

# SECONDARY SCHOOL ANNUAL EXAMINATIONS 2005

Educational Assessment Unit – Education Division

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**FORM 4**

**DESIGN AND TECHNOLOGY**

**Time: 1h 30min**

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**Name:** \_\_\_\_\_

**Class:** \_\_\_\_\_

**Answer all questions in section A and all questions in two other sections of your choice.**

## **SECTION A** (DESIGN PROCESS)

- 1.** Consider this brief.

Design and make a storage unit for (i) a kitchen roll, (ii) cling film and (iii) aluminium foil. These materials should be easily dispensed of.

Write down three key words from it.

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**(10 marks)**

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- 2.** Having analysed the brief in question 1, you then need to research deeper into the problem.

State five sources from where you can gather information that will help you solve the problem.

_____	_____
_____	_____
_____	

**(10 marks)**

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3. Write down a design brief for the following situation.

A lot of time is spent in my bedroom playing music. I would like to have some disco effect to add interest.

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**(10 marks)**

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4. After you have written the design brief in question 3, state four design requirements (specification) that must be considered for this brief.

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**(6 marks)**

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5. Ideas can be generated through thinking and sketching.  
Why is it important to have more than one initial idea for a project?

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**(4 marks)**

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6. Explain the difference between the following words as related to the design process.

a) Testing \_\_\_\_\_  
\_\_\_\_\_

b) Evaluation \_\_\_\_\_  
\_\_\_\_\_

**(10 marks)**

**SECTION B** (RESISTANT MATERIALS)

7. Mild steel is a “ferrous metal” and aluminium is a “non-ferrous metal”.

a) Explain the difference between ferrous and non-ferrous.

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**(2 marks)**

b) Give an example where mild steel can be used.

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**(2 marks)**

c) Give an example where aluminium can be used.

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**(2 marks)**

d) A method of protecting mild steel from rusting is by painting.  
Give another method.

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**(2 marks)**

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8. a) Plastics are classified into two categories. Which are they?

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**(2 marks)**

b) Give the name of four plastics in common use.

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**(4 marks)**

- c) Give a reason why most electrical appliances have a plastic body.

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(2 marks)

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9. a) Classify the following woods in their correct column.

PARANA PINE, RED-DEAL, MAHOGANY, BEECH, WHITE DEAL

SOFT WOOD	HARD WOOD

(5 marks)

- b) State two advantages of manufactured boards when making a wooden project.

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(2 marks)

- c) Give two methods by which wood can be protected against moisture.

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(2 marks)

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## **SECTION C** (ELECTRONICS)

10. a) Name two materials that are good electrical **conductors**.

\_\_\_\_\_

(2 marks)

- b) Name two materials that are good electrical **insulators**.

\_\_\_\_\_

(2 marks)

- 
11. Draw the circuit diagrams for:

- (a) **Two** 3 Volts lamps connected in series to a 6 Volt battery.

- (b) **Two** 6 Volts lamps connected in parallel to a 6 Volt battery.

(a)

(b)

(6 marks)

12. (a) Which instrument is used to measure the value of a resistor?

\_\_\_\_\_

(1 mark)

(b) Why does an LED require to be connected in series to a resistor?

\_\_\_\_\_

(2 marks)

(c) What are the two legs of an LED called?

\_\_\_\_\_ and \_\_\_\_\_

(2 marks)

(d) Which leg of the LED should be connected to the positive terminal of the battery?

\_\_\_\_\_

(2 marks)

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13. Draw the symbols for the following electronic components.

Component	Symbol	Component	Symbol
Resistor		Capacitor	
Buzzer		LED	

(8 marks)

## **SECTION D** (TEXTILES TECHNOLOGY)

- 14.** Tools and equipment can be dangerous if used incorrectly. Give **two** different safety points that should be taken into account when using each of the following:

(i) an electric iron

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**(2 marks)**

(ii) an electric sewing machine

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**(2 marks)**

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- 15.** Fibres are classified as either Natural or Man-made.

List the following types of fibres under the correct heading:

wool, terylene, linen, cotton, polyester, acrylic, silk, nylon

**NATURAL**

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**MAN-MADE**

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**(8 marks)**

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- 16.** Name the tools which are used to:

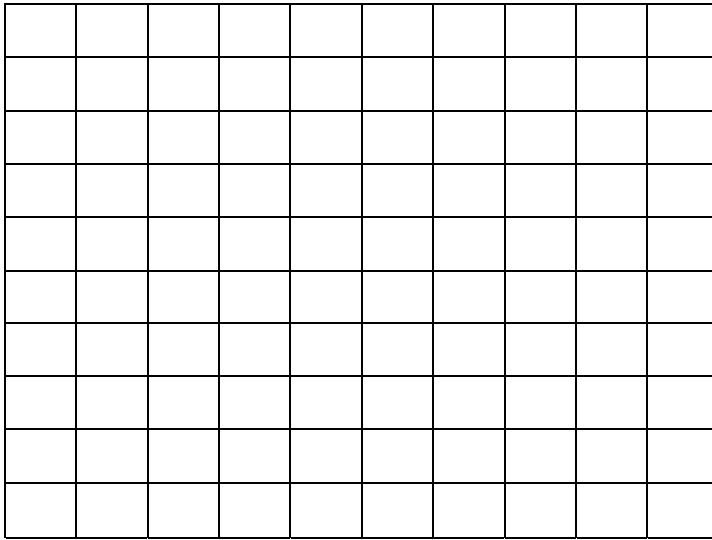
(i) undo a seam \_\_\_\_\_ **(1 mark)**

(ii) cutting out a garment \_\_\_\_\_ **(1 mark)**

(iii) protect your finger while sewing \_\_\_\_\_ **(1 mark)**

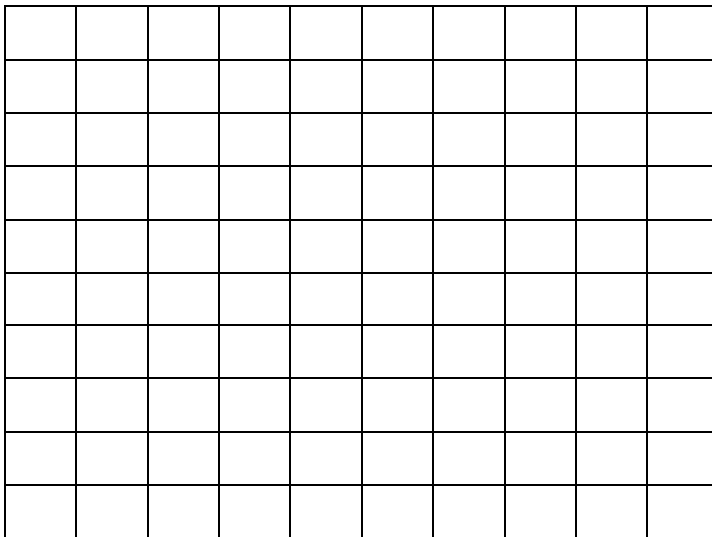
17. On the diagrams below mark out the construction of: plain weave and basket weave.

(i) Plain Weave



**(5 marks)**

(ii) Basket weave



**(5 marks)**



## **SECTION E** (FOOD TECHNOLOGY)

18. TWO methods of food production are: “Batch production” and “One-off production”. When is each type of production used?

- (i) Batch production \_\_\_\_\_
- (ii) One-off production \_\_\_\_\_

**(6 marks)**

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19. Give an example of each production.

Batch production: \_\_\_\_\_

one-off production: \_\_\_\_\_

**(4 marks)**

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20. Which of the following statements are True or False?

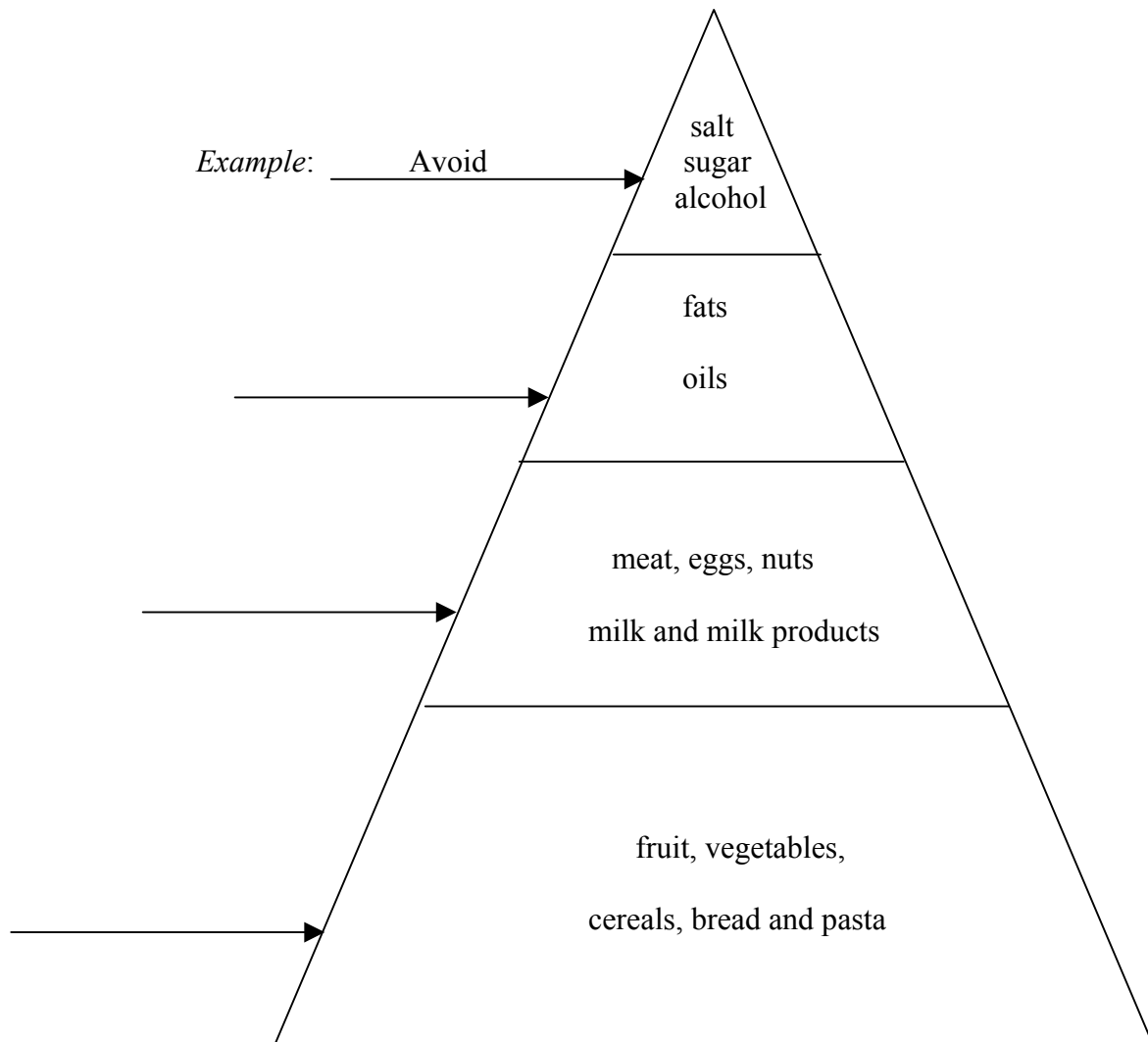
**True or False?**

(a) You should never store hot food in a fridge or freezer.	
(b) Skimmed milk contains high amount of fat.	
(c) Always carry a knife with the blade pointing downwards.	
(d) “Use by date” on food products should be noted carefully.	
(e) A measuring spoon is used to check the oven temperature.	
(f) Hair should be covered during food preparation.	

**(6 marks)**

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21. This food pyramid shows 4 sections of different food groups. Write down on the marked arrows the health message of each section.  
*An example is set for you.*



**(9 marks)**