

B.Sc. 4th Semester (Honours) Examination, 2019

Subject : Chemistry

Paper : SEC-2

(Pharmaceutical Chemistry)

Time: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

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| 1. Answer <i>any five</i> questions from the following: | 2×5=10 |
| (a) What do you mean by analgesic? Give one example. | 1+1=2 |
| (b) Name two antifungal agents and draw their structures. | 1+1=2 |
| (c) How will you synthesise paracetamol? | 2 |
| (d) Name one cardiovascular drug and draw its structure. | 1+1=2 |
| (e) Name one antileprosy drug and draw its structure. | 1+1=2 |
| (f) State true or false: | 1+1=2 |
| (i) Chloramphenicol is an antifungal agent. | |
| (ii) Ibuprofen is an anti-inflammatory agent. | |
| (g) What do you mean by aerobic and anaerobic fermentation? | 1+1=2 |
| (h) Draw the core structure of Cephalosporin. Give one use of this drug. | 1+1=2 |
| 2. Answer <i>any two</i> questions from the following: | 5×2=10 |
| (a) How will you synthesise aspirin and glyceryl trinitrate from appropriate starting material?
Give one use of aspirin. | 2+2+1=5 |
| (b) Name one central nervous system depressant. Describe its synthesis. Give one use of ibuprofen. | 1+3+1=5 |
| (c) Describe the fermentation procedure of ethyl alcohol and citric acid. | 2½+2½=5 |
| (d) Draw the general structure of penicillin. What are the properties of penicillin? | 2+3=5 |

3. Answer *any two* questions from the following:

10×2=20

- (a) (i) Name one antiviral agent and an HIV-AIDS related drug. How will you synthesise them?
- (ii) What are the main classes of antibiotics?
- (iii) What do you mean by antipyretic agents? Give one example. $(2+2+2)+2+(1+1)=10$
- (b) (i) Draw the chemical structure of chloramphenicol. How does it work? What are the uses of this drug?
- (ii) What are the roles of Vitamin B₂ and Vitamin B₁₂ in human body? $(1+3+2)+(2+2)=10$
- (c) (i) Give a comprehensive account of Cephalosporins and provide appropriate examples.
- (ii) Describe the synthesis of chloramphenicol from *p*-nitroacetophenone.
- (iii) Which types of bacteria are killed by streptomycin? $(3+2)+4+1=10$
- (d) (i) Describe the synthesis of ibuprofen from isobutyl benzene.
- (ii) Why is ibuprofen called anti-inflammatory drug?
- (iii) Name any five potent central nervous system (CNS) stimulants and given their structures. $3+2+(2\frac{1}{2}+2\frac{1}{2})=10$
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