

B.Sc. 4th Semester (Honours) Examination, 2021

CHEMISTRY

[Pharmaceutical Chemistry (T-2)]

Paper : UG/CHEM/405/SEC-2

Course ID : 41415

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 possible

1. Answer *any five* questions: 2×5 = 10

- (a) Give schematic diagram showing the typical stages of modern rational drug discovery and development.
- (b) What are antibacterial and antifungal agents?
- (c) Give structure of aspirin. Mention its use as drug.
- (d) State any two requirements for a drug to be an ideal one.
- (e) Why molasses solution is made slightly acidic before fermentation?
- (f) What is prodrug?
- (g) Discuss the health benefits of L-lysine.
- (h) What is ED_{50} ?

2. Answer *any four* questions: 5×4 = 20

(a) Write short notes on any two of the following: 2.5+2.5 = 5

- (i) Therapeutic Index
- (ii) Production of ethyl alcohol from starch.
- (ii) Dapsone

(b) 3+2 = 5

(i) Draw the enantiomeric forms of Ibuprofen. Which one is active? Write any two side effects of this drug.

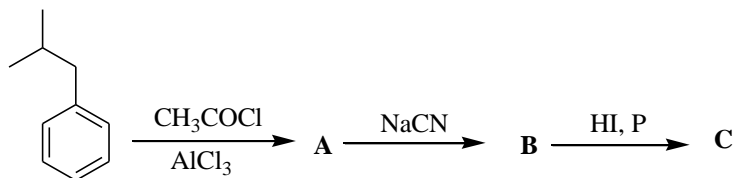
Please Turn Over

(ii) Name two organisms that are used for the industrial production of Vitamin B2 by fermentation.

(c) (1+1)+3 = 5

(i) What are Analgesic agents? Give example.

(ii) Complete the following:



(d) (1+2)+2 = 5

(i) Give the structure of Phenobarbital. Describe its use as drug.

(ii) How Trimethoprim can be synthesized?

(e) Describe the biosynthesis of Penicillin-G from *L*- α -amino adipic acid. 5

(f) Define aerobic and anaerobic fermentation. Mention the differences between the two processes. 2+3 = 5

3. Answer *any one* question: 10×1 = 10

(a) (1+1+2+3)+3 = 10

(i) What is AIDS? Give one example of anti-AIDS drug. Give retrosynthetic analysis and then a forward synthesis pathway for any anti-AIDS drug.

(ii) Show the synthesis of Paracetamol starting from phenol.

(b) (1+1)+(1+1+4)+2 = 10

(i) What do you mean by cardiovascular drug? Give one example.

(ii) Name two classes of antibiotics. Draw the structure of Chloramphenicol and synthesize it from *p*-nitro acetophenone.

(iii) Mention the differences between antibiotics and antiviral drugs.