Signature of Centre Superintendent

B. Sc. (Honours) Agriculture Semester-III Examination, 2024
Subject: Principles of Food Science and Nutrition (AEG 212)

Roll No. (in figure)..... (in words).....

Student Index No.....Reg. No. .....of.....

Time: 2 hours 30 min

Questions are of value as indicated in the margin

Full marks: 60

Part-I

Time: 30 minutes **(Objective and Short Answer Type)**

*Note: 1. Answer in question paper itself (**No additional sheets will be provided**)*
2. Striking, rewriting or overwriting are not allowed in the objective type questions.

Marks: 20

1. Choose the correct answer and put tick mark (√) **(1 × 5 = 5)**

(i) _____ is one antioxidant used in food preservation.
i) Vit-B1 ii) BHA iii) Citric acid iv) Sodium benzoate

(ii) In Glycolysis _____.
i) two pyruvate molecules combine to form glocose molecules
ii) glucose molecule is split into two pyruvate molecules
iii) two molecules of oxygen are required
iv) there is no role of enzymes

(iii)The person having high blood pressure should minimise the intake of _____ mineral in diet.
i) potassium ii) calcium iii) sodium iv) magnesium

(iv)_____ is a milk protein
i) Casein ii) Myosin iii) Bromelin iv) Lactogen

(v) The formulae for pressure is_____.
i) Force/Time ii) Force/Area iii) Force/Mass iv) Mass/Area

2. Fill in the blanks: **(1 × 5 = 5**

a) Each gram of fat provides _____ kcal energy in body.

b) Krebs cycle is known as _____ cycle.

c) Sucrose is made up of _____ and _____ monosaccharide.

d) A aquous solution of salt used in food processing is termed as _____

e) _____ is the major protein found in wheat flour.

3. Answer *any five* questions **(2 × 5 = 10)**

a) Explain the structure of lipids. What is rancidity?
b) Define probiotics. Give any two examples of probiotics microorganisms and foods containing probiotics.
c) What causes marasmus? How is it treated?
d) Explain the effect of heating starch granules suspended in water.
e) What is freeze drying?
f) Enlist any four diseases caused due to vitamin deficiency along with the name of vitamin.
g) What is yeast? Explain the mode of action of yeast on food.
h) Why is blanching done in fruit processing?

B. Sc. (Honours) Agriculture Semester-III Examination, 2024
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Part-II
(Descriptive Type)

Time: 2 hours **Marks: 40**

Questions are ofvalue as indicated in the margin
Answer *any four* of the following questions

4. (a) Discuss in detail about the different forms of malnutrition.
   (b) What are the different steps involved in menu planning. (5+5=10)

5. (a) Explain various causes for spoilage of foods.
   (b) Explain food preservation using canning. (5+5=10)

6. (a) Describe different flavours used in food industry and their sources.
   (b) Explain the advantages and disadvantages of drying process. (5+5=10)

7. Explain the use of following in food industry
   (a) Acetic acid (b) moulds (c) surfactants (d) carbon dioxide (e) citric acid (5x2=10)

8. (a) How fermentation can be used in dairy industry?
   (b)What are the principles of food preservation? (5+5=10)

9. What is the role of fat and minerals in human nutrition? (10)

10. Write short notes on the following: (2.5x4 =10)
    (a) Osmosis
    (b) Gelatinization
    (c) Modified diet
    (d) Balanced diet

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Roll No. (in figure)..... (in words).....

Student Index No.....Reg. No. .....of.....

Time: 2 ½ hours **Full marks: 60**

Questions are of value as indicated in the margin

Part-I
(Objective and Short Answer Type)

Time: 30 minutes **Marks: 20**

Note: 1. Answer in question paper itself
2. Striking, rewriting or over writing are not allowed in the objective type questions.

1. Fill in the blanks **(1×5 = 5)**

(i) Required amount of macro minerals per day for human being is _____.
(ii) _____ is the father of food technology.
(iii) Lactose is made up of _____.
(iv) The amino acids are linked by _____ bonds to form a polypeptide chain.
(v) _____is a measure of the amount of dissolved solids in a liquid via its specific gravity, and is used especially to measure dissolved sugar.

2. Select appropriate answer from the following alternatives. **(1×5 = 5)**

(i) Foam is
(a) Colloidal dispersion of a gas dispersed in a liquid
(b) Colloidal dispersion of a liquid dispersed in a liquid
(c) Colloidal dispersion of a solid dispersed in a gas (d) Process of gel formation

(ii) Protein in bones, skin and connective tissue is called
(a) Collagen (b) Galactose (c) Tocopherol (d) Calciferol

(iii) Hydrometer is used to measure
(a) Bulk density (b) Relative density (c) Porosity (d) True density

(iv) Stunting of growth is caused by
(a) Over nutrition (b) Under nutrition (c) Obesity (d) Balanced diet

(v) Diarrheal illness caused by a toxin produced during vegetative growth of *Bacillus cereus* in small intestine is
(a) Diphtheria toxin (b) Enterotoxin (c) β-toxin (d) Neurotoxin

3. Write short notes on *any five* questions **(2×5 = 10)**

(a) Food irradiation
(b) Measurement of size and density
(c) Balanced diet
(d) Recommended Dietary Allowance
(e) Sensory Properties of Food
(f) Fat soluble vitamins
(g) Food spoilage in canned products
(h) Pasteurization

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Part-II

(Descriptive Type)

Time: 2 hours **Marks: 40**

Questions are of value as indicated in the margin

Answer *any FOUR* of the following questions

4. Discuss how microorganisms are important in food processing. Explain the primary sources of microorganisms in food.

(5+5=10)

5. Discuss in details about malnutrition and nutritional disorders. Write about energy metabolism from carbohydrates.

(5+5=10)

6. Classify foods according to their pH. Explain the significance of this classification.

(6+4=10)

7. Classify Carbohydrates according to their structures. Write the effects of too high and too low intake of carbohydrates.

(6+4=10)

8. Name any four active forms of yeasts and discuss each one of them

(10)

9. Integrate the commonly used methodologies to determine the shelf life of food.

(10)

10. Discuss about nutritional disorders caused by low protein in diet. Briefly write about metabolism of proteins in human body.

(5+5=10)
