Synthetic Agents- Methadone, Pethidine, Dextropropoxyphen hydrochloride. <p>OR</p> <p>Classification of Narcotic analgesics:</p> <ol style="list-style-type: none">1. Naturally occurring:<ol style="list-style-type: none">a) Morphine and it's analogues: e.g.: Morphine, Codeine2. Synthetic:<ol style="list-style-type: none">a) Morphinan analogues: e.g.: Levorphenolb) Benzomorphan analogues: e.g.: Pentazocinc) 4-Phenylpiperidine analogues: e.g.: Pethidine	1 M 2 M



		d) Phenylpropylamine analogues: e.g.: Methadone, Dextropropoxyphene.	
3	f)	<p>What are vitamins? Give classification of vitamins with examples.</p> <p>Vitamins:</p> <p>Vitamins may be defined as potent organic substances which are essential for normal growth and maintenance of life of animals, which they are not able to synthesize in adequate quantity and their deficiency may cause various diseases.</p> <p>Classification:</p> <p>1. Fat soluble vitamins: E.g.: Vitamin A (Retinol), Vitamin D (Calciferol), Vitamin E (Tocopherol), Vitamin K (Phytomenadione)</p> <p>2. Water-soluble vitamins: E.g.: Vitamin B1 (Thiamine), Vitamin B2 (Riboflavin / Lactoflavin), Vitamin B6 (Pyridoxine), Vitamin B12 (Cyanocobalamin), Folic acid, Nicotinic acid, Vitamin C (Ascorbic acid)</p> <p>3. Fat- water insoluble vitamin: E.g.: Vitamin H (Biotin)</p> <p>OR</p> <p>1. Fat soluble vitamins:</p> <p>a) Are obtained from β-ionone ring: e.g.: Vitamin-A b) Are obtained from steroids/sterol: e.g.: Vitamin-D c) Contain chromane ring: e.g.: Vitamin-E d) Contain naphthaquinone ring: e.g.: Vitamin-K</p> <p>2. Water-soluble vitamins: E.g.: Vitamin B1 (Thiamine), Vitamin B2 (Riboflavin / Lactoflavin), Vitamin B6 (Pyridoxine), Vitamin B12 (Cyanocobalamin), Folic acid, Nicotinic acid, Vitamin C (Ascorbic acid)</p>	<p>1M</p> <p>2 M</p>

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4		Attempt any FOUR of the following:	(12 M) (4x3M)
4	a)	Classify of Antibiotics with examples I. β -Lactam antibiotics: e.g. Benzyl Penicillin, Phenoxymethyl penicillin, Cephaloridine, cephalothin II. Non- β -Lactam antibiotics: 1. Tetracyclines: e.g chlortetracycline, oxytetracycline. 2. Aminoglycoside antibiotics : e.g: Streptomycin, neomycin, gentamicin 3. Macrolide antibiotics : e.g : Erythromicin 4. Ansamycins : e.g: Rifamycin 5. Polyene macrolide antibiotics: e.g: Nystatin, Hamycin 6. Anthracycline antibiotics : e.g :actinomycin, daunorubicin 7. Peptide antibiotics: e.g: Bacitracin. 8. Steroidal antibiotics : e.g : Fusidic acid 9. Nucleoside anitibiotics: e.g : Puromycin 10. Non- classifiable antibiotics : e.g : Chloramphenicol	3 M
4	b)	Explain the terms “Lipid Lowering Agent”. Give properties and uses of Clofibrate. Lipid lowering agents: Hyperlipidemia is the most prevalent indicator for susceptibility to atherosclerotic heart disease & it also describes elevated plasma levels of lipids that are usually in the form of lipoproteins. Drugs which are used to reduce the elevated levels of the lipids in the blood are called Lipid lowering agents. Properties: 1. It is a clear, almost colorless liquid. 2. It has a characteristic odor. 3. It is having acrid taste first and then becomes sweet. 4. It is very slightly miscible in water and miscible in alcohol. 5. It is heat stable.	1 M each



	Uses: <ol style="list-style-type: none">1. It is used in the treatment of type III hyperlipoproteinaemia.2. It is used in the treatment of severe hypertriglyceridemia.3. It is also used in long term treatment and prophylaxis of coronary heart disease.	
4	c) Define anti-neoplastic drugs. Write uses of cyclophosphamide and methotrexate. Definition: <p>Anti-neoplastic agents, also known as Cytotoxic agents are used in the treatment of malignant diseases, when surgery or radiotherapy is not possible or has proved ineffective.</p> Uses of Cyclophosphamide: <ol style="list-style-type: none">1. Used in treatment of solid tumours such as carcinoma of the breast, cervix, lung and ovary.2. Used in combination of other agents in the treatment of lymphomas, myeloma.3. Used as immunosuppressant in tissue and organ transplantation.4. Used in the management of autoimmune disorders such as nephritic syndrome and rheumatoid arthritis. Uses of Methotrexate: <ol style="list-style-type: none">1. Used in the management of acute lymphoblastic leukemia.2. Used as immunosuppressant.3. Given by mouth or by injection as methotrexate sodium.	1 M each
4	d) Define 'Parasympathomimetics'. Give properties and uses of Pilocarpine. Parasympathomimetics: <p>The drug which exert or mimic the pharmacological action / effects of acetylcholine or drugs which bring about stimulation of parasympathetic nervous system are called parasympathomimetics.</p> Properties of Pilocarpine: <ol style="list-style-type: none">1. Pilocarpine is colourless crystals or a white crystalline powder.2. It is odourless.3. It is sensitive to light. Uses of Pilocarpine: It is used : <ol style="list-style-type: none">i) As miotic.ii) To reduce intraocular pressure in glaucoma.	1 M each



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	<p>2. It is odorless and almost tasteless.</p> <p>3. It is very slightly soluble in water and sparingly soluble in alcohol.</p> <p>4. It is stable in neutral or slightly acidic media.</p> <p>5. It is decomposed by strong alkali and sunlight.</p> <p>Uses of Indomethacin:</p> <p>It is used as Analgesic, Anti-inflammatory and Antipyretics for the treatment of –</p> <ol style="list-style-type: none">1. Rheumatoid arthritis2. Acute gout3. Spondylitis4. Dysmenorrhea5. Acute musculo-skeletal disorder6. Pain in malignant disease	0.5 M
5	Attempt any <u>FOUR</u> of the following	12M (4X3M)
5	<p>a) What are Cardiovascular drugs? Classify them with examples.</p> <p>Definition</p> <ul style="list-style-type: none">• Cardiovascular agents include various types of drugs having an action on the heart or on other parts of the vascular system and they have the ability to alter cardiovascular function. <p>OR</p> <ul style="list-style-type: none">• Cardiovascular Agents represents a group of drugs which have direct action on the heart or other parts of the vascular system so that they modify the total output to the heart or the distribution of blood to certain parts of the circulatory system. <p>Classification of cardiovascular agents:-</p> <p>Different kinds of drugs fall under this category like:</p> <ol style="list-style-type: none">1) Cardiotonics (Positive cardiac inotropic agents):- they increase the force of contraction of the myocardium e.g. Cardiac glycosides obtained from Digitalis, Stropanthus, squill such as Digoxin, Digitoxin, Lanatoside C etc.2) Antiarrhythmic drugs:- used to regulate arrhythmic (irregular) contraction of cardiac muscles of the heart. eg. Quinidine, Procainamide, Phenytoin, lignocaine hydrochloride, propranolol etc.	1 M 2M

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	<p>3) Antianginal agents:-which are used in the treatment of angina pectoris, enabling the heart to meet its metabolic demands for oxygen.</p> <p>e.g. Amyl nitrate, Isosorbid nitrate, Verapamil, Propranolol</p> <p>4) Anti-hypertensive:-which regulate the blood pressure by decreasing the elevated blood pressure. e.g. α-methyldopa, clonidine, Pentolinium, Mecamylamine, Reserpine, Guanethidine, Propranalol, Atenolol, Prazosin, Tolazoline, Hydralazine, Minoxidil, Verapamil, Captopril etc.</p> <p>5) Antihyperlipidemic agents: (lipid lowering agents) e.g Clofibrate, Nicotinic acid</p> <p>6) Other drugs which indirectly affect cardiovascular system:</p> <p>a) Anticoagulants eg. Warfarin, Dicoumarol</p> <p>b) Diuretics eg. Furosemide, Hydrochlorthiazide</p> <p>c) Antiplatelet drugs eg. Aspirin</p>	
5	<p>b) Write structure, give chemical name, properties and uses of Penicillin G.</p> <p>Structure :</p> <p>Chemical name: 6-(2-phenyl acetamido) penicillanic acid. OR 6-(2-phenyl ethanoylamino) 2,2-dimethyl penam-3-carboxylic acid.</p> <p>Properties:</p> <ul style="list-style-type: none">• White, finely crystalline powder with faint characteristic odour• Hygroscopic, Dextrorotatory• Very soluble in water• Degraded rapidly in strong acidic and basic media• Inactivated by enzyme <i>penicillinase</i> and gastric juice• Structural modifications are possible <p>Uses:</p> <p>It is used in the treatment of following diseases:</p>	<p>1M</p> <p>0.5M</p> <p>0.5M</p> <p>1M</p>

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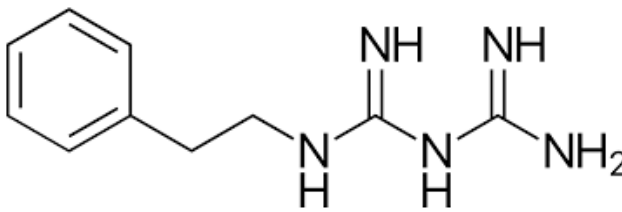
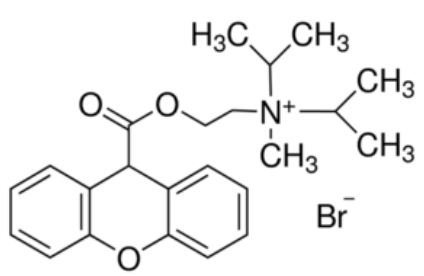
	<ol style="list-style-type: none">1) Respiratory tract infection2) Urinary tract infection3) Gonorrhoea4) Syphilis5) Meningitis6) Enteric infection7) Septicemia.8) Abscesses <p>Prophylactically used before dental and surgical procedures to prevent from developing endocarditis and re-occurrence of rheumatic fever.</p>	
5	<p>c) What are tranquilizers? Write structure, give chemical name and popular trade name of Chlorpromazine.</p> <p>Tranquilizers: -</p> <p>Tranquillizers are CNS depressants which bring about a calming effect and induce a mild sedative effect.</p> <p>These are the agents or drugs which reduce anxiety, induce mental repose, and suppress agitation without significantly diminishing mental alacrity, they may cause some drowsiness but tolerance soon develops to this effect.</p> <p>Structure:</p> <div style="text-align: center;"><chem>CN(C)CCC1=NC2=C(C=C1)S=C3C=CC(=C23)Cl</chem></div>	

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5	<p>d) Name one biguanide derivative used as hypoglycemic agent. Write its structure and uses.</p> <p>Following biguanide derivatives are used as hypoglycemic agent.</p> <p>Phenformin, Metformin</p> <p>Structure of Phenformin:</p>  <p>Uses of phenformin:</p> <ul style="list-style-type: none">• To treat non-insulin dependent diabetes mellitus• To reduce blood sugar level in cortisone induced hyperglycemia• To reduce blood cholesterol in maturity onset diabetes.	1M each
5	<p>e) Write structure of Propantheline bromide, give its chemical name, properties and uses.</p> <p>Structure:</p>  <p>Chemical name:</p> <p>N,N-di-isopropyl-N-methyl-N-[2-(xanthene-9-yl carbonyloxy)ethyl]ammonium bromide</p> <p>Properties:</p> <ul style="list-style-type: none">• It occurs as white or yellowish white powder, odorless and has very bitter taste• Slightly hygroscopic and soluble in water <p>Uses:</p> <ul style="list-style-type: none">• To treat gastric and duodenal ulcers.• To treat intestinal hypermotility.	1M 0.5M 0.5M 1M

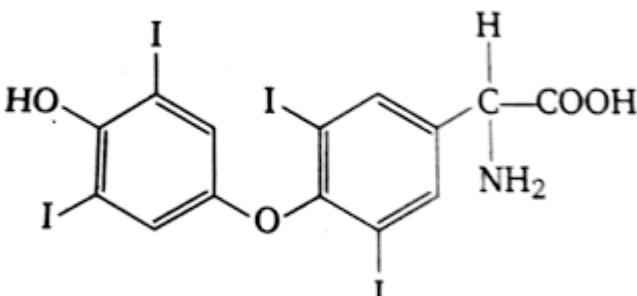
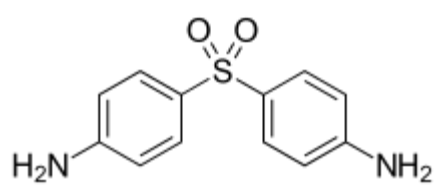


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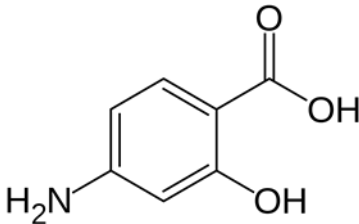
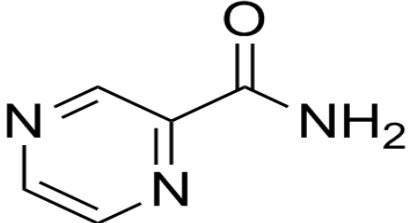
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	<ul style="list-style-type: none">To reduce gastric secretion.To produce reactive hypoglycemia (by stimulating insulin release).To reduce biliary and uterine spasm.To control excessive sweating and salivation.To prevent nocturnal enuresis in children.	
5	<p>f) Name two antithyroid drugs. Draw structure of thyroxine.</p> <p>Following drugs are used as antithyroid drugs: Propylthiouracil, carbimazol, methimazole, methylthiouracil.</p> <p>Structure of thyroxine:</p> 	1M each
6	Attempt any FOUR of the following	16M (4X4M)
6	<p>a) Write the name of the microorganism which is responsible for human Leprosy. Write structure, give chemical name, properties and uses of DDS.</p> <p>Leprosy is caused by slow growing bacteria, <i>Mycobacterium Leprae</i></p> <p>Structure of DDS (Dapsone)</p>  <p>Chemical name:</p> <p>Bis (4-aminophenyl) sulphone or 4,4'-diamino, diphenyl sulphone</p> <p>Properties:</p> <ul style="list-style-type: none">It is white or slightly white crystalline powder.	0.5M 1M 0.5M



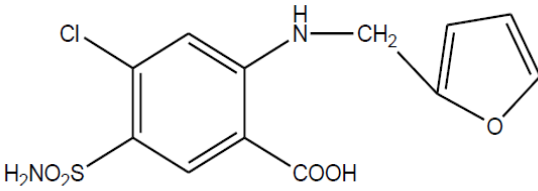
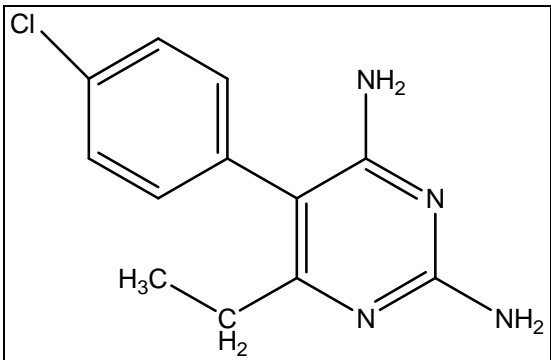
	<ul style="list-style-type: none">• It is odorless.• It is bitter in taste, practically insoluble in water, soluble in alcohol, freely soluble in acetone and dilute mineral acids. <p>Uses-</p> <ul style="list-style-type: none">• Dapsone (diamino-diphenyl sulfone) is a pharmacological medication most commonly used in combination with rifampicin and clofazimine as multidrug therapy (MDT) for the treatment of <i>Mycobacterium leprae</i> infections (leprosy).• Dapsone is used in combination with pyrimethamine in the treatment of malaria.• It is also used in the treatment of dermatitis herpetiformis and relapsing polychondritis• In combination with trimethoprim or pyrimethamine it is used to treat pneumonia.	1M
6	<p>b) Write structure and give chemical name of PAS and Pyrazinamide.</p> <p>Structure of PAS:</p>  <p>Chemical name: p-amino salicylic acid</p> <p>Structure of Pyrazinamide:</p>  <p>Chemical name: Pyrazine-2-carboxamide</p>	1M each

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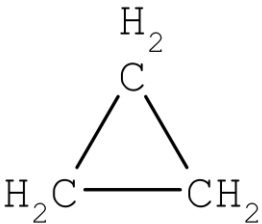
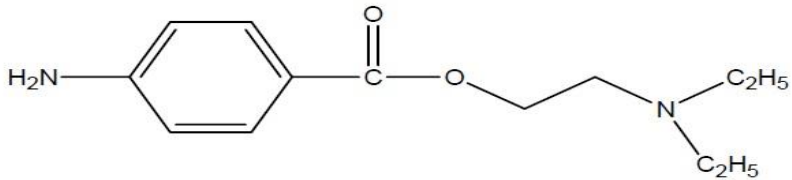
6	<p>c) Write structure, give chemical name, properties and uses of Furosemide.</p> <p>Structure:</p>  <p>Chemical name: 4-chloro-N-furfuryl-5-sulphamoyl anthranilic acid OR 4-chloro-2-furfuralamino-5-sulphamoyl benzoic acid</p> <p>Properties:</p> <ul style="list-style-type: none">• It is white crystalline powder, odorless, tasteless,• Very slightly soluble in water but soluble in solution of alkali hydroxides <p>Uses:</p> <ul style="list-style-type: none">• It is used as diuretic• To treat oedema associated with congestive heart failure, liver cirrhosis and renal diseases• For management of hypertension	1M each
6	<p>d) Draw structure of Pyrimethamine. Give its properties, storage conditions and pharmaceutical uses.</p> <p>Structure:</p> 	1M each

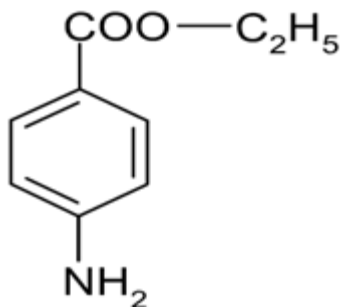
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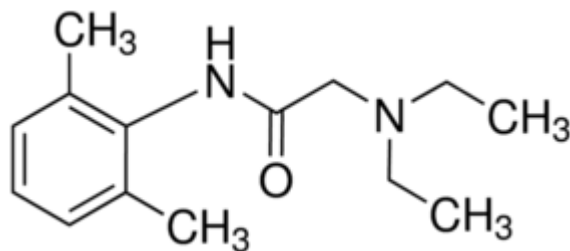
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		Miscellaneous such as Etomidate, Propofol. Structure of cyclopropane: 	1M
6	f)	What are 'Local Anaesthetics'? Write structure, give chemical name of local Anaesthetic drug having following chemical feature. i) Ester ii) Amide Definition: Local anaesthetics are drugs which produce insensitivity in a limited area around the site of application or injection of the drug by preventing generation and conduction of impulses along nerve fibres and nerve ending and the effects are reversible. Structure of drug having i) Ester : (Procaine)  Chemical name : 4-amino-(2-diethyl amino ethyl) benzoate or 2-(Diethyl amino) ethyl-4-amino benzoate.	1M 1.5M each

**Benzocaine -Ethyl – P- amino benzoate**

ii) Amide : (Lignocaine)



Chemical Name: 2-(diethylamino)-N-(2,6-dimethylphenyl)acetamide OR
N-diethylaminoacetyl-2,6-xylidine