

3 Yr. Degree/4 Yr. Honours 1st Semester Examination, 2024 (CCFUP)

Subject : Chemistry

Course: CHEM1051 (SEC)

(Drugs and Pharmaceuticals)

Time: 2 Hours

Full Marks: 40

*The figures in the right hand margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any five questions:

2×5=10

- (a) Name two antifungal agents.
- (b) Draw the structure of ibuprofen.
- (c) To which category of drugs does paracetamol belong? What are the side effects of indiscriminate use of paracetamol?
- (d) Name and draw the structure of an antileprosy drug.
- (e) What are the side effects of diazepam (any two)?
- (f) What is aspirin used for? Outline its synthesis.
- (g) Sulphadiazene is a good medicine for cold and flu. State whether the statement is true or false with reason.
- (h) Name any two central nervous system agents.

2. Answer any two questions:

5×2=10

- (a) (i) Using aniline and chlorosulphonic acid as starting material, outline a synthesis of sulphadiazine. 3
- (ii) Name any two anti microbial agents. 2
- (b) (i) Draw the structure of acyclovir. 2
- (ii) Can acyclovir be used to treat fungal infections? 1
- (iii) A newly invented compound is very effective in treating a particular disease but the metabolites formed from it is carcinogenic. Is it a good idea to use the compound as medicine for the disease? Justify your answer. 1+1

- (c) (i) If one is suffering from seizures: name the medicine which can be prescribed? Draw its structure. 1+1
- (ii) What is the chemical name of phenobarbital? Draw its structure. What is it used for? 1+1+1
- (d) (i) Outline the synthesis of ibuprofen. 2
- (ii) To what class of drug does ibuprofen belong? 1
- (iii) Why should ibuprofen not be administered to patients suffering from vector-borne diseases? 2

3. Answer *any two* questions:

10×2=20

(a) Match the following:

2×5

Group-A

Group-B

- | | |
|------------------------|-------------------|
| I. Zidovudin | P. Antibacterial |
| II. Gyceryl trinitrate | Q. Antibiotics |
| III. Sulphonamides | R. Cardiovascular |
| IV. Dapsone | S. HIV/AIDS |
| V. Chloramphenicol | T. Antileprosy |

- (b) (i) What class of drug penicillin is? 1
- (ii) Who discovered penicillin? 1
- (iii) What is the general structure of penicillin? Also draw the structure of penicillin G. 2+1
- (iv) Starting from suitable starting material how can you synthesize dapsone? 3
- (v) Name an antipyretic and an analgesic drug. 2
- (c) (i) How can you synthesize acyclovir? 4
- (ii) Outline the synthesis of chloramphenicol. Mention two uses of the same. 4+2
- (d) (i) Outline the synthesis of phenobarbital. 4
- (ii) What is sulphacetamide used to treat? Draw its structure and state its chemical name. 1+1+1+3
- Outline its synthesis.