S5 Technology and Living Practice Paper (Set 1): Nutrition and Energy Calculation, Food Science and Preparation, Food Microbiology and Safety, Textile Fibres and Fabric Performance, Garment Construction and Fashion Design, Home Resource Management and Consumer Decisions

Senior Secondary Technology and Living

S5 Technology and Living paper, Set 1: 24 parts, 100 marks on nutrition, food science and safety, textiles, garment construction and resource management, with answers.

Nutrition and Energy Calculation

A 15-year-old girl weighs 52 kg and needs about 2000 kcal a day (BMR 1350 kcal, PAL 1). Her lunch contains 25 g protein, 60 g carbohydrate and 20 g fat.

#	Question
1	Calculate the energy provided by this lunch in kcal.
2	What percentage of the lunch energy comes from fat (1 decimal place)?
3	What percentage of the daily energy requirement does the lunch supply (1 decimal place)?
4	At 0.85 g per kg body weight, what is her daily protein requirement, and what percentage of it does the lunch supply (1 decimal place)?
5	If protein and carbohydrate stay unchanged but fat may supply only 30%% of the meal energy, what is the maximum fat in grams (1 decimal place)?

Food Science and Food Preparation

The following questions concern chemical and physical changes during cooking and food processing.

#	Question
6	What is protein denaturation? Give two everyday examples.
7	How do the Maillard reaction and caramelisation differ? Give one example of each.
8	How do gelatin and agar differ in their setting behaviour?
9	Cooking 800 g of fruit (sufficient pectin) with 1200 g of sugar gives what sugar content (%), and how much sugar is needed to reach 65%?

Food Microbiology and Food Safety

The following questions concern microbial growth and food safety control.

#	Question
10	What is the danger zone, and what does the two-hour rule mean?

#	Question
11	A food holds 100 CFU/g and doubles every 20 minutes in the danger zone; what is the count after 3 hours, and what does this show?
12	What does a 5-log reduction mean? Illustrate with an initial count of 10^6.
13	State three measures that prevent cross-contamination of ready-to-eat food.

Textile Fibres and Fabric Performance

The following questions concern fibre classification, fabric performance and costing.

#	Question
14	Classify textile fibres into three groups and name two fibres in each.
15	Compare cotton and polyester fabric in moisture absorption, drying speed, durability and care.
16	A fabric costs HK$48 per yard and 1 yard is 0.9144 m; what is the price per metre (2 decimal places), and what is the fabric cost for a project needing 2.5 m?
17	The fabric shrinks 4% after washing and the finished item must be 1.2 m long. What is the minimum length to buy (2 decimal places), and how much shorter would the item be if only the finished length were bought?

Garment Construction and Fashion Design

A top uses 1.5 m of main fabric at HK$60 per metre, 0.8 m of lining at HK$30 per metre and HK$18 of trims.

#	Question
18	What do the grain-line arrow, the fold line and the notch mean on a paper pattern?
19	What is the purpose of seam allowance and hem allowance?
20	Calculate the material cost, and the retail price if it is 3 times the cost.
21	What are the four elements of fashion design, and how can proportion improve the visual effect on a figure?

Home Resource Management and Consumer Decisions

Drink A is 750 ml at HK$28.5 and drink B is 1.5 L at HK$52; monthly family income is HK$28000.

#	Question
22	What are the five types of family resource? Name four and give an example of each.
23	Comparing price per litre, which is cheaper and by how much (2 decimal places)?
24	With 35%% for housing, 25%% for food, 8%% for transport and 15%% for savings, what is each amount and what is left each month?