S1 Home Economics Practice Paper: The Six Nutrient Groups and Meal Planning, Food Safety and Handling, Recipe Scaling and Costing, Textile Fibres and Laundry Care, Home Management and Personal Budgeting (100 marks)

S1 | Home Economics | Time: 60 minutes | Total: 100 marks | 24 questions

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Part 1: Food and Nutrients (8 marks)

Answer the following questions on nutrients. Each question carries 2 marks.

1. Name four of the six classes of nutrients. [2]

Answer: Carbohydrates, proteins, fats and vitamins (minerals and water are also accepted).

2. How many kilocalories does one gram of carbohydrate, protein and fat provide respectively? [2]

Answer: Carbohydrate 4 kcal, protein 4 kcal and fat 9 kcal per gram.

3. State two functions of dietary fibre in the human body. [2]

Answer: It promotes peristalsis, prevents constipation, increases satiety and helps control blood glucose and blood lipids (any two).

4. How much water is recommended for a teenager each day? [2]

Answer: About 6 to 8 glasses, that is about 1.5 to 2 litres; more is needed in hot weather or after exercise.

Part 2: Meal Planning and Energy Calculation (20 marks)

Calculate from the data given and show your steps. Each question carries 5 marks.

5. A breakfast contains 50 g of carbohydrate, 15 g of protein and 10 g of fat. Find the energy provided by the breakfast. [5]

Answer: Energy = 50 x 4 + 15 x 4 + 10 x 9 = 200 + 60 + 90 = 350 kcal.

6. A person needs 1800 kcal a day and breakfast should provide 25 percent of it. If the breakfast above provides only 350 kcal, how many kcal is it short of the recommendation? [5]

Answer: Recommended = 1800 x 0.25 = 450 kcal; shortfall = 450 - 350 = 100 kcal.

7. A person weighs 52 kg and is 1.55 m tall. Find the body mass index and state the category. [5]

Answer: BMI = 52 / 2.4025 = 21.6, which is in the normal range (18.5 to 24.9).

8. A person weighs 45 kg and the protein requirement is 1 g per kg of body mass. If each of three meals provides 15 g of protein, is the requirement met? [5]

Answer: Requirement = 45 x 1 = 45 g; intake = 15 x 3 = 45 g, so the requirement is just met.

Part 3: Food Safety and Handling (18 marks)

Answer the following questions, paying attention to temperatures and procedures.

9. What temperature range is the danger zone in food safety, and why should food not be kept in it for long? [4]

Answer: The danger zone is 4 degrees C to 60 degrees C; bacteria multiply fastest in this range and can cause food poisoning.

10. What temperatures are recommended for the refrigerator compartment and the freezer? [4]

Answer: The refrigerator compartment should be 4 degrees C or below and the freezer minus 18 degrees C or below.

11. A pot of 800 g of cooked rice is portioned into 200 g servings. How many servings are there, and what core temperature should reheating reach? [5]

Answer: Servings = 800 / 200 = 4; reheating must bring the core to 75 degrees C or above, and the food should be eaten within 30 minutes.

12. How can cross contamination be avoided when handling raw meat and ready-to-eat food? State two measures. [5]

Answer: Use separate chopping boards and knives for raw and ready-to-eat food; wash hands with soap for at least 20 seconds before and after handling; store raw meat on the lower shelf so juices cannot drip.

Part 4: Recipe Scaling and Costing (18 marks)

Scale the recipe quantities and calculate costs, showing your steps.

13. A recipe for 4 people uses 80 g of sugar. How much sugar is needed for 6 people? [4]

Answer: Scaling factor = 6 / 4 = 1.5; sugar = 80 x 1.5 = 120 g.

14. A recipe for 6 people uses 300 g of flour. How much flour is needed for 9 people? [4]

Answer: Flour = 300 x 9 / 6 = 450 g.

15. Flour costs 12 dollars per kg, butter 40 dollars per kg and sugar 8 dollars per kg. A batch for 6 people uses 450 g of flour, 150 g of butter and 60 g of sugar. Find the total material cost and the cost per portion. [5]

Answer: Flour 12 x 0.45 = 5.4 dollars; butter 40 x 0.15 = 6.0 dollars; sugar 8 x 0.06 = 0.48 dollars; total = 11.88 dollars; per portion = 11.88 / 6 = 1.98 dollars.

16. Using the previous question, if each portion sells for 3.50 dollars, find the profit per portion and the profit margin. [5]

Answer: Profit = 3.50 - 1.98 = 1.52 dollars; margin = 1.52 / 3.50 x 100 percent = 43.4 percent.

Part 5: Textile Fibres and Laundry Care (18 marks)

Answer the questions on fibre properties and laundry care.

17. Name two natural fibres and two man-made fibres. [4]

Answer: Natural fibres: cotton, linen, wool and silk; man-made fibres: polyester, nylon and rayon.

18. Compare cotton and polyester in terms of moisture absorption and drying speed. [4]

Answer: Cotton absorbs moisture well but dries slowly; polyester absorbs little moisture, dries quickly and resists creasing.

19. A care label shows machine wash at 40 degrees C, do not bleach and cool iron. Explain these three instructions. [5]

Answer: The garment may be machine washed at a water temperature not above 40 degrees C; bleach must not be used; the iron must be set to low heat, about 110 degrees C.

20. A washing machine takes 5 kg of laundry per load and each garment weighs about 250 g. How many garments fit in one load? If each load uses 0.8 kWh at 1.2 dollars per kWh, what is the electricity cost per garment? [5]

Answer: Garments = 5000 / 250 = 20; cost per load = 0.8 x 1.2 = 0.96 dollars; per garment = 0.96 / 20 = 0.048 dollars.

Part 6: Home Management, Consumer Rights and Personal Budgeting (18 marks)

Answer the following questions and show your steps in the calculations.

21. Which two ordering principles should be followed when cleaning a home? [4]

Answer: Clean from top to bottom and from the cleaner area to the dirtier area, while keeping the room well ventilated.

22. State three basic consumer rights. [4]

Answer: The right to information, the right to choose and the right to safety (the right to complain and seek redress is also accepted).

23. A person saves 300 dollars a month and deposits the whole amount for one year at 2 percent simple interest. Find the interest and the total amount. [5]

Answer: Principal = 300 x 12 = 3600 dollars; interest = 3600 x 0.02 = 72.0 dollars; total = 3672.0 dollars.

24. A student receives 800 dollars pocket money a month and saves 25 percent. The rest is spent on 250 dollars of activities, 120 dollars of transport and 80 dollars of snacks. How much is left each month? [5]

Answer: Savings = 800 x 0.25 = 200 dollars; available = 600 dollars; spending = 250 + 120 + 80 = 450 dollars; remainder = 600 - 450 = 150 dollars.
