

JUNIOR LYCEUM ANNUAL EXAMINATIONS 2007

Educational Assessment Unit – Education Division

FORMS 1 & 2

DESIGN AND TECHNOLOGY

TIME: 1h 30 min

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

<p style="text-align: center;">SECTION (A) DESIGN PROCESS This section carries a total of 50 marks</p>
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1. Re-arrange the following design stages in the correct sequence.
- Situation or Problem • Chosen idea • Investigation • Specification • Design brief
 - Research • First ideas • Development • Testing and Evaluation • Making

Design Process	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

5 marks

2. Why do you need to have a design brief before starting a project?

3 marks

3. Underline the Key Words in the following design brief.

<p>Design a clock for use in a horseracing club. The clock must be suitable for hanging to a wall and based upon a theme that goes with horse racing.</p>

5 marks

4. Mark the correct answer with a ✓
During the initial stages of the design process, Research is important:

i. so that material for a project can be cut accurately.

ii. to find different ideas for a project.

iii. to prepare a work plan for the project.

1 mark

5. Give **THREE** examples how you can get ideas for a project.

i. _____

ii. _____

iii. _____

3 marks

6. Mark the correct answer with a ✓
The methods which can show an idea in 3-D form are:

Sketch

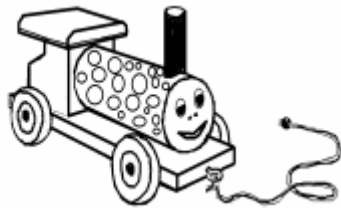
Description

Model

2 marks

7. a. What probable design brief was the designer given for each of the following products?

Product 1



Product 2



Design brief for product **1**

.....

.....

Design brief for product **2**

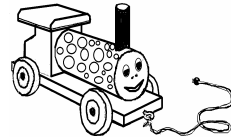
.....

.....

6 marks

b.

Write two design requirements you would include in a specification list for product **1**.

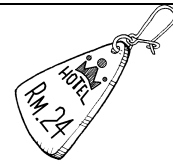


- i
- ii

2 marks

c.

Write two design requirements you would include in a specification list for product **2**.

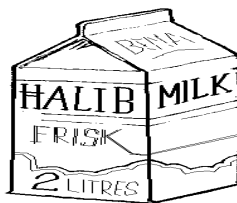


- i
- ii

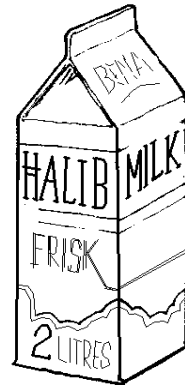
2 marks

8. Here are two ideas for a milk carton.
Both of them are meant for holding 2 litres of milk.

Idea 1



Idea 2

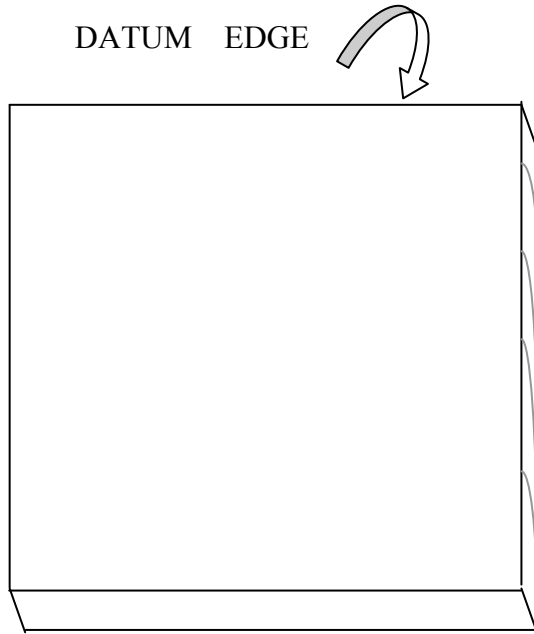


Give **TWO** advantages and disadvantages these ideas have over each other.

- i. _____
- ii. _____

4 marks

9. a. John needs your help to mark out **HORIZONTAL** lines on this piece of wood.



Mark out the lines for him according to the following measurements.

First line: 2 cm down from datum edge.

Second line: 4 cm down from datum edge

Third line: 4.5 cm down from datum edge.

3 marks

b. Use the correct words from the given list to fill in the blanks in the following sentence.

- Tapering
- Parallel
- Straight
- Curved
- Vertical

The lines drawn on John's wood are _____ and _____ lines.

2 marks

10. Write the following under their correct heading.

- Coal
- Wind
- Sun
- Water
- Natural Gas
- Oil




NON-RENEWABLE source of energy	RENEWABLE source of energy

6 marks

11. a. Symbols or pictograms are used to communicate many useful instructions or information.

Match the following products to the appropriate symbol shown in the table and give the meaning of each symbol.

- Ice tea can
- Bottled water
- Hot glue gun
- Corn Flakes packet

SYMBOL	PRODUCT	MEANING
		
		
		
1 kg e		

4 marks

b. Give an advantage of using symbols for communication purposes.

2 marks

END OF SECTION (A)

SECTION (B)
RESISTANT MATERIALS

Total marks for this section: 25

1. Several materials are found in a design and technology workshop.
Name two different materials under each heading.

METALS

NON- METALS

4 marks

2. Write one place where the following manufactured boards can be used.

Manufactured boards	Used
Chipboard	
Plywood	
Medium density fibre board	

3 marks

3. Name two different types of marking out tools used during the making process.

i _____

ii _____

2 marks

4. a. Name two non-ferrous metals.

i _____ ii _____

b. Name the metals that form soft solder.

_____ and _____

4 marks

5. Write two measures (procedures) that should be observed when applying PVA glue on two pieces of red deal to ensure a good joint.

i _____

ii _____

4 marks

6. Draw a sketch of a coping saw and indicate the handle, the frame, and the blade.

4 marks

7. The finishing on a product is very important.
Write two necessary steps that should be made before applying varnish to a wooden surface.

i _____

ii _____

4 marks

END OF SECTION (B)

**SECTION (C)
ELECTRONICS**

Total marks for this section: 25

1. Using **symbols** draw the circuit of a torch consisting of a bulb, battery, a switch and necessary

4 marks

-
2. a Give the symbol for RESISTANCE.



- b Write the value of 1200 ohms in kilohms

- c Sketch a fixed resistor showing its colour bands.



3 marks

3. Draw the following:
- i three resistors in series
 - ii three resistors in parallel

2 marks

4. Draw the symbol of a Light Emitting Diode (LED) and indicate the cathode and the anode side in their respective place.

4 marks

5. What is the purpose of the flat notch on the LED?

2 marks

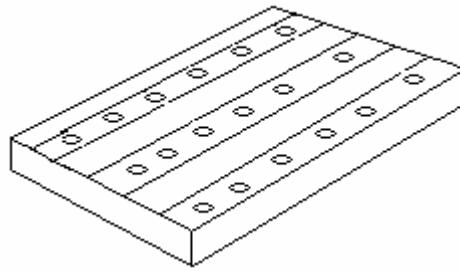
6. Write two steps that should be observed when connecting an LED.

i _____

ii _____

2 marks

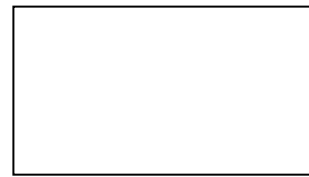
7. Indicate the conductor strips of the veroboard shown in the following picture.



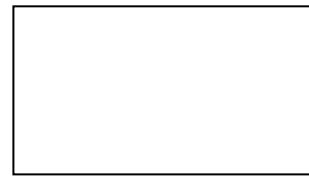
1 mark

8. Using symbols draw the following:

i single pole single throw switch. (SPST)



ii Single pole double throw switch. (SPDT)



4 marks

9. Write the tools required for the job description shown in the table below.

Job description	Tools used
Cutting wire to the required length	
Stripping wire for soldering joint	
Soldering a resistor on veroboard	

3 marks

END OF SECTION (C)

SECTION (D)
FOOD

Total marks for this section: 25

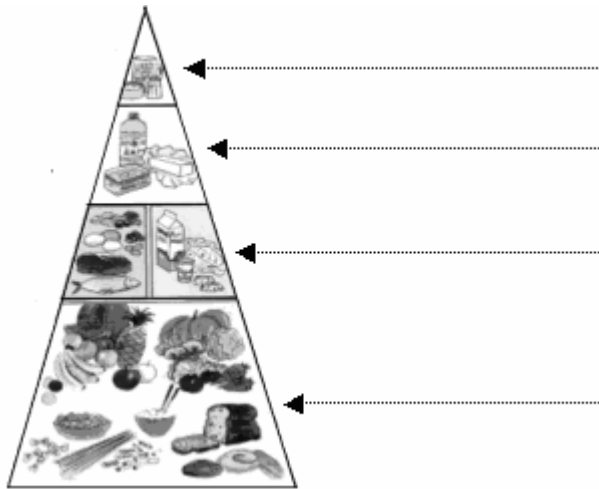
1. Two main sources of food are ANIMAL and PLANT.
Under which type of source do the following foods fall?

Animal or Plant?

Ham _____
Fresh ricotta _____
Vegetable salad _____
Bacon _____
Orange juice _____

5 marks

2. “Eat less” is one of the four dietary guidelines that go with this food guide pyramid.
Mark on the dotted arrows the correct dietary guidelines that fit best the four sections of this pyramid.



4 marks

3. All the food we eat contains different nutrients most needed to live a healthy life.

a. Which are the 5 nutrients found in food?

- i. _____
ii. _____
iii. _____
iv. _____
v. _____

5 marks

b. Which nutrient helps to fight infections?

2 marks

4. a. If wheat is considered as “primary food”, what kind of food is flour?

2 marks

b. What is the function of flour in food?

2 marks

5. During the preparation of food products what tool or equipment you would use to perform these tasks?

Cutting shaped biscuits. _____

Chopping food on. _____

Removing core of apples. _____

Grating cheese or carrots. _____

Cutting fruits in small pieces. _____

5 marks

END OF SECTION (D)

**SECTION (E)
TEXTILES**

Total marks for this section: 25

1. Study carefully this picture of a Wall Hanger and then answer the following questions:

a. Suggest a suitable fabric for the wall hanger.

1 mark

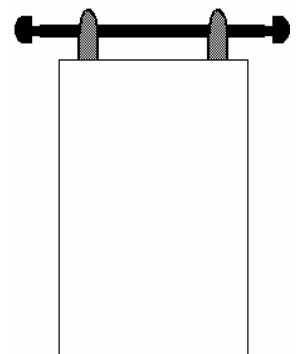
b. Mention **THREE** properties that this fabric should have.

i. _____

ii. _____

iii. _____

3 marks



c. What method would you use to finish the side edges?


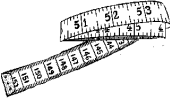
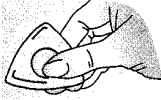

1 mark

d. What type of decoration method would you apply to make it more interesting?

1 mark

Total 6 marks

2. Give the name and the use of each of these tools:

Tool	Name	Used for
	_____	_____
	_____	_____
	_____	_____
	_____	_____

8 marks

3. List **THREE** safety precautions you would take when using a sewing machine.


i. _____

ii. _____

iii. _____

6 marks

4. Which of the following statements is **TRUE** or **FALSE**?

		True or False?
a.	Cotton is an animal fibre.	
b.	Sewing needles come in different sizes.	
c.	The warp yarn is stronger than the weft yarn.	
d.	Velcro is a type of fabric.	
e.	 This symbol indicates that cool iron should be used.	

5 marks

END OF PAPER