

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2006

Educational Assessment Unit – Education Division

FORM 3

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

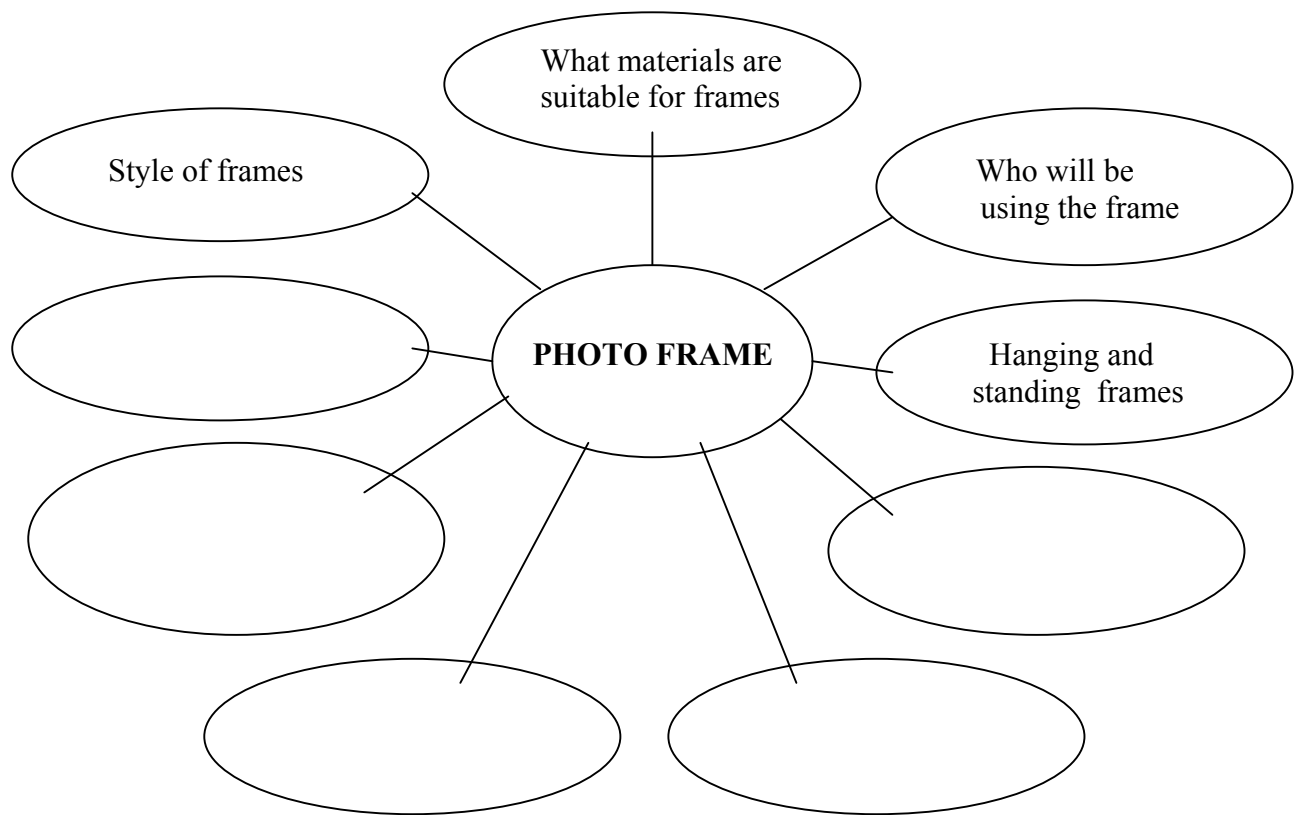
(Total marks for this section: 50)

1. Underline the key words in each of the following design briefs.
 - (a) Design and make an invitation card for a school concert.
 - (b) Design and make a clock for a teenager's bedroom.
 - (c) Design and make a snack to be sold in a school tuck-shop.

5 marks

2. You are asked to design a photo frame.

Continue the following web diagram, by giving another 5 factors that need to be investigated before starting designing your photo frame.



5 marks

3. Suppose the frame mentioned in question 2 will be produced in large numbers and put for sale. Each frame would therefore need a package.



1



2



3



4

From the symbols shown above, which are the most suitable for printing on the package in order to:

i. avoid damage to the frames during transportation?

☐

ii. show that the package can be recycled?

☐

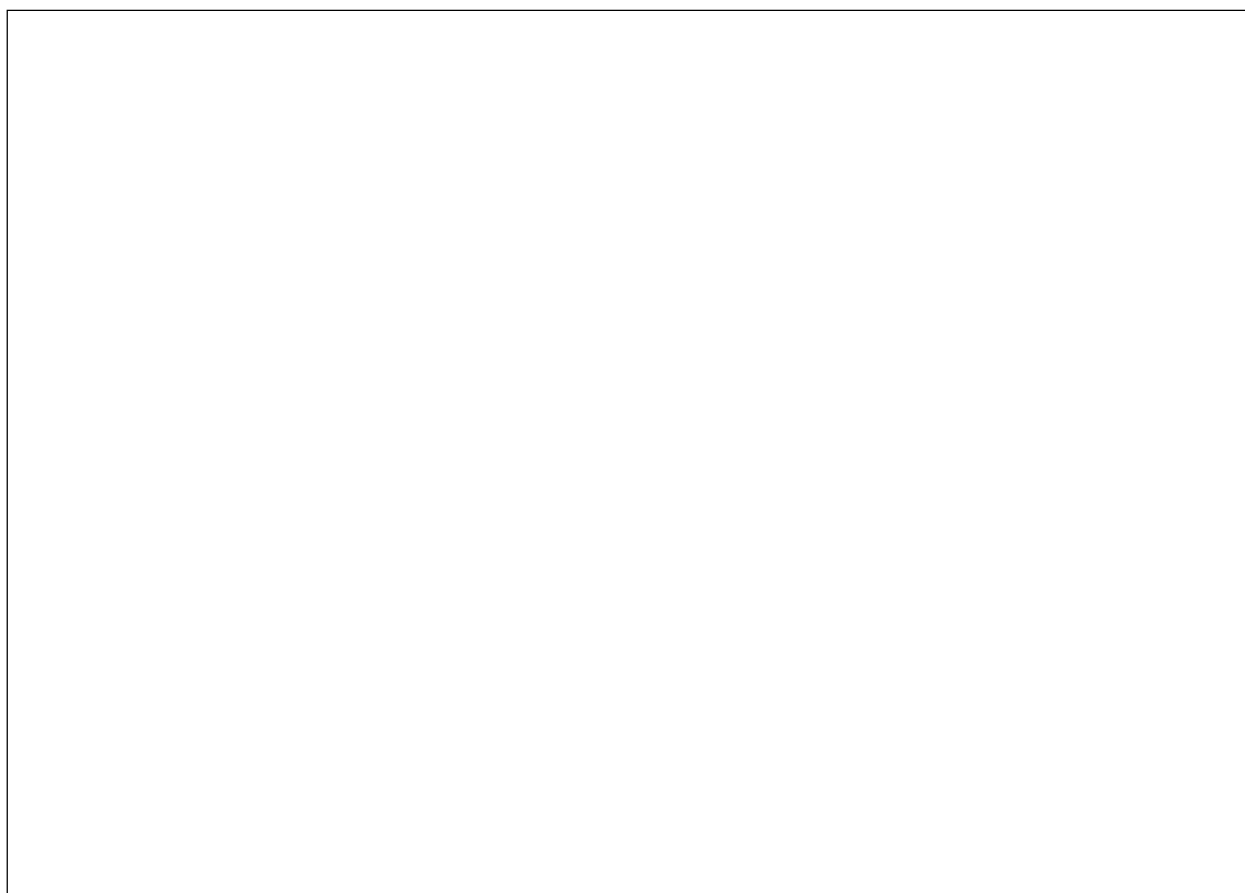
4 marks

4. In the space provided below, present, in sketch form, an idea for a photo frame.

The frame must be:

- suitable for a photo 100mm x 100mm
- free-standing
- suitable for an adult's bedroom
- of a contemporary (modern) style

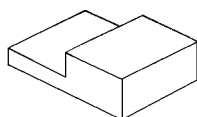
Add notes and details to your sketch in order to communicate your idea in the best possible way.



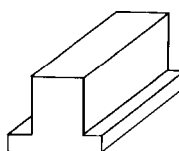
16 marks

5. State which of the following blocks is drawn:

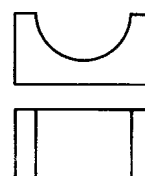
A



B



C



(i) as an oblique view




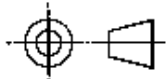
☐

(ii) as an isometric view

☐

4 marks

6. What does each of the following **represent** when used in a working drawing?

a		
b		
c		
d		

4 marks

7. In what ways can ICT help you during Design and Technology work?

- (a) Scanner _____
- (b) Printer _____
- (c) Internet _____
- (d) Word processor _____
- (e) Paint program _____
- (f) CD writer _____

6 marks

8. a) Explain briefly how you would choose the best idea from initial ideas.

- b) After you have chosen your best idea, what would be the next stage in the design process?

6 marks

END OF SECTION A

SECTION B

RESISTANT MATERIALS (Total marks for this section: 25)

1. Which of the following metals:

Steel - Copper - Aluminium

- a) is the most durable?

- b) is the lightest?

2 marks

-
2. a) Underline which of the following materials is the hardest.

Mild steel - Acrylic - Oak

1 mark

- b) Briefly describe one method how you can test materials to compare their hardness.

4 marks

-
3. Here is a list of tools you have used for making your Design and Technology projects.

Centre punch - G-clamp - Hot air blower - Hack saw - Bradawl

Say which of the above tools you have used for each of the following jobs.

JOB	TOOL
To cut metals or plastics.	
To mark the centre of a hole on wood.	
To soften thermo plastics.	
To hold work securely.	
To mark the centre of a hole on metal.	

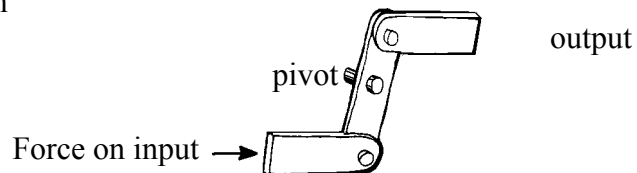
5 marks

4. State one method for joining each of the following:

- i. PVC to PVC _____
- ii. Timber to timber _____
- iii. Mild steel to mild steel _____

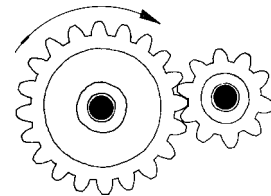
3 marks

5. Draw an arrow to show in which direction the lever on the output side will move.



1 mark

6. a) Draw an arrow to show the direction in which the small gear wheel will turn, if the large gear wheel is turned as shown.

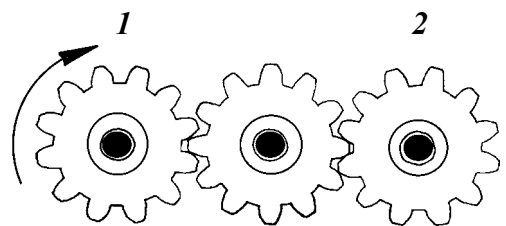


b) Refer again to the given diagram. Which gear wheel turns at a faster speed, the larger gear wheel or the smaller gear wheel? _____

c) Why will it turn faster? _____

3 marks

7. a) Draw arrows to show in which direction all gear wheels are turning.



b) If the middle gear wheel is the DRIVER, does it change **the speed** by which gears 1 and 2 will turn? _____

c) Why? _____

3 marks

8. a) In the space provided draw clearly and neatly a safety sign you have seen in your Design & Technology laboratory.
- b) Say what it means.



(b) The safety sign I have drawn means:

3 marks

END OF SECTION B

SECTION C

ELECTRONICS

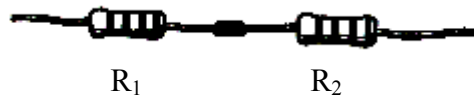
(Total marks for this section: 25)

1. What is the function of the following components?

NAME OF COMPONENT	FUNCTION OF COMPONENT
LDR (Light Dependent Resistor)	
Variable resistor	
LED (Light Emitting Diode)	

6 marks

2. If two resistors are connected in series as shown below, how is their total resistance calculated?



Total Resistance (R_t) = _____

2 marks

3. a) What are the legs of an LED called?

_____ and _____

- b) How is the negative leg of an LED identified?

2 marks

4. State the units of measurement for the following:

Resistance _____

Voltage _____

Current _____

3 marks

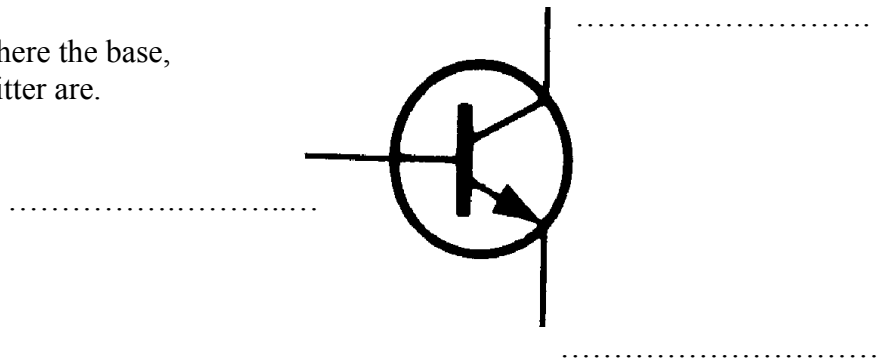
5. a) Draw the symbol of a capacitor



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

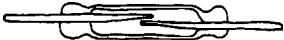

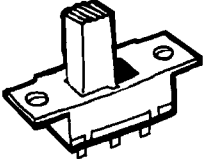
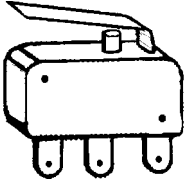
2 marks

6. The diagram shows the symbol of an NPN transistor.
Mark on the diagram, where the base, the collector and the emitter are.



3 marks

7. Give the name of each switch shown in the pictures below.

PICTURE OF SWITCH	NAME OF SWITCH
	
	
	
	

4 marks

8. State three safety precautions that should be observed when soldering electronic components.

i. _____

ii. _____

iii. _____

3 marks

END OF SECTION C

SECTION D

FOOD TECHNOLOGY
(Total marks for this section: 25)

1. What causes food poisoning? Give 3 examples.

i. _____

ii. _____

iii. _____

6 marks

2. In food production, what is the difference between 'one off' and 'mass' production?

3 marks

3. Give **one** example of high-risk food and low-risk food.

Low-risk food _____

High-risk food _____

2 marks

4. What tool or equipment is used to carry out these tasks?

Cooling a hot cake _____

Chopping meat _____

Sifting flour _____

Rolling out dough _____

4 marks

5. What is the function (use) of each of the following nutrients?

(i) Protein: _____

(ii) Fibre: _____

(iii) Calcium: _____

6 marks

6. Give **two** examples of dry cooking method and another **two** of moist cooking method.

Dry cooking: (i) _____

(ii) _____

Moist cooking: (i) _____

(ii) _____

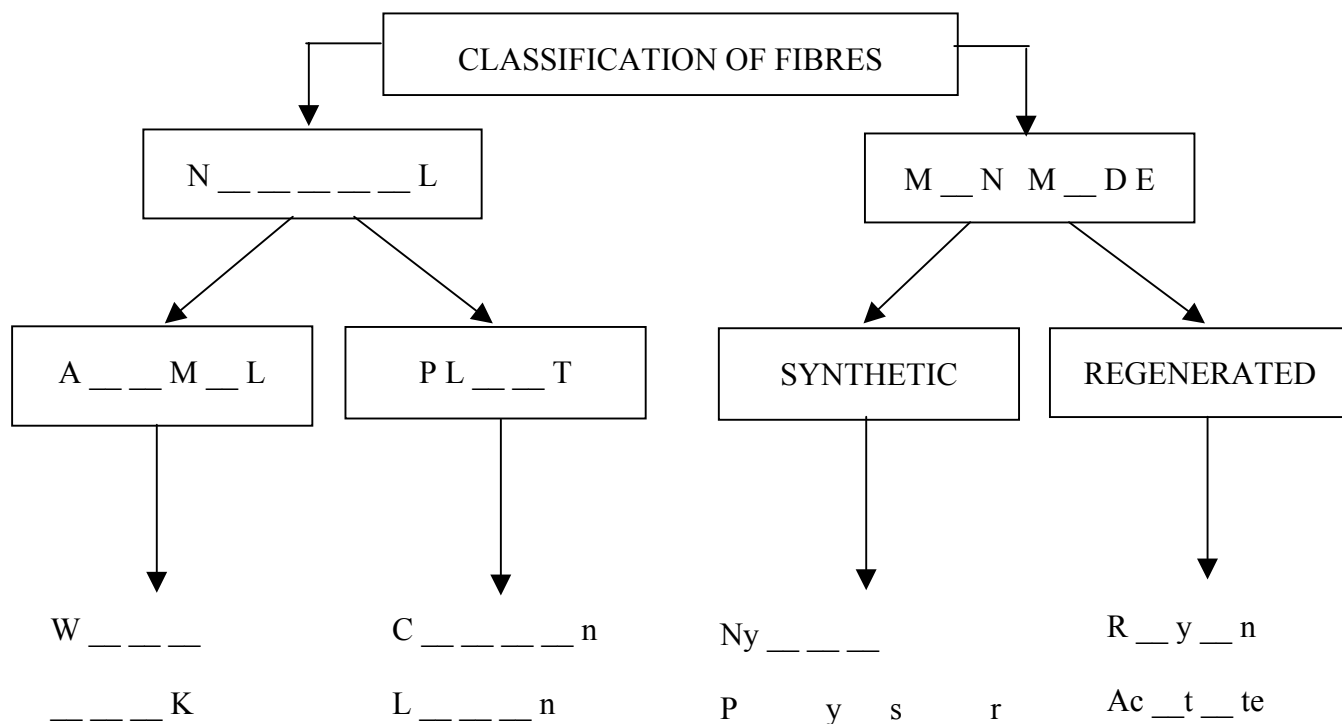
4 marks

END OF SECTION D

SECTION E

TEXTILES TECHNOLOGY (Total marks for this section: 25)

1. The Classification of Fibres shown below has some incomplete words. Fill in these missing words to make a complete chart.



6 marks

2. Mention 3 methods of decoration that can be applied to decorate a child's dress.

- i. _____
- ii. _____
- iii. _____

3 marks

3. Which method of production is likely to be used for making a designer wedding dress?

- a) One-off production ☐
- b) Batch production ☐
- c) Mass production ☐

2 marks

4. What is the meaning of each of the following care labelling symbols?









4 marks

5. Mention 5 health and safety regulations that you should observe in your school textile workshop.

i. _____

ii. _____

iii. _____

iv. _____

v. _____

10 marks

END OF SECTION D