

M.Sc. 1st Semester Examination, 2024

CHEMISTRY

(Food and Computer Basics)

PAPER – CEM-104

Full Marks : 50

Time : 2 hours

Answer all questions

The figures in the right hand margin indicate marks

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

GROUP – A

1. Answer any four questions : 2 × 4

(a) Write the structure KMS. How KMS acts as a preservative in a food sample ?

(Turn Over)

- (b) What is the aim of Pasteurisation ?
- (c) What is 'critical moisture content' ?
Explain by showing a 'typical drying curve'.
- (d) How can one classify food based upon its perishability ? Give examples.
- (e) How excess glucose is stored in the body ? Write its chemical structure.
- (f) Classify food spoilage.
- (g) What is water activity (a_w) ?

GROUP -- B

2. Answer any *four* questions : 4 × 4

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

- (b) (i) What are essential and non-essential amino acids ?
- (ii) Define complete and incomplete proteins.
- (iii) How vegetarians can have complete proteins ?
- (c) (i) What is a spray dryer ?
- (ii) Show the schematic diagram of a spray dryer.
- (iii) What are the steps involved in a spray dryer ?
- (d) (i) What are the methods of food preservation ?
- (ii) What is blanching ?
- (e) Define Perishable and Non-perishable food with suitable examples.

(4)

(f) (i) What are the factors that influence the growth of microorganisms ?

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

Or

Give two examples of fermented Indian foods. What is LAB ? What are the chemical preservatives and explain their advantages and disadvantages ?

GROUP – C

3. Answer any *two* questions : 8 × 2

(a) Answer the following questions (any *four*) : 2 × 4

(i) What are the characteristics of a modern computer ?

(ii) What are input and output devices ?
Give some examples.

(iii) Distinguish between RAM and ROM.

(iv) Why do you mean by computer language?

(v) What are the roles of hardware?

(vi) Define EX-OR gate.

(b) Answer the following questions (any two): 4 × 2

(i) Explain different types of printers.

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

(iii) Explain different types of secondary memory.

(iv) List and explain the types of software. Give two examples of each category.

(c) Answer the following question (any one): 8 × 1

- (i) What are the basic components of a computer system ? Explain each in detail.
- (ii) Convert the following numbers to desired number systems : 2×4
- (I) $(2085)_{10} = (?)_2$
- (II) $(11111111)_2 = (?)_{16}$
- (III) $(2AF)_{16} = (?)_2$
- (IV) $(567)_8 = (?)_{10}$
- (d) Answer the following question (any one) : 8×1
- (i) Describe the advantages and disadvantages of different types of computers.
- (ii) Represent the following expressions by suitable logic gates
- (I) $AB(BC+AC)$
- (II) $ABC + A^cB^cC^c + ABC^c$

[Internal Assessment – 10 Marks]
