S3 Technology and Living Practice Paper: Food Nutrition and Energy Calculation, Meal Planning and Menu Design, Food Safety and Preservation, Fibres and Fabric Costing, Garment Construction and Patterns, Family Resources and Consumer Choice

S3 | Technology and Living | Time: 60 minutes | Total: 100 marks | 24 questions

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Part A - Food Nutrition and Energy Calculation (18 marks)

Show all working and units in calculation questions.

1. A breakfast contains 20 g protein, 60 g carbohydrate and 15 g fat. Using 4 kcal per gram for protein and carbohydrate and 9 kcal per gram for fat, calculate the total energy. [5]

2. For a 2,000 kcal daily intake, fat should provide no more than 30%. Calculate the daily fat limit in grams (1 decimal place). [5]

3. For a person weighing 50 kg, the recommended protein intake is 0.8 g per kg of body weight. Calculate the daily protein requirement and name one protein-rich food. [4]

4. Explain two functions of dietary fibre and state a problem caused by a lack of fibre. [4]

Part B - Meal Planning and Menu Design (16 marks)

Show working in calculation questions; answer the others in full sentences.

5. A dinner provides 700 kcal. Taking 2,000 kcal as the daily requirement, calculate the percentage of daily energy it supplies. [4]

6. Design a balanced lunch for an S3 student containing four food groups and explain the role of each. [4]

7. Compare home-prepared and takeaway lunches in terms of two differences in nutritional control and cost. [4]

8. Explain two points to note when planning meals for elderly people. [4]

Part C - Food Safety and Preservation (16 marks)

Show working in calculation questions; answer the others in full sentences.

9. The refrigerator compartment is at 4 degrees and room temperature is 25 degrees. Calculate the temperature difference and explain why low temperature slows food spoilage. [4]

10. A 150 W refrigerator runs its compressor 8 hours a day. At $1.2 per kWh, calculate the electricity cost for 30 days. [4]

11. State two ways to prevent cross-contamination of food. [4]

12. Compare refrigeration, freezing and curing as preservation methods in terms of their principles. [4]

Part D - Fibres and Fabric Costing (18 marks)

Show all working and units in calculation questions.

13. One top needs 1.6 m of fabric costing $48 per metre. Calculate the fabric required and the fabric cost for 12 tops. [5]

14. The same fabric comes in a 500 g pack at $24 and a 750 g pack at $33. Calculate the price per 100 g for each and state which is better value. [5]

15. Compare cotton and polyester in terms of two differences in moisture absorption and durability. [4]

16. Explain two factors to consider when choosing fabric for sportswear. [4]

Part E - Garment Construction and Patterns (16 marks)

Show working in calculation questions; answer the others in full sentences.

17. The net bust measurement is 92 cm with 8 cm ease. Calculate the finished bust measurement. [4]

18. Explain two functions of the grain line and the fold line on a pattern. [4]

19. Compare hand sewing and machine sewing in terms of two differences in speed and strength. [4]

20. Explain two points to check during a fitting. [4]

Part F - Family Resources and Consumer Choice (16 marks)

Show working in calculation questions; answer the others in full sentences.

21. A $800 blender is expected to last 5 years. Using straight-line depreciation, calculate the annual depreciation. [4]

22. A family income is $24,000 per month, with 35% for housing and 20% for food. Calculate both amounts. [4]

23. Explain three factors to compare when buying a household appliance. [4]

24. Explain two benefits of making a family budget. [4]