

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:** **$2 \times 5 = 10$**

- (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) Sulphadiazine 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: **$5 \times 2 = 10$**

- (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: $10 \times 2 = 20$
- (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.
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