

U.G. 4th Semester Examination - 2022

CHEMISTRY

[PROGRAMME]

Skill Enhancement Course (SEC)

Course Code : CHEM-G-SEC-T-2

(Pharmaceutical Chemistry)

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.

1. Answer any **five** questions from the following:

2×5=10

- What are the differences between drugs and pharmaceuticals?
- What is antibiotic? Give one example.
- What are the differences between analgesic and antipyretic drugs?
- Name one drug which belongs to barbiturate class. Draw its structure.

- Give one example of antibiotic which is mainly applied for Typhoid fever. Draw its structure.
- What is pyridoxine? Draw structure of it.
- Name the metal ion which is present in the structure of Vitamin B₁₂. Mention the oxidation state of this metal ion in it.
- Why Vitamin B₂ is called lactoflavin?

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

5×2=10

- Write down the reaction for the synthesis of aspirin. Mention its important uses. Does it possess any toxicity? 2+2+1=5
- Give the reactions for the synthesis of paracetamol starting from nitrobenzene as raw material. What is the chemical name of paracetamol? What are its uses? 3+1+1=5
- Give the chemical formula of phenobarbital. Write the final reaction for its synthesis. Write the main uses of this drug. 1+2+2=5
- How are Vitamins B₂ and B₁₂ useful to human body? What are the major sources of these vitamins? 3+2=5

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

$$10 \times 2 = 20$$

- a) What is the chemical formula and name of Vitamin C? Show the synthesis of Vitamin C from D-glucose. How is it purified? How does Vitamin C deficiency affect human body? What are natural sources of Vitamin C?

$$2+3+2+2+1=10$$

- b) Write down the formula of citric acid. Name the raw materials and microorganism used to manufacture citric acid. How citric acid crystals are obtained from calcium citrate precipitate? Mention the main uses of citric acid. What are the natural sources of citric acid?

$$2+2+2+2+2=10$$

- c) What is fermentation? What are the differences between aerobic and anaerobic fermentation? Discuss the industrial production of ethyl alcohol by fermentation using starch as raw material. What is rectified spirit? Mention its uses.

$$2+3+2+2+1=10$$

- d) What is meant by constant boiling mixture? What is absolute alcohol? Write the preparation of absolute alcohol in the laboratory scale. What is denatured spirit and why is it done? what is methylated spirit?

$$2+2+2+2+2=10$$
