

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2005

Educational Assessment Unit – Education Division

FORMS 1 and 2

DESIGN AND TECHNOLOGY

Time: 1h 30min

Name: _____

Class: _____

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

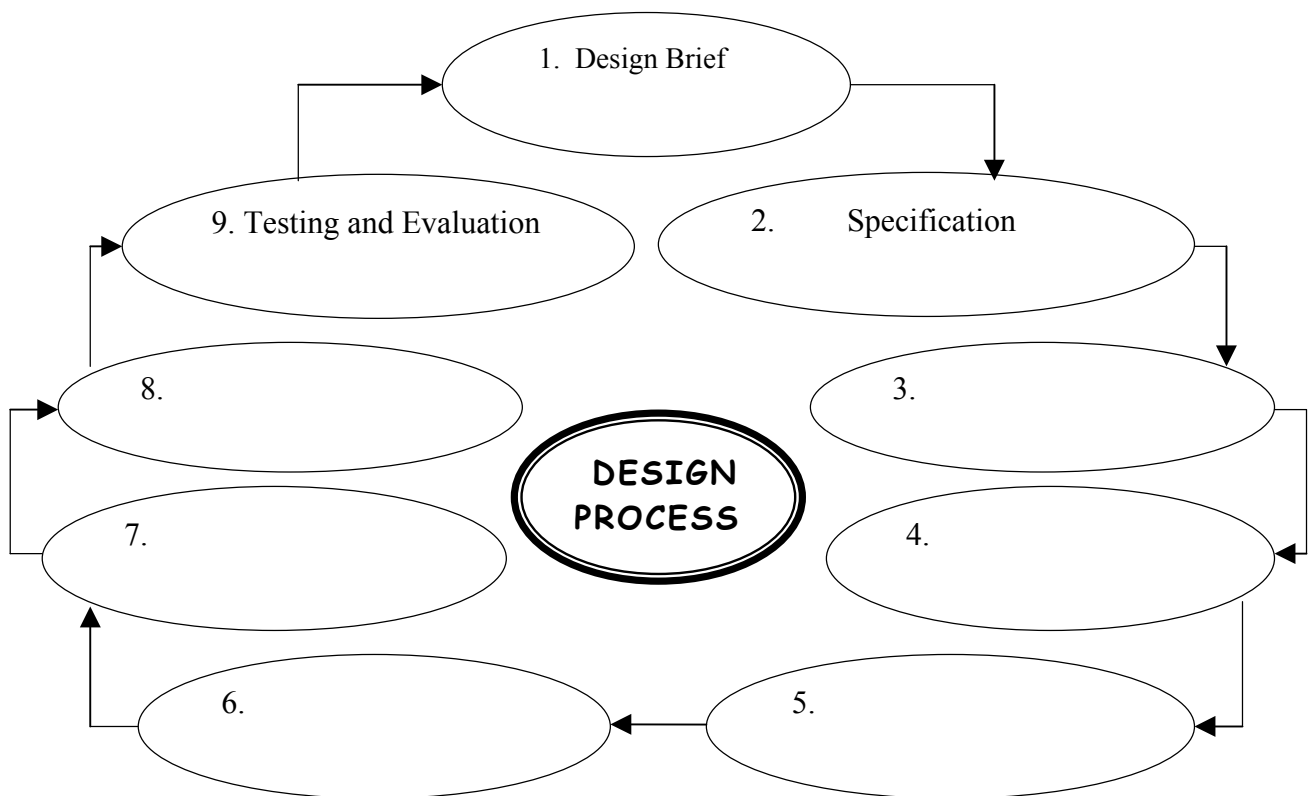
SECTION A

(DESIGN PROCESS)

(Total: 50 marks)

1. Below is an incomplete diagram showing stages within the design process. Finish off the diagram by placing the following stages in the proper sequence.

• Planning • Working drawing • First ideas • Research • Chosen idea • Making



(6 marks)

2. Underline two key words in each of the following design briefs.

(a) Design and make a picnic snack for vegetarians.

(2 marks)

(b) Design and make a pencil holder which could be given as a gift to young people shopping at 'Student's World Stationery'.

(2 marks)

3. Imagine you are asked to design a toy for little children to play with in water whilst given a bath.

(a) List two safety factors you would consider when designing such a toy.

(4 marks)

(b) A plastic material would be a very good material for making the toy.

Give a reason why a **plastic** material would be better than (i) **wood** and (ii) **metal** for making such a toy.

i

ii

(4 marks)

(c) List two places you would go to, in order to get ideas for your design.

(4 marks)

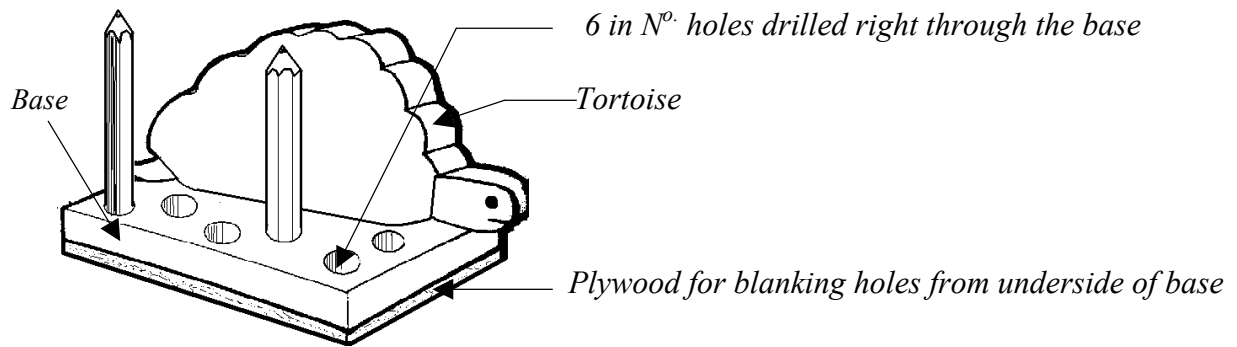
(d) List two persons who would be able to give you advice on such a toy.

(4 marks)

(e) State two methods by which you can communicate your ideas about the toy to other persons.

(4 marks)

4. Here is a sketch of an idea for a pencil holder, made of white deal wood, for a child's desk.



- (a) Is the sketch of the pencil holder shown above drawn in 2-D, or in 3-D?

(2 marks)
- (b) What proper hand tool can you use for cutting the tortoise shape?

(2 marks)
- (c) What proper hand tool can you use to cut the base?

(2 marks)
- (d) What proper hand tool can you use for checking squareness of the base?

(2 marks)
- (e) What equipment can you use for drilling the holes?

(2 marks)
- (f) Apart from gluing, give one other method how the tortoise can be fixed on the base.

(2 marks)
- (g) How would you decide the diameter of the holes?

(4 marks)
- (h) Why is it necessary to blank the holes from the underside of the base?

(4 marks)
-

SECTION B**(RESISTANT MATERIALS)****(Total: 25 marks)**

5. Mild steel is a "ferrous" metal and copper is a "non-ferrous" metal.

(a) What is the difference between a **ferrous** and a **non-ferrous** metal?

(2 marks)

(b) Give an example where **copper** is used.

(1 mark)

(c) Give an example where **mild steel** is used.

(1 mark)

(d) Give an example of a metal which is an alloy.

(1 mark)

(e) From the following list of metals say which one is the lightest and which one is the heaviest.

- **Copper** • **Iron** • **Lead** • **Aluminium**

Lightest metal	Heaviest metal

(2 marks)

6. Plastics are classified into two types: Thermo-plastics and Thermo-setting plastics.

(a) When is a plastic described as a 'Thermo-plastic'?

(2 marks)

- (b) Give a name of a plastic for each of the following types of plastics.

Thermo-plastic:	Thermo-setting:

(2 marks)

- (c) Give two reasons why almost all modern toys are made of plastic.

(2 marks)

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7. (a) Classify the following woods in their correct column.

- Parana pine • White deal • Oak • Beech

HARDWOOD	SOFTWOOD

(4 marks)

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

(2 marks)

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

(2 marks)

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8. Imagine your friend is going to use a bench drill for the first time. Mention four safety precautions you would give him so that he could use the bench drill in a safe manner.

(4 marks)

SECTION C (ELECTRONICS)

(Total: 25 marks)

9. Electrical current is **difficult** to pass through four of the following materials. Which ones are they?

• Copper • wood • iron • cardboard • ceramic • brass • plastic

a) _____ b) _____

c) _____ d) _____

(4 marks)

10. The table shown here is used to calculate resistor values.

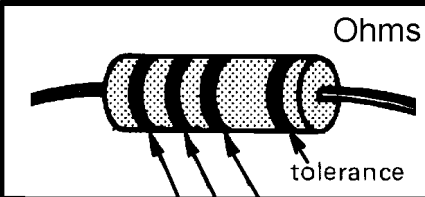
Give the values of resistors that have the following colour bands.

- resistor a: **brown, black, brown**
- resistor b: **red, red, red**
- resistor c: **orange, orange, brown**

• resistor a: _____

• resistor b: _____

• resistor c: _____

			
COLOUR	1	2	ZEROS
black	0	0	
brown	1	1	0
red	2	2	00
orange	3	3	000
yellow	4	4	0000
green	5	5	00000
blue	6	6	000000
violet	7	7	0000000
grey	8	8	00000000
white	9	9	000000000

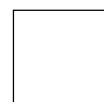
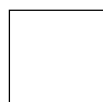
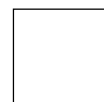
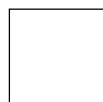
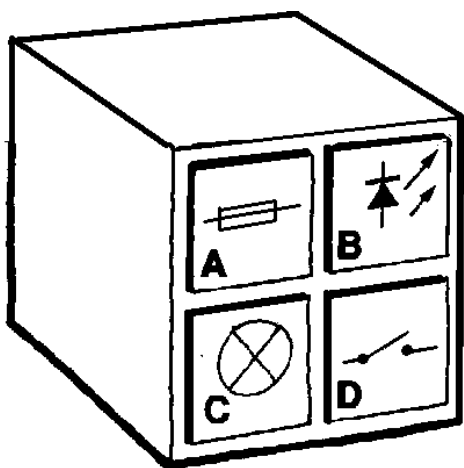
(6 marks)

11. What is the total resistance of a 300 Ω and a 200 Ω resistor connected in **series**?

(3 marks)

12. The figure shows four components and a box with drawers in which they can be stored. The drawers are labelled A to D.

(a) In the space provided label **each component** with the letter of the drawer it should go into.



(4 marks)

(b) Give the name of **each component** in drawer **B** and drawer **D**.

Component in drawer B	
Component in drawer D	

(4 marks)

13. Write two safety precautions that should be taken when using an electric soldering iron to join electronic components.

(4 marks)

SECTION D

(FOOD TECHNOLOGY)

(Total: 25 marks)

14. Food is classified under two main groups | Plant and Animal.
List the following food items under the proper food group.
An example is given for you.

<u>List of food items</u>		<u>Plant Group</u>	<u>Animal Group</u>
carrots	lettuce	<i>example: Carrots</i>	
banana	bacon		
grapes	yoghurt		
chicken	eggs		
lemons			

(8 marks)

15. In which of the following food items do you find Dietary Fibre or Calcium?

	Dietary Fibre	Calcium
(a) Canned fish		
(b) Bran flakes		
(c) Pasta		
(d) Milk		
(e) Cheese		
(f) Brown bread		

(6 marks)

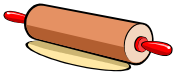




16. In food production, say when a “Batch production” and “One-off production” is used.

i Batch production _____

ii One-off production _____

(6 marks)

17. What is the NAME of the following tools/equipment?

Tool / Equipment	Name
	_____
	_____
	_____
	_____
	_____

(5 marks)






SECTION E**(TEXTILES TECHNOLOGY)****(Total: 25 marks)**

18. Natural fabrics origin from either animal or vegetable. Which of these fabrics come from animal or vegetable?

Cotton	
Wool	
Silk	
Linen	

(8 marks)

19. What is the NAME of the following tools/equipment?

Tool / Equipment	Name






(5 marks)

20. Tick ✓ TWO correct methods by which two pieces of fabrics can be joined.

<input type="checkbox"/>	lock stitch (sewing machine stitch)
<input type="checkbox"/>	drawing pins
<input type="checkbox"/>	back stitch
<input type="checkbox"/>	super glue

(4 marks)

21. Are the following statements TRUE or FALSE?

True or False?

(a) Never touch an electric sewing machine with wet hands.	
(b) Lines on fabrics are marked with a felt pen.	
(c) Sewing machine needles are of different sizes.	
(d) Good light is necessary while sewing.	
(e) Two pieces of fabrics are joined with PVA glue.	
(f) Cotton fabric is an animal fibre.	
(g) Trimming scissors is different from cutting out scissors.	
(h) Never leave a hot iron face down on the ironing board.	

(8 marks)