

BV (2/CBCS) FPM/FPT-VC-2026/23

2023

**FOOD PROCESSING AND QUALITY
MANAGEMENT/FOOD PROCESSING
TECHNOLOGY**

QP : Plant Baker

Paper : FPM/FPT-VC-2026

(Food Chemistry)

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Choose the correct answer : 1×7=7

(a) Lactose is

(i) monosaccharide

(ii) disaccharide

(iii) oligosaccharide

(iv) polysaccharide

A23/513

(Turn Over)

(2)

- (b) Which of the following is a non-reducing sugar?
- (i) Sucrose
 - (ii) Cellulose
 - (iii) Maltose
 - (iv) All of the above
- (c) The number of carbon atoms in stearic acid is
- (i) 12
 - (ii) 16
 - (iii) 18
 - (iv) 20
- (d) End-product of Maillard reaction is
- (i) melanin
 - (ii) melanoidins
 - (iii) caramel
 - (iv) All of the above
- (e) Hydrolytic rancidity of fat requires
- (i) oxygen
 - (ii) moisture
 - (iii) high temperature
 - (iv) Both (ii) and (iii)

(3)

(f) Which is the storage polysaccharide in animals?

(i) Glucose

(ii) Glycogen

(iii) Starch

(iv) Cellulose

(g) Iodine value measures

(i) degree of unsaturation

(ii) degree of saturation

(iii) amount of carbon present

(iv) number of iodine present

2. Answer the following very short-answer type questions : 2×4=8

(a) How can reduced water activity help to extend the shelf life of foods?

(b) Differentiate between free water and bound water.

(c) Draw the structure of glucose.

(d) What are essential amino acids? Give one example.

(4)

3. Answer any *three* of the following : $5 \times 3 = 15$

- (a) Define moisture content and water activity. Write the formula for calculating dry basis and wet basis moisture contents. How is moisture content related to shelf life of foods?
- (b) Write a note on classification of proteins.
- (c) What is fatty acid? Draw the structure of omega-3 and omega-6 fatty acids. List the physical and chemical differences between fats and oils.
- (d) Define the following :
- (i) Hard water
 - (ii) Peroxide value
 - (iii) Retrogradation
 - (iv) Caramelization
 - (v) Gelatinization
- (e) Differentiate between the following :
- (i) PUFA and MUFA
 - (ii) Reducing sugar and Non-reducing sugar

A23/513

(Continued)

(5)

(iii) Fortification and Enrichment

(iv) Amylose and Amylopectin

(v) Saturated fatty acid and
Unsaturated fatty acid

4. Answer any *three* of the following essay-type questions : 10×3=30

- (a) How are carbohydrates generally classified? Write the types and explain in brief.
- (b) What are the four organizational structures of proteins? Explain.
- (c) Define rancidity and name the chemical reactions involved. What are the advantages and disadvantages of hydrogenation of oils? Write a note on nutritional application of lipids.
- (d) Define vitamin. Write the classification of vitamin. Write the food sources and deficiency disease of each.
- (e) What are macro-minerals and micro-minerals? Explain.
