

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2006

Educational Assessment Unit – Education Division

FORM 4**DESIGN AND TECHNOLOGY****TIME: 1h 30min**

Name: _____**Class:** _____

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

SECTION A

DESIGN

(Total marks for this section: 50)

- 1.** What is a **Design Brief** ?

4 marks

- 2.** Before starting work on a project, why do you need to understand well what the design brief states?

4 marks

- 3.** Why does the information collected from research need to be evaluated?

4 marks

4. The following is a list of design requirements (criteria) you would consider when writing a specification for a napkin holder.

Add another three design requirements to this list.

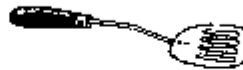
- The type of materials to be used.
- The type of finish and colour.
- The number of napkins it will hold.
- _____
- _____
- _____

3 marks

5. Who is the **intended user** of each of the following products?



ii



iii



i _____

ii _____

iii _____

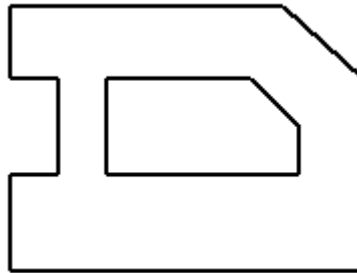
3 marks

6. Indicate the following measurements 130mm X 35mm (13cm X 3.5cm) on the diagram below. Make correct use of extension lines and dimension lines. (Use pencil and ruler.)



10 marks

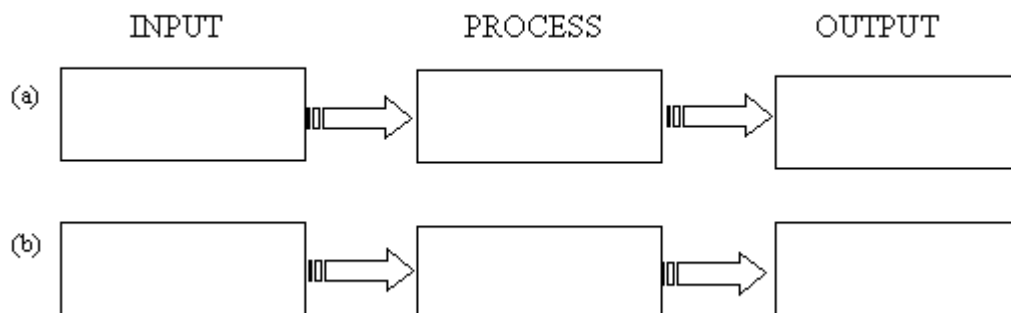
7. Convert this logo into a 3-dimensional one using the oblique method (45°). Take thickness of material as 20mm.



8 marks

8. A control system has an **Input, a Process and an Output**
Fill in the block diagrams by using the two groups of words:

- (a) Soup – Chopped vegetables – Cook
(b) Juice – Oranges – Squeezing



6 marks

9. When you are analysing the design of a product, you need to ask yourself some key questions. Select the correct word out of the following to fill in the blanks:

buy - make - function - materials

- i. What is the _____ of the product?
- ii. What _____ and components are used in the product?
- iii. Which processes are used to _____ the product?
- iv. Who would _____ this product?

8 marks

End of Section A

SECTION B

RESISTANT MATERIALS (Total marks for this section: 25)

1. State which proper tool you would use to mark the centre of a hole before drilling in:

(i) Wood

(ii) Metal

(iii) Acrylic

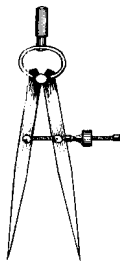
i _____

ii _____

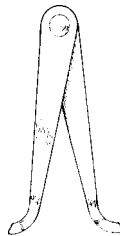
iii _____

3 marks

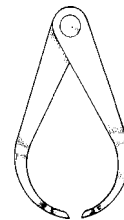
2. For which purpose are each of the following tools used?



(i) Divider



(ii) Inside caliper



(iii) Outside caliper

i) _____

ii) _____

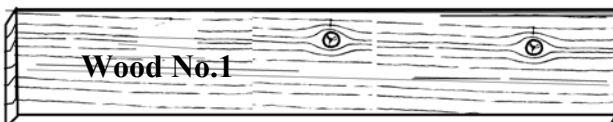
iii) _____

3 marks

3. Look carefully at the grain of these two pieces of wood.

a) Which one would you choose to make a bookshelf?

b) Give a reason.



a) I would choose wood No. _____

b) Because: _____

2 marks

4. a) Why are brass and soft solder considered as alloys?
 b) Why is stainless steel considered as a ferrous metal?
- a) _____
- b) _____

2 marks

5. Choose a suitable plastic for each of the following projects:

- i) A powerboat.
 ii) A container for take-away food.
 iii) A shop sign.

Project	Suitable plastic
(i)	
(ii)	
(iii)	

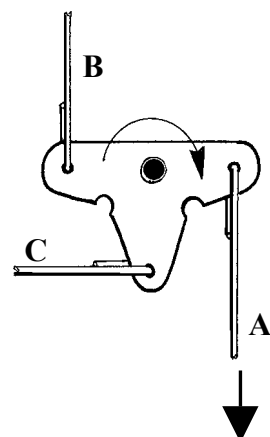
3 marks

6. Give one type of finish or treatment you would apply in order to improve the durability of the following projects.

- i) A wooden seat for a public garden. ii) A steel trailer for a boat.
- i) _____ ii) _____

2 marks

7. Draw arrows to show in which direction will links B and C move, when link A is pulled downwards as indicated in the following sketch.



2 marks

8. a) What type of waste material is collected at "Bring in Sites"?

_____, _____, _____, _____.

(4 marks)

b) In not more than 4 lines, comment why more people should make use of waste bins at bring-in sites.

_____ *(4 marks)*

8 marks

End of Section B

SECTION C

ELECTRONICS

(Total marks for this section: 25)

1. Figures 1 and 2 show a bulb connected to two batteries.

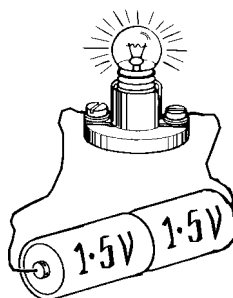


Fig. 1

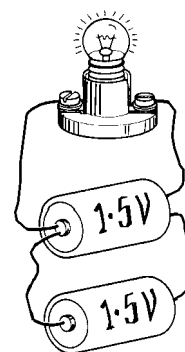
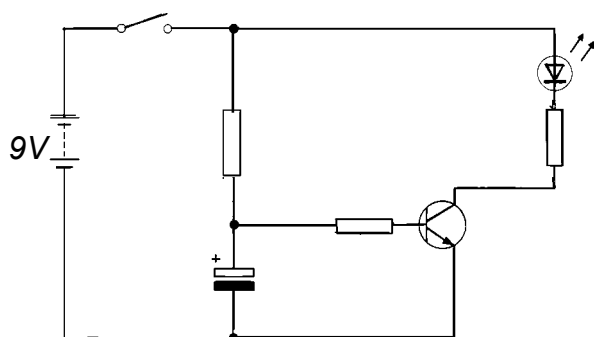


Fig. 2

- a) On the above figures, mark with a + those wires that are connected to the positive side of the batteries.
- b) Which figure shows the batteries connected in series? Fig. _____
- c) Which figure shows the batteries connected in parallel? Fig. _____
- d) What voltage should the bulb in diagram 1 be so that it does not burn out? _____ Volts
- e) What voltage should the bulb in diagram 2 be so that it does not burn out? _____ Volts
- f) Which figure shows the best arrangement for the bulb to remain on for a longer time?
Fig. _____

6 marks

2. Make a list of all the components required for this circuit.



Components	Quantity

9 marks

3. a) If the following resistors are connected as shown below, what is the total resistance?



330 Ω

470 Ω

Total resistance is: _____

- b) What unit is used to measure the value of a resistor? _____

2 marks

4. Give two safety precautions that should be observed when using an electric soldering iron.

2 marks

5. Put the following electronic devices under their corresponding heading of the given table.

LED – battery – buzzer – motor – LDR – switch

Type of electronic device	
An INPUT device	An OUTPUT device

6 marks

End of Section C

SECTION D

FOOD







(Total marks for this section: 25)

1. Which of the following food items has a vegetable or animal origin?
The first one is done for you.

	Food items	Vegetable or animal origin?
	<i>Apples</i>	<i>Vegetable</i>
a	Oranges	
b	Cabbage	
c	Ham	
d	Banana	
e	Bacon	
f	Nuts	

6 marks

2. The symbols below define a safety and hygiene rule to be followed during food preparation.
What rule does each of these symbols tell? *The first one is done for you.*

<u>Symbol</u>	<u>Safety and Hygiene Rule</u>
	<i>Cover hair with a hat or net</i>
	-----
	-----
	-----
	-----
	-----

5 marks

3. Food products have either 'Use By' dates or 'Best Before' dates.
Mention ONE type of food product that shows each type of date mark.

'Use By' date _____

'Best Before' date _____

4 marks

4. Which **two** of the following foods contain most sugar?
ice-cream; brown bread; eggs; honey; potatoes

i. _____

ii. _____

2 marks

5. Which of these foods, people who suffer from high blood pressure should NOT take?
Salami; skimmed milk; bacon; mineral water; preserved anchovy; tomatoes; salted peanuts.

i. _____

ii. _____

iii. _____

iv. _____

4 marks

6. Tick ✓ ONE correct answer

(a) Which is the healthiest school meal?

☐

A doughnut and a biscuit, coca-cola and chocolate

☐

A roll with cheese, tomato and lettuce; a banana; milkshake.

☐

Pizza; salted popcorns; and ice-tea

2 marks

(b) It is best to eat ...

☐

The same food every day

☐

As much as possible

☐

A wide variety of different foods.

2 marks

End of Section D

SECTION E

TEXTILES

(Total marks for this section: 25)

1. Mention TWO methods by which the edge of a piece of fabric can be finished.

i _____

ii _____

4 marks

2. List TWO methods how you can decorate the surface of a shopping bag made from plain fabric.








i _____

ii _____

4 marks

3. Two origins of fabrics are: animal and vegetable.

Tick ✓ with blue or black ink the following textile items under their proper fibre origin.

Textile Items	Animal fibre?	Vegetable fibre?
Cotton shorts 		
Linen trousers 		
Cotton cap 		
Woollen top 		
Linen tablecloth 		
Silk tie 		
Nurse uniform made from: 50% cotton 50% linen 		

7 marks

4. What type of tool or equipment would you use for the following tasks?

Tasks	Tool or Equipment used
Marking on fabric	
Cutting out	
Joining fabric	
Taking measurements	
Trace a pattern on fabric	

10 marks

End of Section E