

# SECONDARY SCHOOL ANNUAL EXAMINATIONS 2006

Educational Assessment Unit – Education Division

**FORM 5**

**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.** Give three reasons why you might need to model a project before making it.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

**6 marks**

- 2.** Give two reasons why evaluation should take place at every stage of the design process.

\_\_\_\_\_

\_\_\_\_\_

**4 marks**

- 3. (a)** What is meant by mass production?

\_\_\_\_\_

- (b)** Underline the products which are mass produced:

40 chefs' uniforms

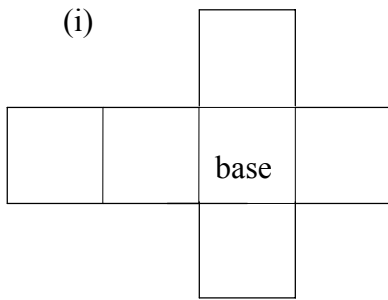
70, 000 pencils

1 wedding dress

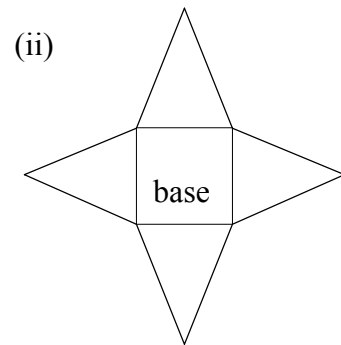
1,000,000 cars

**8 marks**

4. (a) Name the 3-Dimensional forms which can be formed by each of the following nets (developments).



(i) \_\_\_\_\_



(ii) \_\_\_\_\_

- (b) State two methods by which nets or developments can be drawn.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**8 marks**

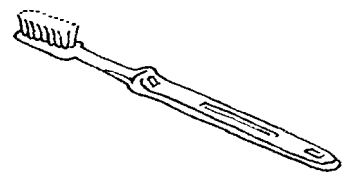
- 
5. Give two reasons why a work plan is important during Design and Technology work.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**4 marks**

- 
6. Give two design requirements (specification) which were possibly considered by the manufacturer to design and produce the product shown here.



(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**4 marks**

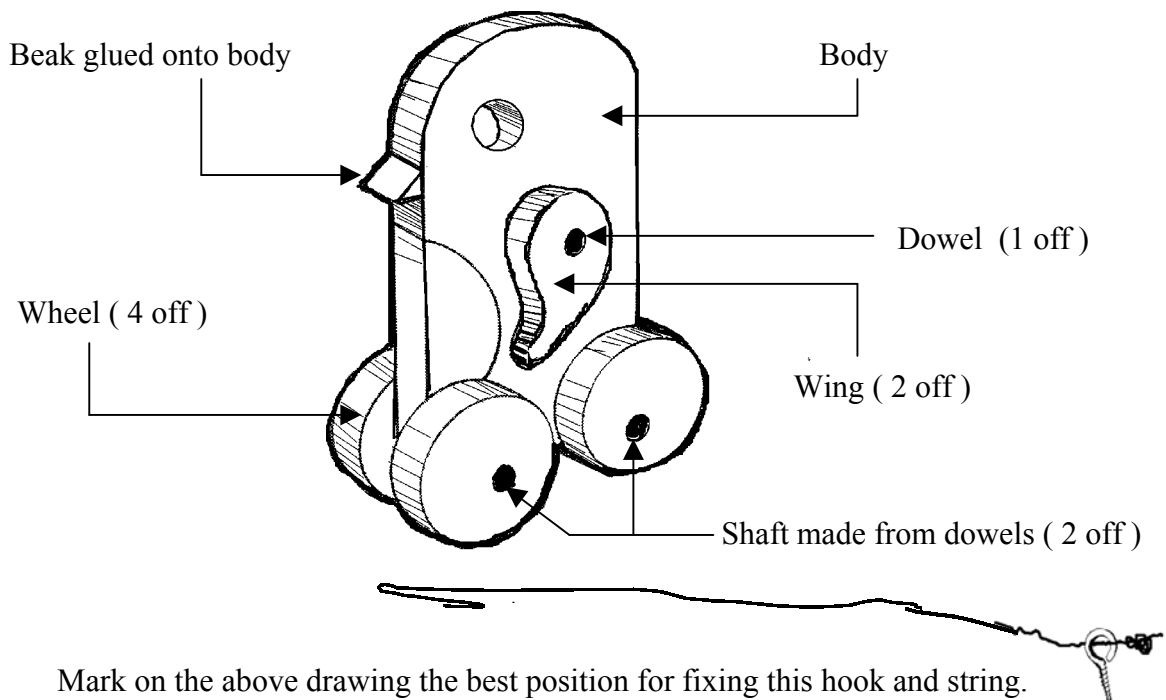
7. Give two reasons why a working drawing helps the making of an object.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**4 marks**

8. The picture shows an idea for a wooden toy penguin. When a child moves the toy, by pulling it behind him by means of a string, the toy will wobble from side to side.



- a) Mark on the above drawing the best position for fixing this hook and string.  
b) State one type of hard wood suitable for such a toy.

\_\_\_\_\_

- c) How many wooden parts are required to make this toy?

\_\_\_\_\_

- d) What proper tool can be used to cut the wheels?

\_\_\_\_\_

- e) Look carefully at the position of the shafts. Why does the toy wobble if pulled?

\_\_\_\_\_

- f) What finish would you recommend for such a toy?

\_\_\_\_\_

**12 marks**

## **SECTION B**

### **RESISTANT MATERIALS** (Total marks for this section: 25)

9. Choose a suitable manufactured wooden board for the following projects and give at least one reason to explain your choice.

- a) Internal doors are needed for a new house.
- b) A toy manufacturer is producing wooden skate boards.

Project	Manufactured board	Reason
(a)	.....	..... .....
(b)	.....	..... .....

**4 marks**

- 
10. Below are the three main categories of metal and a list of descriptions.  
Match the metal to the correct description with an arrow.

FERRROUS  
METALS

NON-FERRROUS  
METALS

ALLOYS

Materials made up by a mixture of other metals

Can be picked up by a magnet

Aluminium and copper are an example

Do not have any iron in them

Consist mainly of iron

Stainless steel and brass are an example

**6 marks**

11. State two advantages of plastics over metals.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**2 marks**

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12. In not more than 5 lines comment on how the use of plastics is affecting our environment and what we can do to improve the situation.

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**7 marks**

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13. Dust can be a hazard. Suggest two ways by which you can reduce the health risk when working in a Design & Technology laboratory.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**2 marks**

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14. From the list given below, select a suitable adhesive to join the following materials.

■ Epoxy resin      ■ solvent cement      ■ PVA glue      ■ Contact adhesive

a) Wood to wood \_\_\_\_\_

b) Metal to Metal \_\_\_\_\_

c) Plastic to Plastic \_\_\_\_\_

d) Leather to Leather \_\_\_\_\_

**4 marks**

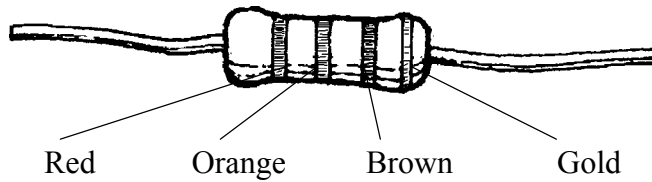
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## SECTION C

### ELECTRONICS

(Total marks for this section: 25)

15. a) Underline the colour that shows the tolerance for this fixed resistor.

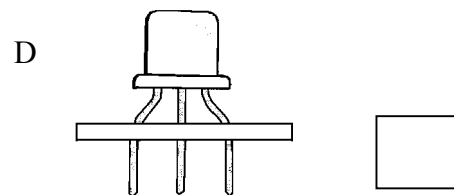
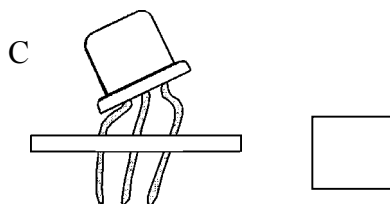
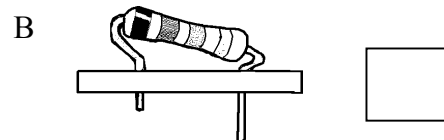
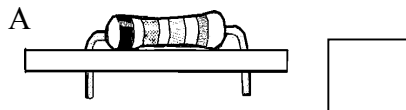


- b) What unit is used to measure the value of a resistor?

\_\_\_\_\_

2 marks

16. Mark with a ☒ the correct methods of mounting components on a strip board before soldering.



2 marks

17. Give three safety precautions that should be observed when using an electric soldering iron.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

**3 marks**

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18. Below are steps required for soldering an LED on to a strip-board, but these steps are not in the correct order.

Rewrite the steps in the correct order.

- Touch the soft solder against the heated area.
- Repeat same procedure for the other terminal.
- Push legs of LED through the correct holes of the strip-board.
- Clean the strip board with fine steel wool.
- With hot soldering iron touch one terminal and contact area of strip board.
- Wait until enough solder encircles (surrounds) the joint.

a \_\_\_\_\_

b \_\_\_\_\_

c \_\_\_\_\_

d \_\_\_\_\_

e \_\_\_\_\_

f \_\_\_\_\_

**6 marks**

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19. a) In the space provided draw the symbol of a capacitor.



b) What is the purpose of a capacitor in electronic circuits?

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c) What unit is used to measure the value of a capacitor?

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**5 marks**

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20. a) What are the three terminals (legs) of a transistor called?

(i) \_\_\_\_\_ (ii) \_\_\_\_\_ (iii) \_\_\_\_\_

b) In the space provided draw the symbol of an NPN transistor.



**5 marks**

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21. Give one reason why batteries should be discarded (thrown away) properly.

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**2 marks**



## **SECTION D**

### **FOOD**

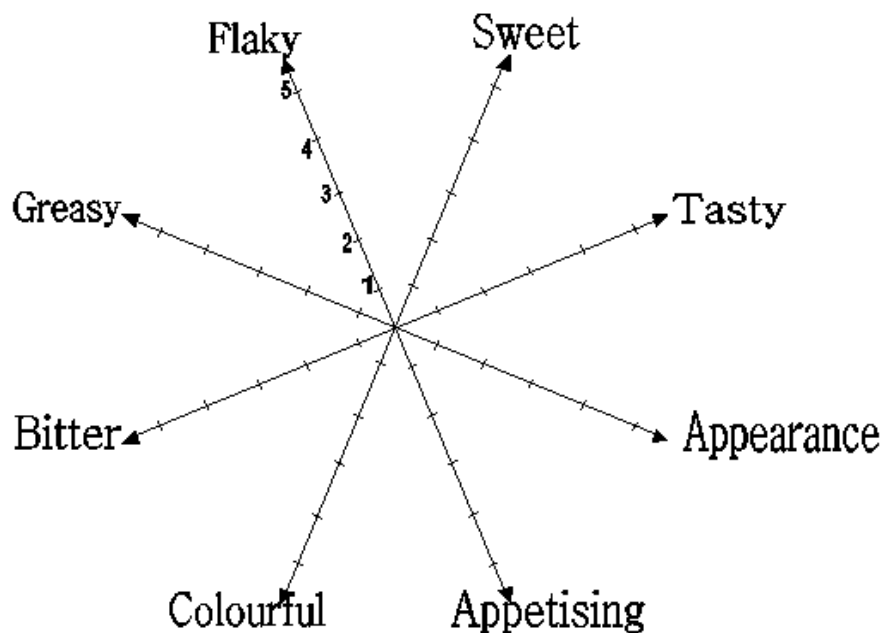
(Total marks for this section: 25)

22. It is important that food is handled carefully. Add another 4 good hygiene rules to the list below.

1. Roll up shirt sleeves
2. Use clean dishcloth
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

**4 marks**

23. Mark and shape on this Star diagram the sensory test result of an apple pie:  
Flaky 3; Sweet 4; Tasty 5; Appearance 4; Appetising 5; Colourful 2; Bitter 1; Greasy 2;



**12 marks**

24. Say what type of tool or equipment is required to carry out the following tasks.

Task	Tool or Equipment
1. Grating cheese	
2. Cutting vegetables	
3. Remove the core from an apple	
4. Peeling potatoes	
5. Weighing ingredients	

**5 marks**

- 
- 25 a) Which is the healthiest breakfast?

<input type="checkbox"/>	A doughnut and a biscuit
<input type="checkbox"/>	A banana and a bowl of cereal
<input type="checkbox"/>	Nothing

**2 marks**

- 
- b) Which is the healthiest lunch?

<input type="checkbox"/>	Cake, apple pie, fizzy drink, crisps
<input type="checkbox"/>	Cheese sandwich, apple, milk, crisps
<input type="checkbox"/>	Biscuits, apple juice, chocolate

**2 marks**

## **SECTION E**

### **TEXTILES**

(Total marks for this section: 25)

- 26.** Fabric properties such as absorbency, crease resistance, washability, colour-fastness, flame retardancy and durability are to be considered when choosing fabric for your textile projects. Suggest ONE fabric property that you would consider important for:

(i) Children's pyjama

Fabric property: \_\_\_\_\_ **1 mark**

Reason: \_\_\_\_\_

\_\_\_\_\_

**2 marks**

(ii) Bath gown

Fabric property: \_\_\_\_\_ **1 mark**

Reason: \_\_\_\_\_

\_\_\_\_\_

**2 marks**

- 
- 27.** Mention TWO methods by which fabrics can be permanently joined.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**4 marks**

- 
- 28 a)** Say which TWO of the following garments are best to use for summer sportswear.

<input type="checkbox"/>	100% cotton sports suit.
<input type="checkbox"/>	Polyester T-shirt.
<input type="checkbox"/>	100% pure woollen vests.
<input type="checkbox"/>	50% cotton and 50% linen tops

**4 marks**

- b)** Give ONE suitable reason for your answer.

\_\_\_\_\_

**3 marks**

**29.** Say which of the following statements are true or false.

	True	False
(a) Good light is necessary when sewing with the sewing machine.		
(b) A thimble is used to mark with on fabrics.		
(c) Cotton fabric is considered as an animal fabric.		
(d) Fabrics crease less when they are marked as “crease-resistant”.		
(e) A tape measure is used to take measurements.		
(f) Children’s nightwear must be flame retardant.		
(g) Velcro is a type of fastening.		
(h) Sewing needles always are of one size.		

**8 marks**