

**U.G. 4th Semester Examination - 2022**

**CHEMISTRY**

[HONOURS]

Skill Enhancement Course (SEC)

Course Code : CHEM(H)-SEC-T-2(A)&(B)

Full Marks : 40

Time : 2 Hours

*The figures in the right-hand margin indicate marks.*

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

**Answer all the questions from selected Option.**

**OPTION-A**

**CHEM(H)-SEC-T-2A**

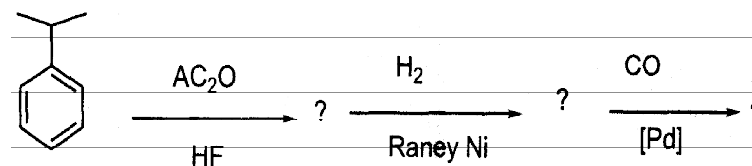
**(Pharmaceutical Chemistry)**

1. Answer any **five** questions: 2×5=10
- Write the structure of Diazepam. Mention one use.
  - Give an example of NSAID. Write the biochemical name of vitamin B<sub>12</sub>.
  - What is AZT? Mention its use.
  - Why should aspirin not to be take on an empty stomach?
  - Why intake of excess amount of paracetamol is not safe?

[Turn Over]

- Draw the structure of the product when vitamin C is oxidized.
- What do you mean by anti-inflammatory agents? Give an example.
- What is meant by broad spectrum drugs? Give an example.

2. Answer any **two** questions: 5×2=10
- What is fermentation? Write the differences between aerobic and anaerobic fermentations? Give examples. 2+2+1=5
  - Give the synthesis of paracetamol and mention its uses. Between aspirin and paracetamol which is more toxic to human health and why? 3+2=5
  - Write down the chemical name of dapsone. How would you synthesize it? Mention one use of it. 1+3+1=5
  - Write down the product(s) in the following reaction schemes.



Aspirin is considered as pro-drug. Explain.

3+2=5

3. Answer any **two** questions:

a) How will you prepare penicillin and citric acid through the fermentation process? Comment on the optical activity of citric acid. How will you prepare rectified spirit and absolute alcohol from dilute alcohol?  $2+2+2+2+2=10$

b) What will be the effect of excess intake of vitamin C? How is magnesium bisilicate prepared? Indiscriminate use of chloromycetin for minor infection may give rise to fatal anaemia. Explain. What are sulfonamides? How are they connected with health problem?  $2+3+2+1+2=10$

c) What is meant by drugs and pharmaceuticals? Give examples. Give the synthesis of vitamin C. How is it important to human health?  $2+2+4+2=10$

d) Why is vitamin B<sub>2</sub> also called Lactoflavin? How aspirin can be prepared from phenol? Give example of an acidic and basic amino acids. Discuss the effect of deficiency of vitamin B<sub>12</sub> on human body?  $2+4+2+2=10$

### OPTION-B

#### CHEM(H)-SEC-T-2B

#### (Analytical Clinical Biochemistry)

1. Answer any **five** question:  $2 \times 5 = 10$

a) What is Diabetes Mellitus? Name two hormones which are important to regulate blood glucose level.

b) What is glycogenesis and glycogenolysis?

c) What is glycolysis and Krebs's cycle?

d) What is reducing sugar? Give an example of it and how it can be detected?

e) What is triglyceride? Mention its biological importance.

f) How protein is classified on bases of structure?

g) What is a peptide bond? How it is formed?

h) Write the names of structural components of DNA and RNA.

2. Answer any **two** questions:  $5 \times 2 = 10$

a) What are biocatalysts? Give examples. How temperature and pH of the medium affect reaction rates?  $2+1+2$

b) What is the composition of human blood and what is blood coagulation? What are meant by anticoagulant factors?  $2+2+1$

c) What are the pathological conditions associated with high creatinine and bilirubin levels of blood? What is anemia? 2+2+1

d) What is the composition of lipid membrane? What is liposome? How it is important? 2+2+1

3. Answer any **two** questions: 10×2=20

a) What is the chemical nature of cholesterol? How it is related to human health? How it is estimated? 2+2+6

b) What is Soap? How saponification number of oil is determined? What is iodine number of an oil? 2+6+2

c) What are hormones? Give examples of two steroid hormones. Write the method of protein estimation in laboratory. What is WPN? 2+1+6+1

-----