



WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 01/ 37

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 any equivalent 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.



WINTER -15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 02/37

Q.1 Attempt any five of the following (5X4)

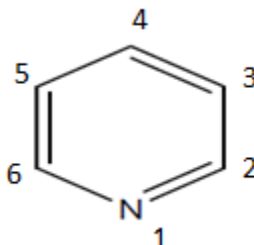
(20)

a) Draw structures and give method of numbering (any four)

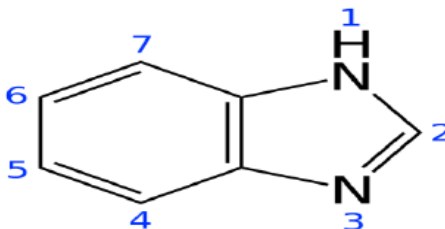
(One mark to each structure with numbering)

Ans:

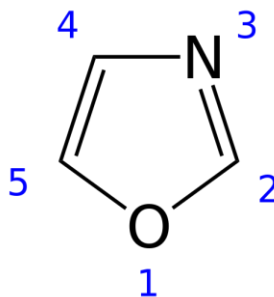
i. Pyridine



ii. Benzimidazole



iii. Oxazole





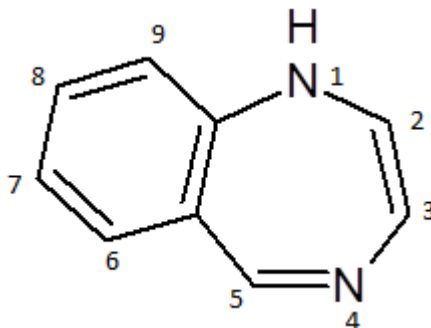
WINTER -15 EXAMINATION

Subject Code: 0812

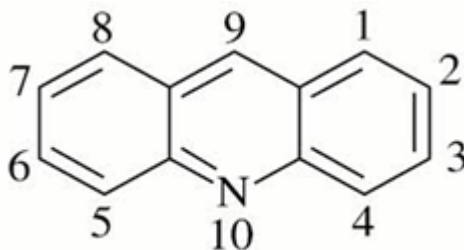
Model Answer

Page No: 03/37

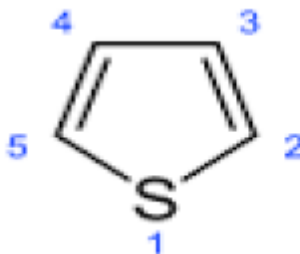
iv. Benzodiazepine



v. Acridine



vi. Thiophene





WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 04/37

b) Write medicinal uses and dosage forms (any two)

(One mark to each medicinal uses and dosage forms)

Ans:

i. Metronidazole

Medicinal uses:-

1. It has antiprotozoal and antibacterial action
2. Used in the treatment of severe intestinal amoebiasis
3. It is active against anaerobic bacteria like streptococci and H-Pylori
4. It is a primary drug in the treatment of hepatic amoebiasis
5. Treatment of *Trichomonous vaginalis*, infection due to *entamoeba histolytica*, *giardia lamblia*

Dosage forms: -

Metronidazole tablet,
Metronidazole gel,
Metronidazole infusion,
Metronidazole syrup,
Metronidazole suspension.

ii. Methyldopa

Medicinal uses:-

1. To control blood pressure in primary hypertension.
2. To control renal hypertension
3. To treat hypertension in pregnancy.
4. To reduce hot flushes in post-menopausal women
5. To treat pheochromocytoma and carcinoid tumor

Dosage forms: -

Methyldopa tablet,
Methyldopa injection.

WINTER -15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 05/37

iii. Ranitidine Hydrochloride

Medicinal uses:-

1. Ranitidine is used to treat and prevent ulcers in stomach and intestine.
2. To control hypersecretory conditions such as Zollinger-Ellison syndrome
3. It is used to treat Gastroesophageal reflux disease (GERD)
4. Relief of heartburn, hyperacidity.

Dosage forms:-

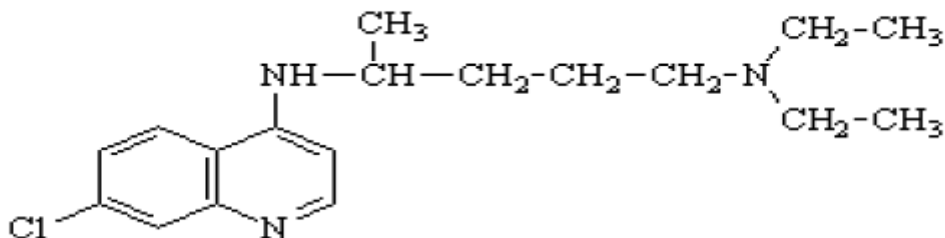
Ranitidine tablet,
Ranitidine injection.

c) Draw structure of drug containing the following heterocycle and name it (any four)
(1/2 mark for structure and 1/2 mark for Name)

Ans:

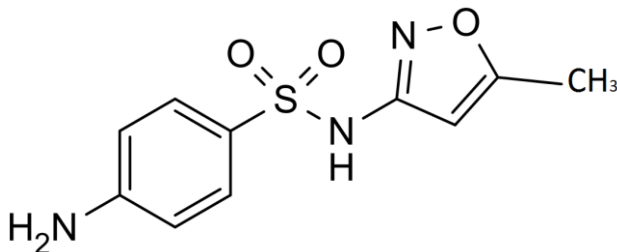
i) Quinoline

Name of drug: Chloroquine,



ii) Isoxazole

Name of drug: Sulphamethoxazole





WINTER -15 EXAMINATION

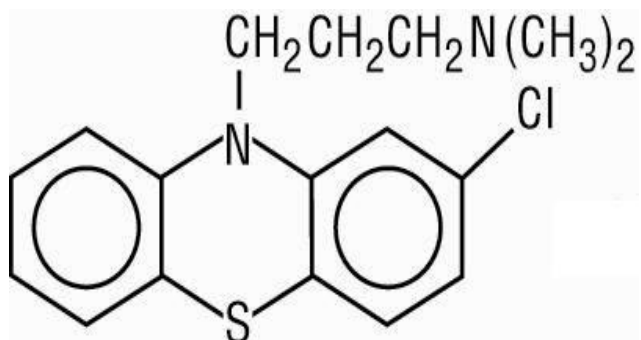
Subject Code: 0812

Model Answer

Page No: 06/37

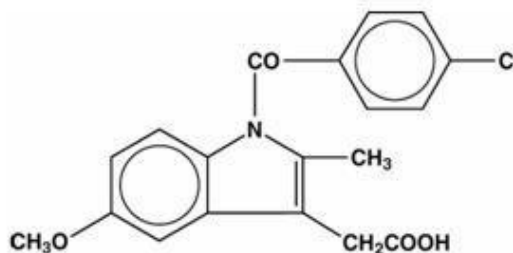
iii) Phenothiazine

Name of drug: Chlorpromazine,



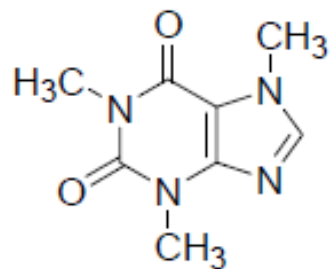
iv) Indole

Name of drug: - Indomethacine



v) Xanthine

Name of drug: - Caffeine





WINTER –15 EXAMINATION

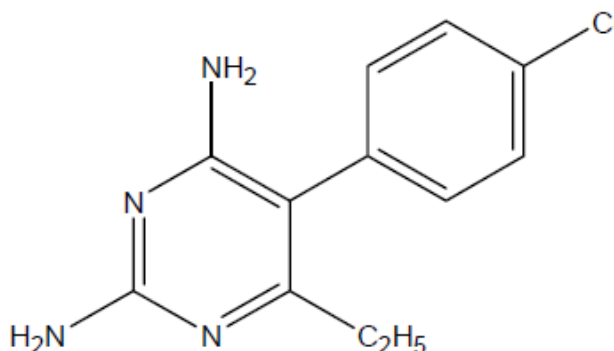
Subject Code: 0812

Model Answer

Page No: 07/37

vi) Pyrimidine

Name of drug: - Pyrimethamine



d) Give stability and storage condition of
(One mark to each stability and storage condition)

Ans:

i) Heparin

Stability:

The aqueous solution is stable for at least 7 years at pH 7 to 8.

It is affected by high temperature and susceptible to microbial growth.

Storage condition

Store in a well closed container, protected from light preferably in sterile, sealed containers.

ii) Insulin

Stability:

Insulin is affected by heat, light and moisture.

Storage condition

All insulin preparations must be stored at low temperatures between 2-8°C in a dark place.

It should not be allowed to freeze.



WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 08/37

e) Define the following terms (any four)

(One mark to each)

Ans:

- i) **Analeptics:** - Are drugs that increase activity in certain areas or the whole of the brain. These drugs are used to stimulate central nervous system, so it reduces narcosis brought about by excess of depressant drugs.
- ii) **Antiseptics and Disinfectants**
Antiseptics: Antiseptics are the agents that are used on living tissues & act as antimicrobial but don't kill them necessarily.
Disinfectants: Disinfectants are agents which are applied on inanimate objects & kill the microbes outright.
- iii) **Antipyretics:** - The drugs which lower the raised (elevated) body temperature and bring it to the normal are called antipyretics.
- iv) **Hypoglycemic agents:** - These are the drugs that decrease the level of glucose in the blood.
- v) **Tranquilizers:** - Tranquillizers are CNS depressants which bring about a calming effect and induce a mild sedative effect.
- vi) **Haemostatics :-** These are substances that promote hemostasis (stops bleeding) i.e. promote clotting of blood.

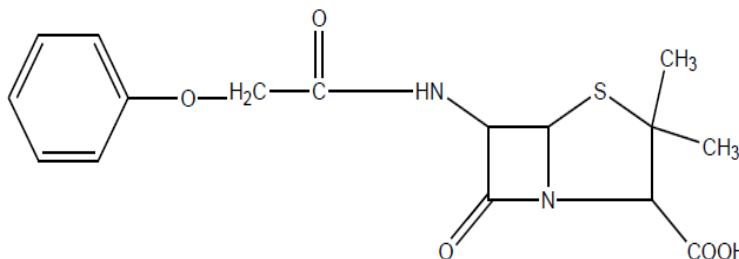
f) Draw structure and medicinal uses of (any two)

(One mark to each structure and medicinal uses)

Ans:

i) **Penicillin V**

Structure:-



WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

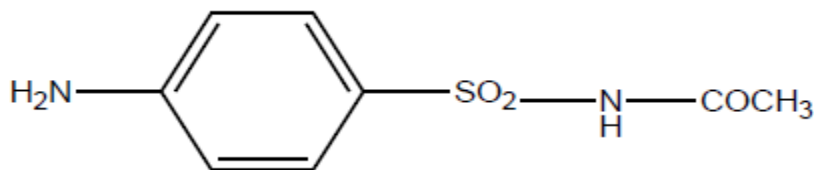
Page No: 09/37

Medicinal uses:-

1. It is used as an antibiotic for several infections.
2. It is useful in infection caused by Streptococcus pneumonia, Streptococcus pyogenes, Species of Neisseria, Actinomyces and Clostridium etc.
3. It is also used to treat infections caused by anaerobes, in meningococcal infection, in gonococcal infections and in syphilis.
4. It is used prophylactically in the infection caused by gonorrhoea.
5. Treatment of Pharyngitis, skin infection etc.

ii) Sulfacetamide :-

Structure:-

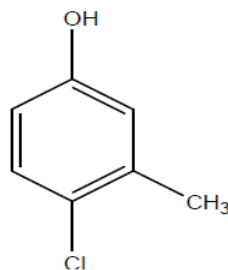


Medicinal uses:-

1. It is an antibacterial agent.
2. Locally it is used in eye infections
3. Systemically it is used to treat urinary tract infection.

iii) Chlorocresol

Structure:-



Medicinal uses:-

1. It is used as an antiseptic and preservative.
2. It is also used as disinfectant. It is commonly dissolved in alcohol in combination with other phenols.



WINTER -15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 10/37

g) Mention two brand names for each (any two)

(One mark for one brand name)

Ans:

i) **Ampicillin** :- Roscillin, Orcillin, Ampilin, Bacipen, Zycillin, Biocilin, Magnacillin, Ampisyn, Ampurin.

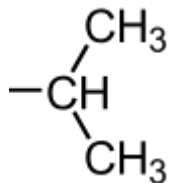
ii) **Paracetamol** :- Crocin, Calpol, Fepanil, Dolo, Pyrexin, Paracip, Aceto, Fevridol.

iii) **Mebendazole** :- Mebex, Mebidex, Mebenth, Lupimeb, Wormin, D-Worm, Eben. Zumin.

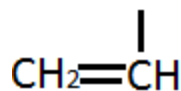
h) Give structure of following groups (any four)

(One mark for each structure)

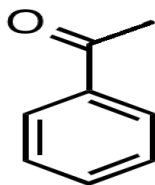
i) Isopropyl :-



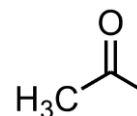
ii) Vinyl



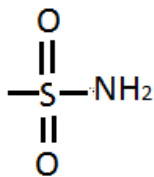
iii) Benzoyl



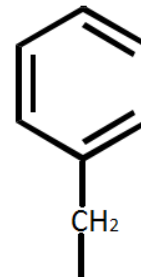
iv) Acetyl



v) Sulphamoyl



vi) Benzyl





WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 11/37

Q No 2. Answer any three of the following (3X4) (12)

a) What is Co-trimoxazole? Explain the mechanism of action and give two brand names of co-trimoxazole.

[One mark for meaning, two marks for mechanism of action, and one mark for brand names]

Ans:

Meaning of Cotrimoxazole:

Cotrimoxazole is the combination of two drugs i.e. Sulphamethoxazole and Trimethoprim. It is a mixture of 5 parts of Sulphamethoxazole and 1 part of Trimethoprim.

Mechanism:-

Sulphonamides block the biosynthesis of folic acid from p-amino benzoic acid. Trimethoprim inhibits the enzyme folate reductase and blocks the conversion of folic acid to tetrahydrofolic acid (THF). THF is the form required for coenzyme synthesis. Combination of Sulphamethoxazole and Trimethoprim by synergism produces bactericidal effect.

When Sulphamethoxazole is given alone, resistance develops to susceptible bacteria and hence higher dose is needed but it produces adverse effect like crystaluria. Trimethoprim also develops resistance when given alone.

Brand names :

Bactrim, Septran, Ciplin, Uritrim, Trimforte, Eusaprim, Omsat, Sulfotrim, Suprim, Microtrim.

b) Draw structures of the following steroids and name the hormone derived from them.

[One mark for structure and one mark for hormone name]

i) Androstane

Name of hormone: - Testosterone

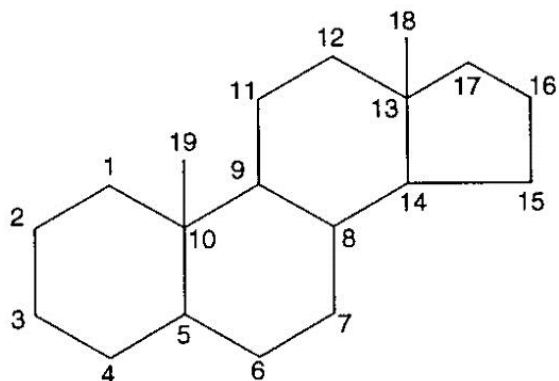


WINTER -15 EXAMINATION

Subject Code: 0812

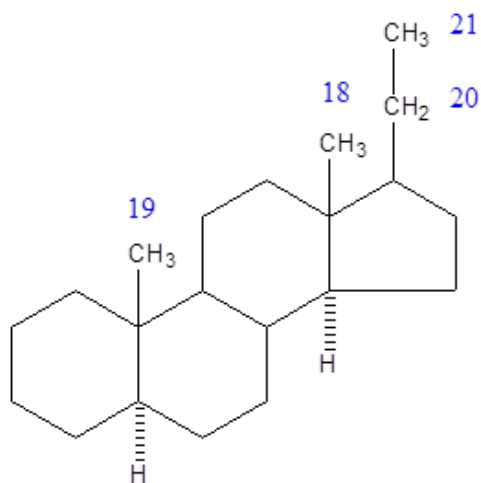
Model Answer

Page No: 12/37



ii) **Pregnane**

Name of hormone: - Progesterone





WINTER -15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 13/37

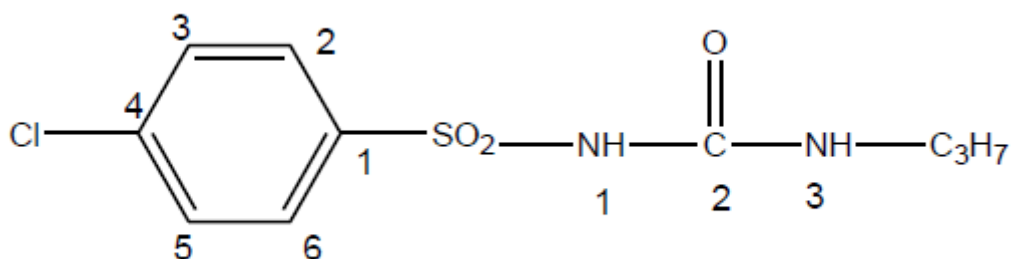
c) Draw structure from following IUPAC nomenclature and name them.

[One mark for structure & half marks for name]

Ans:

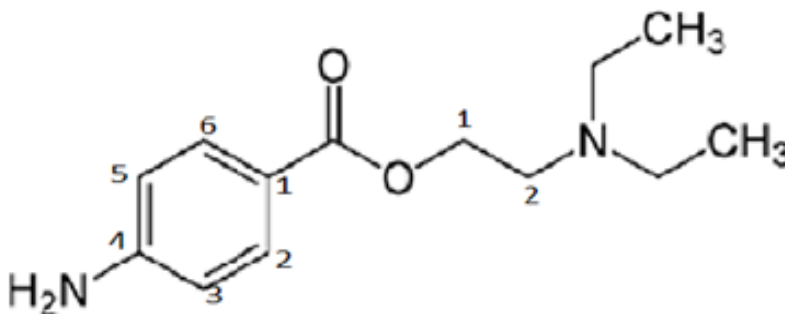
i) 1-(4-chlorobenzene sulfonyl)-3-propyl urea.

Name:- Chlorpropamide



ii) Ethyl - 2 - diethylamino - P- aminobenzoate

Name :- Procaine





WINTER -15 EXAMINATION

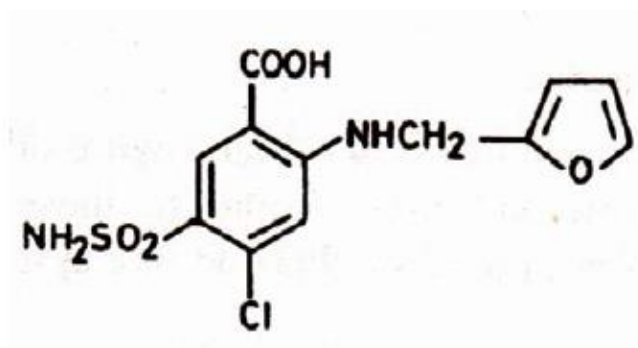
Subject Code: 0812

Model Answer

Page No: 14/37

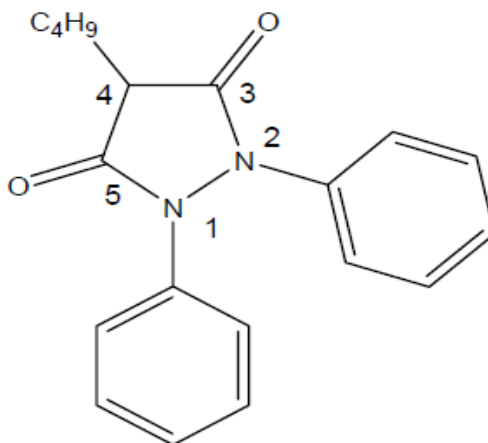
iii) 4-chloro - N - furfuryl - 5 - sulphamoyl anthranilic acid

Name:- Frusemide



iv) 4-butyl -1,2-diphenyl pyrazolidin- 3, 5 - dione.

Name :- Phenylbutazone





WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 15/37

d) What are coagulants and anticoagulants? Give suitable examples. Draw structure of Menadione.

[One mark each for meaning coagulants and anticoagulants, one mark for each example, and one mark for structure]

Ans:-

Coagulants (01 Mark)

Coagulants are the agents which bring about coagulation of blood. They are employed in the treatment of hemorrhagic or threatened hemorrhagic conditions. Such hemorrhagic conditions are caused by many factors, such as platelet defects, plasma coagulation disorder, excessive use of anticoagulant therapy etc.

Anticoagulants :- (01 mark)

The drugs which are able to prolong coagulation time of blood are called anticoagulants. They are used prophylactically and therapeutically in treatment of thrombo-embolic occlusive vascular diseases like venous, thrombosis, pulmonary embolism, and cardiac infarction. They are also used to prevent thrombosis during and after surgical operation, during blood transfusion process & in preservation and storage of blood in blood banks.

Example of coagulant: (1\2 marks)

Dried thrombin
Thrombin
Human fibrinogen
Protamine sulphate
Menadione

Anticoagulants :- (1\2 Marks)

Heparin
Dicoumarol
Nicoumalone
Phenindione
Warfarine



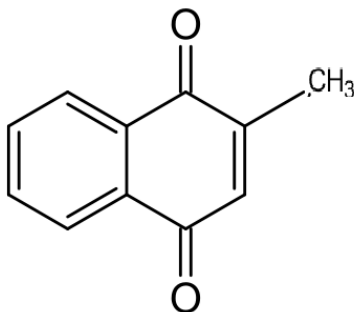
WINTER -15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 16/37

Structure of Menadione. (01 Mark)



e) Define 'Narcotic Analgesics', give their examples. Draw structure of a narcotic analgesic containing piperidine ring and name it.

[One mark for definition, one mark for example, one mark for structure and one mark for name]

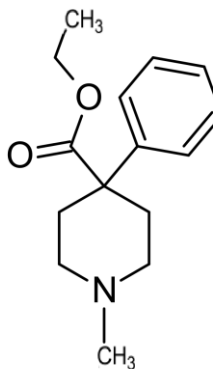
Ans:

Narcotic analgesics: (1 Mark)

Narcotic analgesics are derivatives of opium, semisynthetic, synthetic agents having potent analgesic & narcotic activity and effective for the treatment of severe pain.

Examples : (1 Mark) Morphine, Codeine, Pethidine hydrochloride, Methadone .

Narcotic analgesic containing piperidine ring (1 Mark)



Name:- Pethidine (1 Mark)



WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 17/37

Q3. Attempt any three of the following (4 marks each) (12)

a) Define ‘Antineoplastics’. Classify them with examples.

(One Mark for definition and three marks for classification)

Ans:

Definition: Antineoplastic 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. Also employed as an adjunct to surgery or radiotherapy.

Classification:

- **Alkylating agents-** Ex. Chlorambucil, Busulphan, Cyclophosphamide Cisplatin
- **Antimetabolites-** Ex. Azathioprine, Fluorouracil, Methotrexate, Mercaptopurine
- **Antitumor antibiotics-** Ex. Actinomycin, Mitomycin, Daunorubion
- **Hormones and related compounds-** eg. Adrenocorticosteroids
- **Plant products-** Ex. Vinblastin, Vincristin
- **Miscellaneous-** Ex. Hydroxyurea, Mitobronital

b) Define ‘Antimalarials’. Classify them with examples.

(One Mark for definition and three marks for classification)

Ans:

Anti-malarial drugs: - The drugs which are used in the treatment of malaria caused due to Plasmodium Species like Plasmodium Vivax, P. falcifrum, P.malariae, P. ovale are called as Anti malarial drugs.e.g. Quinine, chloroquine, amodiaquine.

Classification:

- Quinine salts e.g. quinine sulphate, quinine phosphate, quinine dihydrochloride.
- 8-Aminoquinolines e.g. pamaquine, primaquine.
- 4-Aminoquinolines e.g. chloroquine , amodiaquine.
- 9-Aminoacridines e.g. mepacrine.
- Biguanides e.g. proguanil.



WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 18/37

- Diaminopyrimidines. e.g. pyrimethamine.
- Artemisinin & its derivatives.
- Miscellaneous: - They are further classified as mentioned below
 - a) Sulfones & sulfonamides.
 - b) Antibiotics
 - c) Various vaccines
 - d) Insecticides

c) What are thyroid hormones? Give their examples and draw structure of thyroxine.

(Explanation two marks, examples one mark, structure one mark)

Ans:

- The hormones produced by thyroid gland, like triiodothyronin (T3) and thyroxin (T4) that are responsible for regulation of metabolism, treatment of hypothyroidism and treatment of goiter are called as thyroid hormones.
- The thyroid gland controls how quickly the body uses energy, makes proteins, and controls how sensitive the body is to other hormones.
- It participates in these processes by producing thyroid hormones, the principal ones being triiodothyronin (T3) and thyroxin which can sometimes be referred to as tetraiodothyronine (T4).
- These hormones regulate the rate of metabolism and affect the growth and rate of function of many other systems in the body.
- T3 and T4 are synthesized from both iodine and tyrosine.
- The thyroid also produces calcitonin, which plays a role in calcium homeostasis.
- Hormonal output from the thyroid is regulated by thyroid-stimulating hormone (TSH) produced by the anterior pituitary, which itself is regulated by thyrotropin-releasing hormone (TRH) produced by the hypothalamus.



WINTER –15 EXAMINATION

Subject Code: 0812

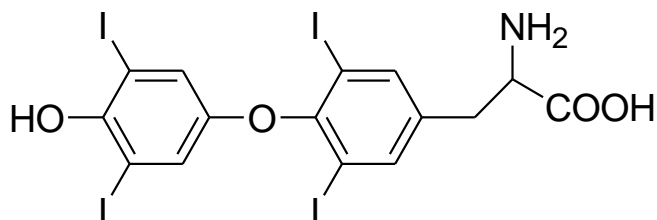
Model Answer

Page No: 19/37

Examples-

1. Thyroxin (T_4)
2. Triiodothyronin(T_3)
3. Calcitonin

Structure of Thyroxine:



d) What are anti-mycobacterial agents? Classify them and draw structure of Ethambutol.

(One Mark for definition, two marks for classification and One Mark for structure)

Ans:

Definition:

The drugs or agents used to treat Mycobacterium infections are known as antimycobacterial agents.

Antitubercular and Anti leprotic drugs are antimycobacterial agents.

Classification:

Classification of Antitubercular drugs:

1. Synthetic drugs

E.g: Para amino salicylic acid, Isoniazid, Pyrazinamide, Ethionamide, Thioacetazone etc.

2. Antibiotics

E.g: Streptomycin, Rifampin, Cycloserin etc.

OR



WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 20/37

It can be also be classified as

1. First line drugs

E.g: Isoniazid, Rifampin, Ethambutol, Pyrazinamide, Streptomycin etc.

2. Second line drugs

E.g: Ethionamide, Cycloserin, Para amino salicylic acid etc.

3. Third line drugs

E.g: Clarithromycin, Thioacetazone, Arginine, Vit.D etc.

Classification of Anti leprotic drugs:

1. Sulphones

E.g: Dapsone, Solapsone

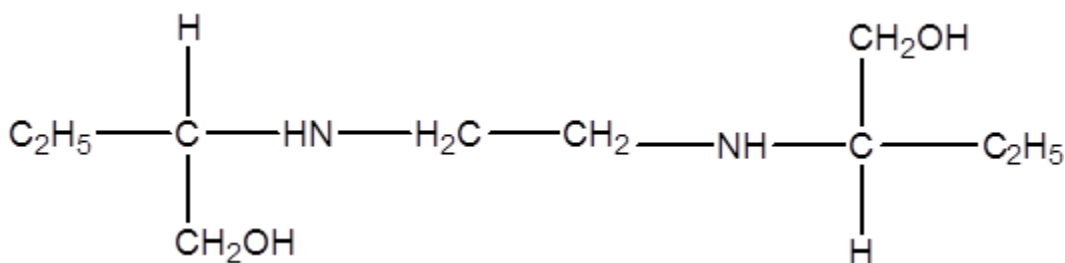
2. Non Sulphones

E.g: Clofazimine

3. Miscellaneous

E.g: Ethionamid

Structure of Ethambutol





WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 21/37

e)What are anti convulsant drugs? Write the drugs belonging to:

- i) Hydantoins**
 - ii) Oxazolidinediones class of Anti convulsants.**
- (One Mark for definition, One and half Marks for drugs)**

Ans:

The drugs which are used in the prevention and control of epileptic seizures called as anticonvulsant drugs.

The drugs belonging to,

1. Hydantoins- Phenytoin, Mephenytoin etc.
2. Oxazolidinediones- Trimethadione, Paramethadione etc.



WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 22/37

Q4. Attempt any three of the followings (4 marks each) (12)

a) Explain ‘Amoebiasis’. Classify them with examples. Draw structure and give IUPAC name of Metronidazole.

(Each sub question carries one mark)

Ans:

Amoebiasis:

Amoebiasis, also known as amebiasis or entamoebiasis, is an infection caused by any of the amoebas of the *Entamoeba* group.

Cause

Caused by the protozoan parasite *Entamoeba histolytica*.

Transmission

Transmission occurs via the fecal–oral route, either directly by person-to-person contact or indirectly by eating or drinking faecally contaminated food or water.

Nature of the disease

The clinical spectrum ranges from asymptomatic infection, diarrhoea and dysentery to fulminant colitis and peritonitis as well as extraintestinal amoebiasis.

Acute amoebiasis can present as diarrhoea or dysentery with frequent, small and often bloody stools. Chronic amoebiasis can present with gastrointestinal symptoms plus fatigue, weight loss and occasional fever.

Classification:

- Drugs from natural resources. E.g. Emetine
- Hydroxy Quinoline derivatives. E.g. Clioquinol, Diiodohydroxyquinoline.
- Nitroimidazoles. E.g. Metronidazole, Tinidazole, Ornidazole.
- Arsenicals. E.g. carbarsone, glycobiarsol & tryparsamide.
- Haloacetamides. E.g. Diloxanide furoate
- Antibiotics. E.g. Paramomycin, Erythromycin.
- Miscellaneous. E.g. Bialamicol hydrochloride, Chloroquine



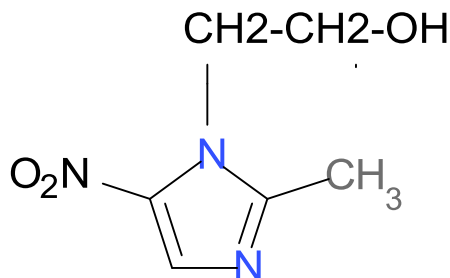
• WINTER –15 EXAMINATION

• Subject Code: 0812

Model Answer

Page No: 23/37

Structure and IUPAC name:



IUPAC Name- 2-(2-Methyl-5-nitroimidazolyl) ethanol OR 1-(2'-hydroxy-ethyl)-2-methyl-5-nitro imidazole.

b) Define lipid lowering agents. Give properties, uses and official preparations of Clofibrate.

(Each sub question carries one mark)

Ans:

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.

Uses:

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.



WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 24/37

Official preparations:

1. Clofibrate I.P, B.P
2. Clofibrate Capsule I.P, B.P

c) Write the uses of:

- iii) **Evans Blue**
- iv) **Congo red**
- v) **Indigo carmine**
- vi) **Fluorescein sodium**

(Each sub question will carry one mark)

Ans:

i) Evans Blue

Uses:

- Evans Blue Dye (T-1824) is a di-azo compound and has been the principal method of determining blood volume in humans and animals for over eighty years.
- The dye combines firmly with plasma albumin when injected into the blood stream and leaves the circulation very slowly.

ii) Congo red

Uses:

- Employed as a diagnostic aid in amyloidosis (In medicine, amyloidosis refers to a variety of conditions in which amyloid proteins are abnormally deposited in organs and/or tissues.)
- Also used as an indicator in lab.

iii) Indigo carmine

Uses:

- It is administered intravenously to test renal function (by estimating the rate of excretion in urine) & to locate the urethral orifices.
- In the lab it is used as coloring agents



WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 25/37

iv) Fluorescein sodium

Uses:

- It is used to detect diseased or damaged areas of cornea.
- It is used to detect foreign bodies in the eye.
- It is used in the fitting of hard contact lenses for ensuring correct fit.
- It is also used to visualizing gall bladder and bile ducts
-

d) Define and classify ‘Antidepressants’. Give Structure, chemical name of Imipramine hydrochloride.

(Each sub question will carry one mark)

Ans:

Antidepressants- Definition:

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.

Classification:

- Betaphenylethylamine analogue, which act as monoamino oxidase inhibitors. E.g. Phenelzine sulphate, Isocarboxid, Tranylcypramine.
- Tricyclic compounds. E.g. Imipramine, Amitriptyline, Nortriptyline.
- Selective serotonin reuptake inhibitors: Citalopram, Fluoxetine
- Atypical Antidepressants: Mirtazapine, Trazodone



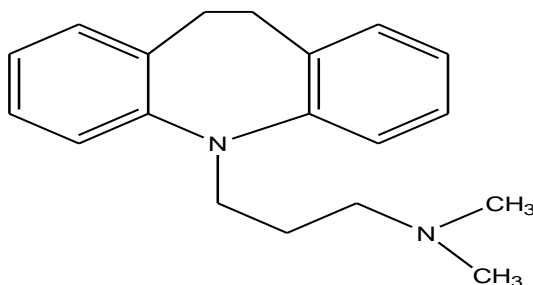
WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 26/37

Imipramine HCl Structure –



Chemical name- 5-(3-Dimethylamino)propyl-10,11-dihydrodibenzoazepine

e) **Define and classify antihistaminics with examples. Draw structure of Diphenhydramine.**
(One mark for Definition, two marks for classification and one mark for structure.)

Ans:

Definition –

Antihistaminic agents:

Antihistaminic drugs are the agents which diminish or prevent several actions of histamine in the body like allergic reaction, rhinitis, urticaria, mild asthma etc.

Classification:

1. H₁ receptor antagonist:-

- Amino alkyl ethers : Diphenhydramine
- Ethylenediamines : Mepyramine, Tripelennamine
- Alkyl amines: Pheniramine, Chlorpheniramine, Bromopheniramine, Triprolidine.
- Phenothiazine derivatives :- Promethazine, Trimeprazine
- Piperazine derivative :- Cyclizine, Chlorcyclizine, Meclizine, Buclizine,
- Miscellaneous: - Cyproheptadine, Diphenylpyraline, Phenindamine tartarate, Antazoline.

2. H₂ receptor antagonist: - Cimetidine, Ranitidine, Burimamide, Metiamide.



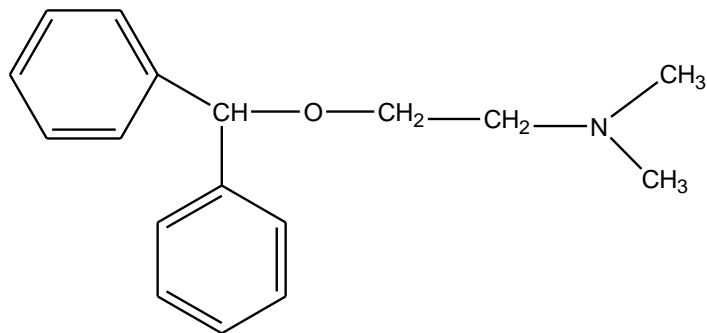
WINTER -15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 27/37

Structure of Diphenhydramine.





WINTER –15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 28/37

Q.5 Attempt any THREE of the following. (3X4) (12)

a) Define and classify vitamins with examples. Give their deficiency symptoms.

(One mark for definition, one mark for classification, two marks for deficiency symptoms)

Ans:

Vitamins :

Vitamins may be defined as potent organic substances which are essential for normal growth and maintenance of life of animals, which are not able to synthesize in adequate quantity.

1. Water soluble vitamins

Sr. No	Name of vitamin	Deficiency
1	Thiamine/Vit. B ₁	Beriberi
2	Riboflavin/Vit. B ₂	Skin lesion, Glossitis, Stomatitis
3	Nicotinic acid/ Vit.B ₃	Pellagra
4	Pyridoxine/Vit. B ₆	Dermatitis
5	Folic acid	Macrocytic anemia
6	Cyanocobalamine/ Vit. B ₁₂	Pernicious anemia
7	Vitamin C	Scurvy

2. Fat soluble vitamins

Sr. No	Name of vitamin	Deficiency
1	Vitamin A	Night blindness
2	Vitamin D	Rickets, osteoporosis.
3	Vitamin E	Anacondas
4	Vitamin K	Bleeding disorders.



WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 29/ 37

- b) What is ‘Anaesthesia’? Distinguish between general anaesthetics and local anaesthetics. Give stability and storage condition of Diethyl ether.
(One mark for definition, two marks for differentiation, one mark for stability and storage.)**

Ans:-

Anesthesia is a condition which is associated with total or partial insensitivity to pain and may be associated with loss of consciousness. Anesthesia is used during surgical procedures.

Distinguish between general anaesthetics and local anaesthetics

GENERAL ANAESTHETICS	LOCAL ANAESTHETICS
1. General anaesthetics are the agents which bring about loss of all modalities of sensation, particularly pain, along with a reversible loss of consciousness.	It may be defined as any substance applied topically or by localized injection or infiltration to dull or block pain sensation.
2. General anesthesia is induced either by inhalation of volatile & gaseous anesthetics like diethyl ether, halothane or parenteral administration of intravenous anesthetics like thiopentone sodium.	Local anesthesia is induced by topical application of drugs to skin or mucous membrane (surface anesthesia) or by injection into area subjected to surgical operation (infiltration anaesthesia) or injection into dual membrane of spinal cord (spinal anesthesia)
3. General anaesthesia is produced before carrying out surgical operation or in obstetrics.	Local Anaesthesia is produced in short surgical procedures & in dentistry.
4. Care of Vital organs essential	Care of Vital organs is not essential
5. E.g. halothane ,cycloprapane etc.	E.g. procaine, lignocaine, benzocaine



WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 30/ 37

Stability and storage condition of diethyl ether:

It is oxidized by atmospheric oxygen and is affected by light. Hence it is stored in tightly-closed, light resistant container in cool place. If cork is used as a closer, then it should be protected with metal foil. An antioxidant like hydroquinone or propyl gallate in suitable proportion should be added.

c) Define antibiotics. Classify them with example

(One mark for definition, three marks for classification)

Ans:

Definition: Antibiotics are chemical substances produced by certain species of microorganisms during their growth on suitable culture media and having the property of inhibiting the growth of or destroying other microorganisms in high dilutions or low concentration.

Chemical Classification:

A) Beta lactam antibiotics

- i) Penicillins
- ii) Cephalosporins

B) Non-Beta lactam antibiotics

- Aminoglycoside antibiotics – e.g. Streptomycin, Gentamycin, Lincomycin
- Polypeptide antibiotics – e.g. Bacitracin
- Polyene antifungal antibiotics – e.g. Nystatin, Amphotericin
- Macrolide antibiotics – e.g. Erythromycin
- Ansamycin – e.g. Rifamycin
- Tetracyclines – e.g. Tetracycline, Oxytetracycline, Chlortetracycline
- Fluoroquinolones- Ciprofloxacin, Ofloxacin etc.
- Miscellaneous – e.g. Griseofulvin, Chloramphenicol, Sodium fusidate



WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 31/ 37

d) Discuss the general IUPAC nomenclature of sulfonamides. Classify the antibacterial sulfonamides with examples.

[Two marks for Discussion of general IUPAC nomenclature, two marks for classification]

Ans: - Nomenclature of sulfonamides

- Substituents on the nitrogen of the sulfonamido nitrogen are named as N1-substituents.
- Substituents on the amino nitrogen are called as N4-substituents.
- Basic parent molecule is the sulfanilamide group.
- In naming a heterocyclic substituted sulfonamide, the point of attachment of the hetero ring is given.

Antibacterials classification

- Used in eye infections.e.g.Sulfacetamide
- Used in intestinal infections.e.g. sulfaguanidine,Phthalyl sulfathiazole,Succinyl sulfathiazole.
- Used in systemic infections.e.g. Sulfadiazine, Sulfadimidine,sulfathiazole etc.
- Used in burn infections.e.g.Silver Sulfadiazine
Used in urinary tract infections.e.g.Sulfafurazole, Sulfaphenazole, Sulfamethaxazole etc.

e) In what dosage form the following drugs are administered?

(One mark to each)

- i) Griseofulvin :- Tablet
- ii) Nystatin :- Ointment
- iii) Tolnafate :- Ointment / Cream / Lotion / Solution.
- iv) Zinc Undecylenate :- Ointment / Powder.



WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 32/ 37

Q.6 Attempt any THREE of the following. (3X4) (12)

a) Define “Helminthiasis. Discuss different types of Anthelmintics with examples.

[One mark for Definition, three marks for classification]

Ans:

Definition:

Helminthiasis also known as **helminth infection** or **worm infection** is a process in which humans and other animals are infected with parasitic worms (helminths).

OR **Helminthiasis** is a disease in which a part of the body is infested with worms such as pinworm, roundworm or tapeworm.

Classification of Anthelmintics :

(Drugs used for Trematodes)

- a] Antimony Compounds- e.g. Sodium antimony tartarate, Stibophen.
- b] Thioxanthenones- e.g. Lucanthone, Hycanthone.
- c] Nitrothiazoles- e.g. Niridazole.

(Drugs used for Cestodes)

- a] Halogenated salicylanilides- e.g. Niclosamide,
- b] Biphenyl compounds- e.g. Dichlorophen.

(Drugs used for Nematodes)

- a] Piperazine derivatives- e.g. Diethylcarbamazine citrate, Piperazine citrate.
- b] Benzimidazole derivatives- e.g. Mebendazole, Thiabendazole.
- c] Miscellaneous- e.g. Pyruvium pamoate, Pyrantel pamoate, Tetramisole, Tetrachloroethylene



WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 33/ 37

b) What are barbiturates? Classify them with examples and draw structure of phenobarbitone.

[One mark for Definition, two marks for classification and one mark for structure]

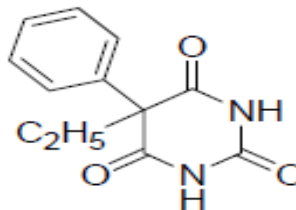
- **Ans:-** These, in general, are derivatives of barbituric acid which is a cyclic ureide formed by the condensation of urea, substituted urea or thiourea with malonic acid ester or substituted malonic acid ester.
- Due to keto-enol tautomerism, it forms water soluble sodium salt.
- Various barbiturates are prepared by substitution of groups at the 1,3 & 5 positions of barbituric acid.
- Substitution of oxygen by sulphur at position 2, gives thiobarbiturates.
- The barbiturates exert a depressant effect on the cerebrospinal axis.
- These drugs depress neuronal activity as well as skeletal muscle, smooth muscles & cardiac muscle activity.

Classification of barbiturates:-

1. Barbiturates

- a) Long acting barbiturates- (More than 8 Hrs) - Phenobarbitone, Mephobarbitone
- b) Intermediate acting barbiturates-(3 to 6 Hrs) - Butobarbital
- c) Short acting barbiturates- (Less than 3 Hrs) - Secobarbitone, Pentobarbitone
- d) Ultra short acting barbiturates (Less than 30 min.)- Thiopentone, Hexobarbitone

Structure of Phenobarbitone:



WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

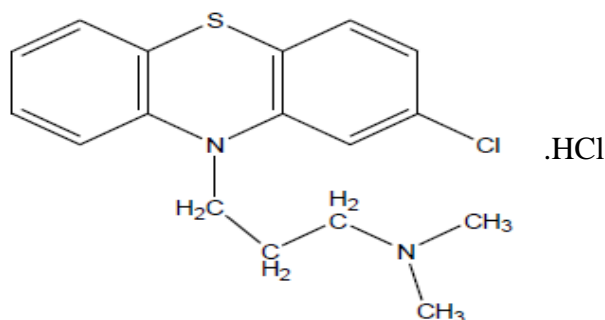
Page No: 34/ 37

c) Give structure, properties, uses and official preparation of Chlorpromazine hydrochloride.

[One mark for structure, one mark for properties, one mark for uses and one mark for official preparation]

Ans:

Structure:-



Properties:-

1. It is a white crystalline powder.
2. It is very bitter in taste.
3. It is soluble in water & alcohol.
4. The Aqueous solutions are stable to heat.

Uses:

Chlorpromazine is a prominent antipsychotic agent.

- It is mainly used to control hyperkinetic states and aggression.
- It is used in the treatment of anxiety, tension, agitation, emotional disturbances
- It is also antiemetic.
- It is also used in the alleviation of intractable hiccup.
- It is generally given alone or in combination with Pethidine and sometimes Promethazine as premedication for surgical or diagnostic procedures.
- It is also used as an adjunct in the treatment of tetanus and is given for controlling acute intermittent porphyria.



WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 35/ 37

Official preparation

Chlorpromazine elixir -BP

Chlorpromazine injection - BP. IP

Chlorpromazine tablet - BP. IP

d) Define “ inflammation”. Give classification of NSAIDS with examples.

[One mark for definition, three marks for classification]

Ans:

Inflammation: -Inflammation is a normal essential protective response to any noxious stimuli that may threaten the host & may vary from a localized reaction to a complex response involving the whole organism. Inflammation is triggered by cell damage.

This results in the exposure of enzymes & subsequent release of prostaglandins & other mediators responsible for inflammation.

Classification:

A. Nonselective COX inhibitors (conventional NSAIDs)

- Salicylates: Aspirin, Diflunisal
- Pyrazolone derivatives: Phenylbutazone, Oxyphenbutazone
- Indole derivatives: Indomethacin, Sulindac
- Propionic acid derivatives: Ibuprofen, Naproxen, Ketoprofen, Flurbiprofen
- Anthranilic acid derivatives: Mephenamic acid
- Aryl-acetic acid derivatives: Diclofenac
- Oxicam derivatives: Piroxicam
- Pyrrolo-pyrrole derivative: Ketorolac

B. Preferential COX-2 inhibitors

Nimesulide, Meloxicam, Nabumetone

C. Selective COX-2 inhibitors

Celecoxib, Rofecoxib, Valdecoxib



WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 36/ 37

D. Analgesic-antipyretics with poor anti-inflammatory action

- Para amino phenol derivatives: Paracetamol (Acetaminophen).
- Pyrazolone derivatives: Metamizol (Dipyrone), Propiphenazone
- Benzoxazocine derivatives: Nefopam

e) What are sympathomimetic agents? How adrenaline and non-adrenaline differ structurally? Give uses and official preparation of adrenaline.

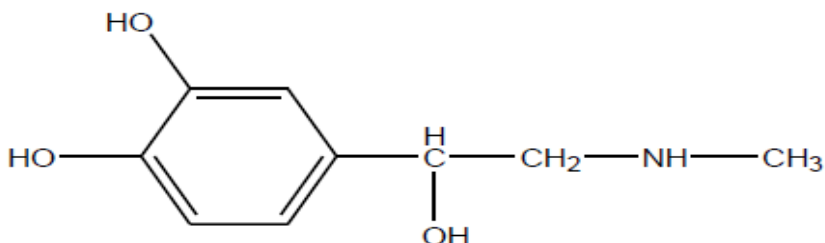
[One mark definition, two marks for both structures, half mark for uses and half mark for official preparations]

Ans:

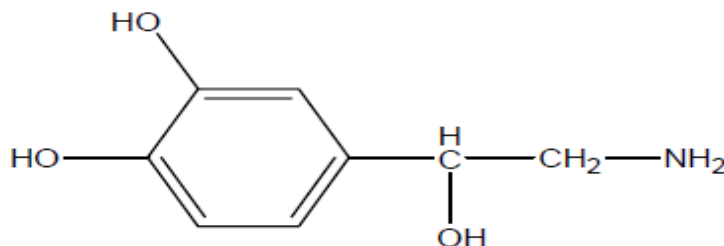
Sympathomimetic agents:

Drugs that mimic the responses obtained as a result of stimulation of the sympathetic or adrenergic nerves are called as Sympathomimetic agents or adrenergic agents.

Adrenaline



Non-adrenaline





WINTER-15 EXAMINATION

Subject Code: 0812

Model Answer

Page No: 37/ 37

Uses of adrenaline:

Adrenaline acts on smooth muscle cells, gland cells and heart to produce responses like those produced by stimulation of corresponding sympathetic nerves.

Adrenaline stimulates heart, increases B.P, and relaxes smooth muscles of intestine and of bronchi.

- Used to relieve bronchial spasms in asthma.
- Topically it is applied to control superficial hemorrhages in operative procedures on nose and throat.
- Because of its nasal decongestant action, it is used in allergic cold conditions, such as acute coryza, hay fever and sinusitis.
- Used in combination with local anaesthetic because of its vasoconstrictor action where it keeps local anaesthetic in required area and thus prolongs the action of local anaesthetic.
- Adrenaline is highly valuable in complete heart block where it can serve to be a lifesaving drug.
- It is also useful in many allergic conditions and gives relief in severe conditions like anaphylactic shock, serum sickness and giant urticaria.

Official preparations of adrenaline

- Adrenaline tartarate injection IP BP
- Lignocaine and Adrenaline injection BP
- Zinc sulphate and Adrenaline eye drops BP