

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2005

Educational Assessment Unit – Education Division

FORM 3

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)

Read the situation carefully before answering the following questions.

SITUATION:

Many objects can mark or damage surfaces of tables or furniture in the home.

1. What problem is being presented in the above situation?

(3 marks)

2. (a) State three objects that can damage a polished surface by scratching.

(3 marks)

- (b) State three objects that can damage a polished table top by burning.

(3 marks)

- (c) State three liquids that can damage a polished table top by staining.

(3 marks)

3. Mention four pieces of furniture in your home whose surfaces are very much likely to be damaged by placing objects on them.

(8 marks)

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4. After having examined the given situation by answering questions 1, 2 and 3, say how in your opinion the problem of scratched table tops could be solved.

(6 marks)

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5. Choose one problem area in your home where damage to a table surface is possible and write a proper design brief.

Design and make...

(8 marks)

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6. Now that you have written your brief, sketch two ideas to show what could be done to solve the problem.

Remember that in order to communicate your ideas to others it is important that your sketches must be clear enough and have an indication of shape, sizes, materials, finishing and any proposed decoration.

You are free to colour your sketches.

Use the next page for sketching your ideas.

IDEA 1

(8 marks)

IDEA 2

(8 marks)

SECTION B (RESISTANT MATERIALS)

7. Mild steel is a “ferrous metal” and aluminium is a “ non-ferrous metal”.

a) Explain the difference between **ferrous** and **non-ferrous** metals.

(2 marks)

b) Give an example where **mild steel** can be used.

(2 marks)

c) Give an example where **aluminium** can be used.

(2 marks)

d) A method of protecting mild steel from rusting is by painting.

Give another method.

(2 marks)

8. a) Plastics are classified into two categories. Which are they?

(2 marks)

- b) Name four plastics in common use.

(4 marks)

- c) Give a reason why most electrical appliances have a plastic body.

(2 marks)

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9. a) Classify the following woods in their correct column.

PARANA PINE, RED DEAL, MAHOGANY, BEECH, WHITE DEAL

SOFTWOOD	HARDWOOD

(5 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)

SECTION C (ELECTRONICS)

10. a) Name two materials that are good electrical **conductors**.

(2 marks)

b) Name two materials that are good electrical **insulators**.

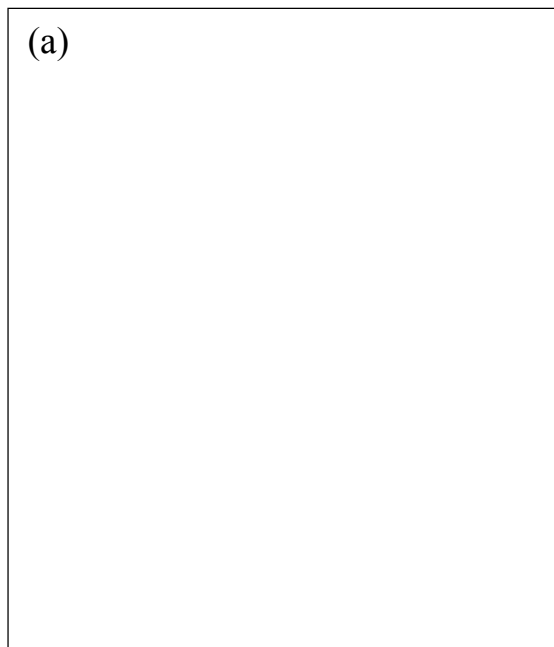
(2 marks)

11. Draw the circuit diagrams for:

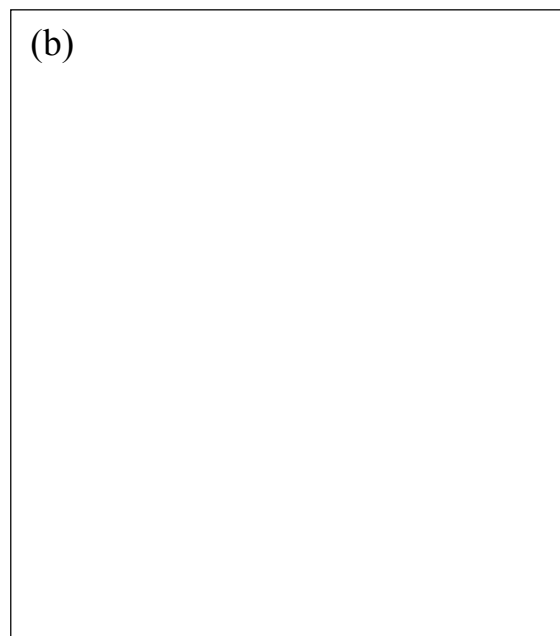
(a) **Two** 3 Volts lamps connected in series to a 6 Volt battery.

(b) **Two** 6 Volts lamps connected in parallel to a 6 Volt battery.

(a)



(b)



(6 marks)

12. (a) What instrument is used to measure the value of a resistor?

(1 mark)

(b) Why does an LED require to be connected in series to a resistor?

(2 marks)

(c) What are the two legs of an LED called?

_____ and _____

(2 marks)

(d) Which leg of the LED should be connected to the positive (+) terminal of the battery?

(2 marks)

13. Draw the symbols for the following electronic components.

Component	Symbol	Component	Symbol
Resistor		Capacitor	
Buzzer		LED	

(8 marks)

SECTION D (FOOD TECHNOLOGY)

14. The origin of food is divided into **two** main groups. Which are they?

(i) _____

(ii) _____

(4 marks)

15. Give **two** reasons why we should eat more fruit and vegetables.

(i) _____

(ii) _____

(4 marks)

16. What type of tool is used for the following tasks?

TASK	TOOL
shredding carrots	
peeling potato	
remove apple core	
drain pasta	
squeeze an orange	

(10 marks)

17. Name **two** examples of basic information that must be shown on all food packets.

(i) _____

(ii) _____

(4 marks)

18. Which type of foods are marked by a “use by date”? Give **one** example of such foods.

Type of foods _____

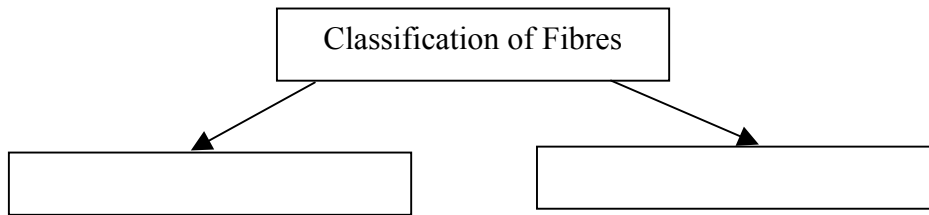
(2 marks)

Example: _____

(1 mark)

SECTION E (TEXTILE TECHNOLOGY)

19. Complete the diagram below to show the classification of fibres.



(2 marks)

20. Mention **TWO** types of natural fibres.

(i) _____

(ii) _____

(4 marks)

21. Fabrics can be joined by various methods. Can you mention TWO of them?

(i) _____

(ii) _____

(4 marks)

22. 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 by PVA glue.	

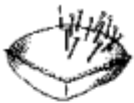





(5 marks)

23. The table below shows some textiles' tools. Complete the table by:

(i) naming the tool

(ii) stating its use

The first one has been done for you.

Tool	Name	Use
	Pin cushion	To keep pins in place.
		
		
		
		
		

(10 marks)