**Programme: Five Year Integrated M.Sc., (Chemistry) Year: III Semester: VI**

**Course Code: ICHT-64 Course Name: Pharmaceutical Chemistry**

**SYLLABUS**

**Unit – I: Basic Pharmaceutical Chemistry**

Definition of the following terms: Drug, Pharmacophore, Pharmacology, Pharmacopeia, Bacteria, Virus and Vaccine. Causes Symptoms and drug for Anaemia, jaundice, cholera, Malaria and Filaria. Indian medicinal plants and uses – Tulasi, neem, keezhanelli, mango, semparuthi, Adadodai and Thoothuvelai.

**Unit – II: Antibacterials**

Sulpha drugs – Examples and actions – Prontosil, sulphathiazole Sulphafurazole. Antibiotics – Definition and action of penicillin, streptomycin, chloramphenicol, erythromycin and tetracycline. SAR – Chloramphenicol only. Antiseptics and disinfectants – Definition and distinction – Phenolic compounds chloro-compounds. Cationic surface active agents.

**Unit – III: Analgesics and CNS stimulants**

Analgesics – Definition and actions. Narcotic and non-narcotic – morphine and its derivatives. Pethidine and methadone – disadvantages and uses. Antipyretic analgesics – Salicylic acid derivatives – paracetamol, ibuprofen. Drugs affecting CNS – Definition, distinction and examples for tranquilizers, sedatives, hypnotics. Psychiatric drugs – LSD, Hashish their effects.

**Unit – IV: Anaesthetics and Drugs for chronic diseases**

Anaesthetics – Definition –local and general. Volatile – Nitrous oxide, ether, chloroform, cyclopropane – uses and disadvantages. Non-volatile – intravenous – thiopendal sodium, methohexitone, propanidid. Causes, medicines and their modes of action on the treatment of cancer, antineoplastics, diabetes, hypoglycemic agents. AIDS, AZT, DDC. Blood; grouping, composition, Rh factor, blood pressure – hypertension and hypotension.

**Unit – V: Vitamins, hormones and enzymes**

Vitamins – Fat soluble vitamins – A, D, B complex, C, E, K, P. hormones – introduction, properties and functions of hormones. Chemical nature of hormones. Physiological functions of some hormones – Adrenaline, Thyroxin, oxytoxin insulin – Sex hormones. Enzymes – Chemical nature, classification, properties, mechanism of action. Action of coenzymes.

**UNITWISE MODEL QUSTIONS - Pharmaceutical Chemistry**

**ANNAMALAI UNIVERSITY**

**Programme: Five Year Integrated M.Sc., (Chemistry) Year: III Semester: VI**

**Course Code: ICHT-64 Course Name: Pharmaceutical Chemistry**

**Time: 3 Hrs Max.Marks:100**

**Part-A (Level-K1) 2 Mark questions**

**Unit - I**

1. Define pharmaceutical chemistry
2. What is meant by a drug?
3. Multiple Choices

The nature and sources of drugs are

1. Plan t and animals b. Synthetic c. minerals d. All the above
2. Multiple Choices

Pharmacology deals with the origin, nature, chemistry, effects and uses of drugs, which includes

1. pharmacognosy b.Pharmacokinetics c. pharmacodynamitcs, Toxicology d. All
2. Define Anaemia
3. How will you control Cholera?
4. How will you prevent filariasis
5. Give the name of mosquito responsible for malaria
6. List the infecting agents of Malaria
7. List the uses of Neem plant

**Part-B (Level-K2 - 3 Mark questions**

1. Explain the term jaundice
2. Describe the different types of jaundice
3. Select a suitable method for treatment of jaundice
4. Classify the malarial parasites and how malaria prevented
5. Compare the uses of neem and keezhanelli
6. Outline the prevention and control of filariasis

**Part-C (Level-K3/Level-K4)  - 5 Mark questions**

1. Apply the knowledge to the various factors involved in causing diseases
2. Prepare a list of organisms responsible for the spread of malaria
3. Show the different types of jaundice
4. Solve the problems of anemia
5. Illustrate the treatment for anemia
6. Sketch the various factors for causing anemia
7. Infer the Indian medicinal plants as medicine
8. Categorize virus and its causes
9. Analyze the various bacteria and their classification
10. Distinguish between virus and bacteria
11. Take part in collection and identification of Indian medicinal plants

**Part-D (Level-K5/ Level-K6 )  - 10 Mark questions**

1. Discuss the uses of Indian Medicinal plants and their uses
2. Summarize the causes, symptoms and treatment for Malaria
3. Design the study of pharmaceutical chemistry – explain in detail

**Unit – II**

**Part-A (Level-K1) - 2 Mark questions**

1. Define Antibacterials
2. What is meant by prontosil?
3. Multiple Choices

*In vitro* and *in vivo* means

1. Laboratory test b. oral administration c. root of drug administration d. All the above
2. Multiple Choices

Antibiotics are obtained from microorganisms such as

 a.Fungi b.antinomycetes c. Baceria d. All the above

5. Define Antibiotics

6. What is meant by Antiseptics?

1. Differentiate between alkylated phenol and chlorinated phenol
2. Give the uses of tetracycline
3. Write the structure of chloramphenicol
4. List the uses of chlroamphenicol

**Part-B (Level-K2)  - 3 Mark questions**

1. Explain Sulpha drugs
2. Describe the different types Penicillin
3. Select a suitable method for differentiate between chloramphenicol
4. Classify the different types of sulpha drugs
5. Compare the uses Antiseptics and disinfectants
6. Outline the uses of chlorinated phenols

**Part-C (Level-K3/Level-K4)  - 5 Mark questions**

1. Apply the classification of antibiotics
2. Prepare a list conditions for an antibiotics
3. Show the different types of Penicillin
4. Solve the different types of Tetracycline and their uses
5. Illustrate the structure of penicillin G
6. Sketch the various rings available in Penicillin G
7. Infer the structure and uses of Streptomycin
8. Categorize chlorinated phenolic compounds as antiseptics
9. Analyze the various factors involving in the action of cationic surface active agents
10. Distinguish between disinfectants and antiseptics
11. Take part in collection and identification Disinfectants used

**Part-D (Level-K5/ Level-K6 )  - 10 Mark questions**

1. Discuss the structure activity relationship present in Chloramphenicol (SAR)
2. Summarize the uses of Cationic Surface active Agents
3. Design the study phenolic compounds as antiseptic – explain in detail

**Unit – III**

**Part-A (Level-K1) - 2 Mark questions**

1. Define Analgesics
2. What is meant by Narcotic analgesics?
3. Multiple Choices

*Morphine is*

1. Narcotic analgesic b. Natural c. Opium d. All the above
2. Multiple Choices

Pethidine is

 a. Synthetic analgesic b. Narcotic c. Meperidine, Demeral d. All the above

5. Define Non-narcotic analgesics

6. What is meant by Antipyretic?

1. Differentiate between Narcotic and non-narcotic analgesics
2. Give the uses of anti-anxiety drugs
3. Write the structure of LSD
4. List the uses of Aspirin
5. What are psychotogenic drugs?
6. What are CNS stimulants?

**Part-B (Level-K2)  - 3 Mark questions**

1. Explain classification of salicylic acid derivatives
2. Describe the preparation of aspirin
3. Select a suitable method for differentiate between anti-inflammatory and antipyretic drugs
4. Classify the different types Non-naricotic analgesics
5. Compare the uses Antipyretic and anti-analgesic drugs
6. Outline the uses of paracetamol

**Part-C (Level-K3/Level-K4)  - 5 Mark questions**

1. Apply the classification of Antipsychotic drugs
2. Prepare a list drugs affecting central nervous system
3. Show the structure and use of Marijuana
4. Solve the difference between Sedatives and Hypnotics
5. Illustrate the structure of LSD
6. Sketch the various pharmacological action of LSD
7. Infer the structure and uses of Salicylic acid derivatives
8. Categorize Salicylic acid derivatives as analgesics
9. Analyze the adverse effects of LSD
10. Distinguish between Marijuana and LSD
11. Take part in collection and identification of various non-narcotic analgesics

**Part-D (Level-K5/ Level-K6 )  - 10 Mark questions**

1. Discuss the action of Narcotic analgesics – using the example of Morphine
2. Summarize the uses of Salicylic acid derivatives as analgesics
3. Design the study Hypnotics and sedatives using Barbiturates

**Unit – IV**

**Part-A (Level-K1) - 2 Mark questions**

1. Define Anesthetics
2. What is meant by Local anesthetics?
3. Multiple Choices

*Chloroform is*

 a. Local anesthetic b. Volatile c. General d. All the above

1. Multiple Choices

Thiopental sodium

 a. non-volatile b. General c. intravenous anesthetic d. All the above

5. Define non-volatile aesthetic

6. What is meant by AIDS?

1. Differentiate between Local and General anesthetics
2. Give the uses of blood grouping
3. Write the structure of Chloroform, nitrous oxide
4. List the uses of Ether as anesthetics
5. What are the disadvantages of dry ether as anesthetics
6. Write the structure of vinyl ether

**Part-B (Level-K2)  - 3 Mark questions**

1. Explain classification of local and general anesthetics
2. Describe the uses and disadvantages of local anesthetics
3. Select a suitable method for differentiate between local and general anesthetics
4. Classify the different types Non-volatile anesthetics
5. Compare the uses thiopental sodium and methohexitone
6. Outline the uses Propanidid

**Part-C (Level-K3/Level-K4)  - 5 Mark questions**

1. Apply the ideal characteristics of an anesthetic
2. Prepare a list local and general volatile anaesthetics
3. Show the structure and use of thiopental sodium, methohexitone
4. Solve the different composition of blood
5. Illustrate the structure of chloro substituted anethetics
6. Sketch the synthesis of Thiopental sodium from malonic ester
7. Infer the structure and uses of mehohexitone
8. Categorize characteristic of local anesthetics
9. Analyze the structure of Cocaine
10. Distinguish between Natural cocaine and synthetic benzocaine
11. Take part in collection and identification of various types of blood grouping

**Part-D (Level-K5/ Level-K6 )  - 10 Mark questions**

1. Discuss the causes, medicines and treatment of cancer
2. Summarize the causes, medicine and treatment methods for diabetes
3. Design the study AIDS and their prevention

**Unit – V**

**Part-A (Level-K1) - 2 Mark questions**

1. Define Vitamins
2. What is meant by hormones?
3. Multiple Choices

*Vitamins are*

1. Accessory dietary factor b. They are not synthesised c. Supplemented through food d. All the above
2. Multiple Choices

Hormones are

 a. Secreted by ductless glands b. decide the gender c. deficiency causes problems d. All the above

5. Define Enzymes

6. What is meant by Co-enzymes?

1. Differentiate between water soluble and water insoluble vitamins
2. Give the uses of enzymes in our body
3. Write the structure of Vitamin A
4. List the uses of Vitamin C
5. Write the structure and use of Vitamin k
6. What is the use of adrenaline?

**Part-B (Level-K2)  - 3 Mark questions**

1. Explain classification and uses of hormones
2. Describe the physiological functions of hormones in our body
3. Select a suitable method for differentiate between Vitamin C and Vitamin A
4. Classify the different types Vitamins
5. Compare the uses water soluble and water insoluble vitamins
6. Outline the uses of insulin

**Part-C (Level-K3/Level-K4)  - 5 Mark questions**

1. Apply the classification of hormones
2. Prepare a list physiological functions of hormones
3. Show the structure and use of Vitamin A
4. Solve the classification of vitamins based on their solubility
5. Illustrate the structure of Vitamin C
6. Sketch the structure of Vitamin H and give its uses
7. Infer the structure and uses of water soluble vitamins
8. Categorize Vitamin B complexes and give their uses
9. Analyze the adverse effects of hormones
10. Distinguish between thyroxin, oxytoxin
11. Take part in collection and identification of various actions of enzymes and co-enzymes

**Part-D (Level-K5/ Level-K6 )  - 10 Mark questions**

1. Discuss the classification and uses of vitamins
2. Summarize the uses of Hormones
3. Design the study of enzymes and coenzymes