

2022

1st Semester Examination

CHEMISTRY

Paper : CHEM 104

(Food and Computer Basics)

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

1. Answer any *four* of the following questions : $2 \times 4 = 8$

- (a) What is the aim of Pasteurisation?
- (b) Write the structure KMS. How KMS acts as a preservative in a food sample?
- (c) What is 'critical moisture content'? Explain by showing a 'typical drying curve'.
- (d) How excess glucose is stored in the body? Write its chemical structure.
- (e) Classify food spoilage.
- (f) What do you mean by cheddaring?

2. Answer any *four* of the following questions : $4 \times 4 = 16$

- (I) Write down the steps involved in cheese making.

P.T.O.

(II) (a) What are essential and non-essential amino acids?

(b) Define complete and incomplete proteins.

(c) How vegetarians can have complete proteins?

(III) (a) What is a spray dryer?

(b) Show the schematic diagram of a spray dryer.

(c) What are the steps involved in a spray dryer?

(IV) (a) What are the methods of food preservation?

(b) What is blanching?

(V) Define Perishable and Non-perishable food with suitable examples.

(VI) (a) What are the factors that influence the growth of microorganisms?

(b) Discuss how pH and nutrient content affects the growth of microorganisms.

3. Answer any *two* of the following questions : $8 \times 2 = 16$

(I) Answer the following questions (any *four*) : $2 \times 4 = 8$

(a) Define a Computer?

(b) What are peripheral devices? Give some examples.

(c) Why we use cache memory?

(d) What is Compiler?

(e) Why we use logic gates?

(f) Define EX-OR gate.

(II) Answer the following questions (any *two*) : $4 \times 2 = 8$

(a) State the characteristics of a fifth generation computer.

(b) Write the differences between RAM & ROM.

(c) Find 2's complement for each of the following 5-bit binary numbers.

(i) 01101_2

(ii) 01001_2

(iii) 10111_2

(iv) 01001_2

(d) What are the basic components of a computer? Explain each component with suitable diagram.

(III) Convert the following numbers to desire number systems : 2×4

(a) $(657)_8 = (?)_2$

(b) $(1000011)_2 = (?)_8$

(c) $(\text{FBF6A})_{16} = (?)_{10}$

(d) $(167)_8 = (?)_{16}$

(IV) Represent the following expressions by suitable logic gates : 4×2

(i) $AB + BC(B + C)$

(ii) $(A + B + C)(A^c + B^c + C)(A + B + C^c)$
