CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC)

NORTHERN ZONE JOINT EXAMINATIONS SYNDICATE (NZ-JES)

FORM SIX PRE-NATIONAL EXAMINATIONS 2026

155/1 FOOD AND HUMAN NUTRITION 1

MARKING SCHEME

SECTION A

1.a) Causes of vitamin A deficiency disorder

i) Inadequate dietary intake

ii) reduced absorption and storage of vitamin A

iii)Reduced transportation of vitamin A in the body

iv) Iron deficiency in the body which can affect the metabolism of vitamin A resulting into vitamin A deficiency anaemia

v)Alcoholism

vi)Increased demand

b) preventive measure of vitamin A deficiency

i)Promoting breastfeeding

ii)dietary diversification

iii)Vitamin A supplementation

iv) Food fortification

v)encouraging home gardens

vi)to include some fats/oil when preparing food

vii) prevention of infections and infestations among children to ensure maximum absorption and utilization of vitamin A.

2.Negative effects of excess intake of dietary fibres.

a) Excessive dietary intake of fibres can cause binding of minerals such as calcium, iron, magnesium and zinc and decrease their absorption.

b) they can increase risk of colon cancer example gum Arabic and carrageenan which are used in food industries as stabilizers and emulsifiers this tend to reduce the ability of insoluble fibres to absorb and excrete carcinogens.

c) It can lead into abdominal discomfort and diarrhoea due to bacteria action in the colony.

d) Excessive fibres tend to enclose the nutrients that remain intact, slow down the whole process of digestion and act as a physical barrier between the nutrients and digestive enzymes.

e) It can lead into intestinal obstruction if not accompanied by liberal intake of water.

3.Four classes of carbohydrate

(i)Monosaccharides; These are simplest forms of carbohydrates found in nature. glucose, fructose and galactose are three important monosaccharide in human nutrition.

(ii) Disaccharides

These are double sugars composed of two monosaccharides linked together with the removal of a molecule of water. The disaccharides which are of importance in the diet are sucrose, maltose and lactose. Their general formula is $C_{12}H_{22}O_{11}$.

(iii)Oligosaccharides

They are composed of three to ten monosaccharide units linked to each other by the removal of a molecule of water. They are not as common in food as the Mono-,di-,and polysaccharides but are formed during breakdown of starch into simple sugar.

(iv) Polysaccharides

These are complex carbohydrates made up of 100-2000 glucose units linked to each other in a chain or branched form.

4.-Ways of ensuring stability of food at household level

i)Food production

ii)Food purchase.

-Ways of ensuring stability of food supplies in the country throughout the year.

(i) Having adequate stocking; this can be achieved through enough food reserves at all levels.

(ii)Having and maintaining a good marketing system at all levels, including the village level.

(iii)Improving food crop production by using high breed seeds, mixed crop farming, the use of fertilizers and irrigation system.

(iv)Promoting good-post harvest food handling, transportation, distribution, preservation and food storage.

(v)Provision of education about proper use of food.

(vi)Promoting school and household garden for production of fruits and vegetables.

(vii)Establishment of fishponds for fish production and keeping domestic animals for human consumption.

5.Ways of removing natural toxicants from food.

a) Removal of some parts of food.

b) Processing/heat treatment/cooking.

c)Fermentation by lactic acid bacteria

d)Peeling example cassava and potatoes.

e) Washing after peeling.

f) Soaking in water

g) Refining, bleaching and deodorization which are steps used in processing oil. They removal natural toxins found in oil seeds.

h) Pounding and expose to fresh air example leaves of cassava.

i)Dehulling/milling.

6.i) **Eggs**-When eggs are beaten, they trap air bubbles in the batter, this air bubbles expand in the oven, making the product rise, light and porous.

Steam-Water expands about 1,600 times when converted to steam. This expansion pushes against the batter structure, The trapped steam enlarges air cells increases volume and porosity.

Baking powder-When liquid is added to the mixture containing a chemical raising agent, the leaving gas is produced by mixing of an acid reacting materials with carbonate i.e. co_2 or the bicarbonate decomposes during baking and release a leaving gas, thus the baked product become light and porous**.**

ii)Advantages of using yeast over bicarbonate of soda raising agent.

-It does not change the colour and flavour of the baked product.

-Does not add any chemical to the baked food.

-Phytates present in the flour break down phytic acid when yeast dough is made but there is no such decomposition when bicarbonate of soda is used.

-Thiamine is lost when bicarbonate of soda is used but yeast does not cause such lost.

SECTION B. (40 Marks)

7.Introduction **1 mark**

a) Functions of food packaging

i)Containment: This ensures that a specific quantity of the commodity is held and handled as one unit.

ii)Protection:

iii)Identity and instruction:

iv)Increase acceptability

v)Ease of dispensing

b) Factors affecting foodstuffs in transit and storage

-Climatic conditions

-Atmospheric humidity

-Light, especially ultraviolet

-Temperature

-Rain/surface run off

8.**introduction 1 mark for any relevant introduction**

a) Four practices of good store management

- Thorough drying and cleaning of the crop before storage
- Sanitary measures in the store and the immediate surrounding area. Residues of the previous crop must be cleared from the store.
- Application of insecticides or fumigation before and or after the crop is introduced to the store.
- Regular monitoring of the produce during the whole period of storage.

1.5 marks =6 marks

b) Characteristics of improved storage structure

-Are simple and inexpensive to construct

-Are easy to clean, to load and unload.

-They are durable

-Are not easily accessible to pest and thieves.

-They are not liable to surface run-off, flooding and leakage through the roof.

-The construction should consider the amount of ventilation required to maintain constant conditions inside the structure. **@ 2 marks =12 marks**

9.a) Three stages of handling food in food processing.

-Primary processing

-Secondary processing

-Tertiary processing **@ 2 marks =6mark**

b) Effects of drying food grains on their quality

- Reduction of moisture content
- Stress cracking and broken grains/kernel breakage
- Effect on the nutritive value-grains nutrients such as protein, sugars and vitamins may be adversely affected when the grain is attains excessive temperatures.
- Lowers the viability properties of seeds
- Appearance and organoleptic properties
- Effect on the growth of moulds and other
- Effects on the growth of moulds and other microorganisms-activities of moulds and other microorganism lower the grain quality. Their rate of growth and development depend on the moisture content, grain temperature, and the degree of physical damage to individual grains. Proper drying of food grains, therefore, creates unfavourable conditions for growth and development of microorganisms.

@ 2marks =12 marks

01 mark for relevant conclusion