

CHRISTIAN SOCIAL COMMISSION SERVICES
FORM SIX PRE-NATIONAL EXAMINATION 2025
FOOD AND HUMAN NUTRITION 1

MARKING SCHEME

SECTION A (60 Marks)

- 1.(a) The protein content of food is determined by measuring the amount of nitrogen in the food. Since protein are made up of amino acids that contain nitrogen, the protein content can be estimated by calculating the nitrogen levels using methods such as the kjeldahl methods. **(2 marks)**
- (b) Functions of protein
- To build the body
 - To promote growth
 - maintaining body fluids and Ph balance
 - Driving metabolic reactions in the body.**(Detailed explanation 4points × 2= 8marks)**
2. (a) Food additives are substances added to food to preserve flavor,enhance taste,improve appearance or extend shelf life. Also are used to maintain the safety and quality of food products. Common additives for example sodium benzoates used as colorants.**(2marks)**
- (b) Merits of food composition table
- Useful in clinical research
 - Helpful in nutrition assessments
 - Useful in dietary survey
 - Enhances food balance sheets
 - Promote agricultural sectors.**(Detailed explanation 4points × 2=8marks)**
3. Nutrients requirements change throughout life due to varying physiological needs at different stages and these are;
- (a).Infancy and childhood
 - (b).Adolescence
 - (c). Pregnancy
 - (d). Lactation period
 - (e). Adulthood stage
- Any relevant factors for nutrient requirements detailed explanation (2marks×5points=10)**
4. (a) The diagram showing the growth pattern of bacteria required
- Well labelled diagram **(1mark)**
- Explanation
- (i) Lag phase
 - (ii) Log phase
 - (iii) Exponential phase/stationery phase
 - (iv) Death phase/ acceleration phase .
- (1mark @ = 4marks)**

4. (b) Ways of preventing clostridium perfringens
- Proper heat treatment of food(thoroughly cooking)
 - Timely refrigeration
 - proper hand hygiene when handling food
 - proper storage of food
 - Proper reheating of food.

(5points @ 1 = 5marks)

5. The effective of food preservation methods can be affected by;

- (a) Temperature change
- higher or lower temperature can influence microbial growth, enzymatic activity and spoilage rates
- (b) Moisture content
- High moisture content can encourage the growth of bacteria and molds
- (c) PH
- Acidic foods tend to resist spoilage better than foods with a neutral or basic PH
- (d) Oxygen availability
- Oxygen can promote the growth of certain bacteria, molds and yeasts so methods that limit oxygen like vacuum sealing are useful.
- (e) Time
- The longer food is stored the more likely it is to spoil, regardless of preservation methods.

(5points @ 2=10 marks)

6. (a) Not washing hand properly before handling food
- (b) Not cooking food to the correct temperature especially meat
- (c) Leaving perishable foods at room temperature for too long
- (d) Not cleaning surfaces and utensils properly between uses
- (e) Storing food at incorrect temperatures.

(5points @ 2=10marks)

SECTION B (40 marks)

7. Spoilage microorganisms including bacteria, molds, yeasts that can cause undesirable changes in the appearance, texture, smell and taste of food.

- (a) Degradation of food quality
- (b) Impact on texture of the food
- (c) Economic losses due to microbial activity
- (d) Health risks problem
- (e) Shortened shelf life of the food
- (f) Contribute to food production through fermentation
- (g) Loss of nutritional value of the food

Any relevant introduction.(1mark) detailed explanation. (6poin@ 3=18marks)

Conclusion.(1mark)

8. Steps to be followed in canning tomatoes

- Harvest
- Transportation
- Cleaning and preparation
- Blanching
- Filling
- Exhausting (vacuum creations)
- Sealing
- Processing and cooking
- Storage.

Any relevant introduction.(1 mark)

Detailed explanation.(9points @2=18 marks)

Conclusion.(1mark)

9. HACCP is a systematic approach to food safety that focuses on identifying, evaluating and controlling hazards during the food production process. Its role in ensuring food safety is critical to prevent foodborne illness and ensuring the production of safe high quality food.

- (a) Identifying hazards analysis
- (b) Determining critical control points
- (c) Establishing critical limits
- (d) Monitoring control procedures
- (e) Establish corrective actions
- (f) Verification of HACCP system
- (g) Record keeping
- (h) Preventive approach to food safety
- (i) Regulatory compliance and consumer confidence.

Any relevant introduction.(1 mark)

Detailed explanation.(9points @2=18 marks)

Conclusion.(1mark)