

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2002

Educational Assessment Unit – Education Division



FORM 4

TECHNOLOGY EDUCATION (A)

TIME: 2 hours

Name: _____

Class: _____

Answer all questions

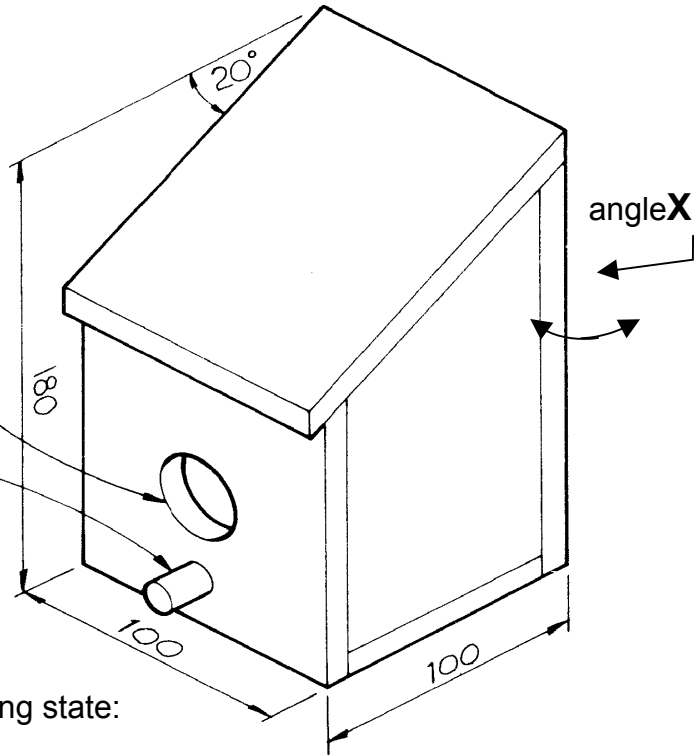
BIRD BOX

Material: White deal wood

All dimensions are in mm

All parts
10 mm thick

Hole $\varnothing 30$
Peg $20 \times \varnothing 10$

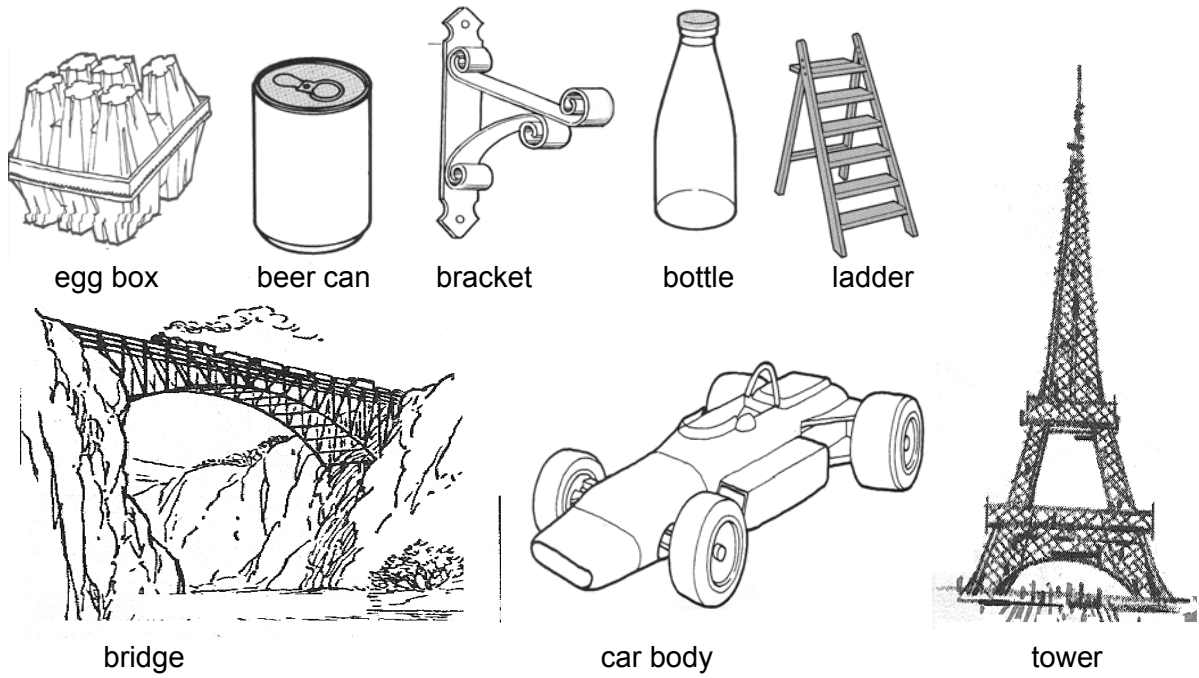


1. By referring to the above drawing state:

- a) Name of object. _____
- b) Type of material. _____
- c) Diameter of hole. _____
- d) Diameter of peg. _____
- e) Number of parts required. _____
- f) Maximum height of object. _____
- g) A suitable method for joining parts. _____
- h) Thickness of material. _____
- i) Length and width of material for base _____
- j) Angle marked "X". _____

10 MARKS

2. Classify the following structures in their correct column.

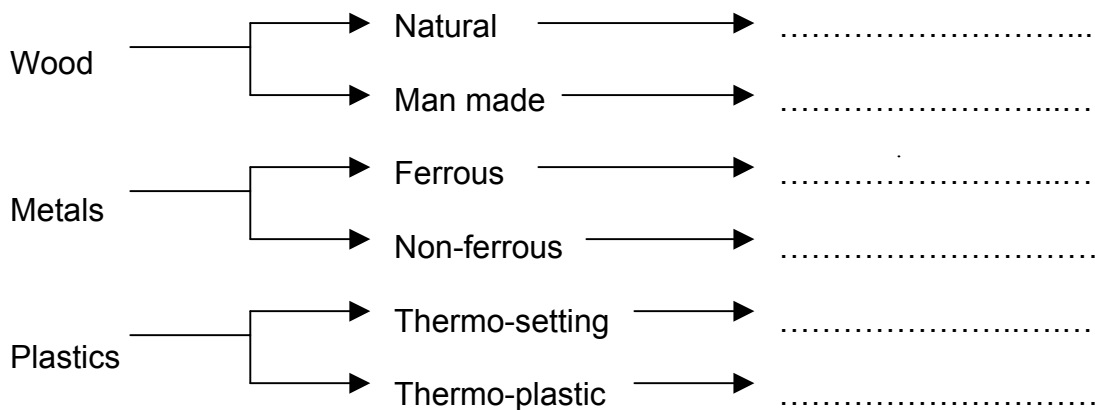


SHELL STRUCTURE	FRAME STRUCTURE

8 MARKS

3. Complete this table by putting the following materials in their proper place.

Oak, GRP (fibre glass), Fibre board, PVC, Copper, Mild steel.



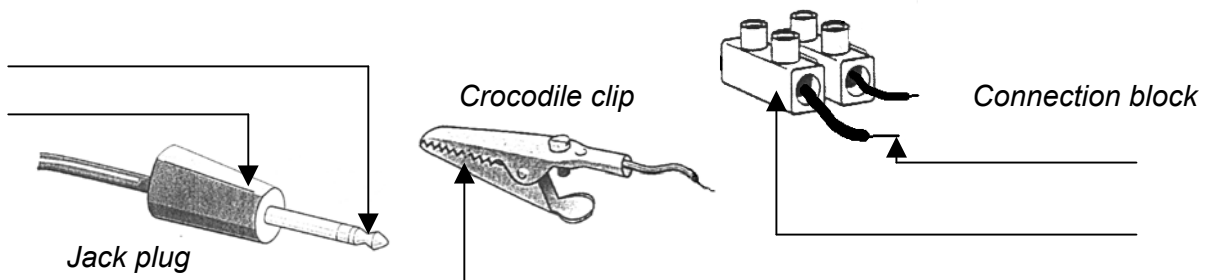
6 MARKS

4. What is the **output** of each of the following objects when an input is given?

OBJECT	OUTPUT
<i>Example:</i> Match	Flame
Guitar	
Kettle	
Gas heater	
Paper puncher	
Door bell	
Television	
Toaster	
Hair drier	
Motor	
Clock	

10 MARKS

5. Here are three electrical components. State whether the marked parts are conductors or insulators.



5 MARKS

6. Match the following glues with the materials for which they are suitable.

GLUE

- e.g. Glue stick (e.g. Uhu stick)
- Solvent cement (e.g. Tangit)
- PVA glue (e.g. Bondit)
- Epoxy resin (e.g. Araldite)
- Synthetic resin (e.g. Cascamite)

MATERIALS BEING JOINED

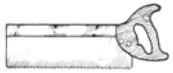
- PVC to PVC
- Paper to paper
- Wood to wood (interior use)
- Wood to wood (Exterior use)
- Metal to metal

4 MARKS

7. Below are three common hand-held cutting tools:

(i) Give the name of each tool;

(ii) Tick (✓) the material for which it is suitable.



Name of tool	Metal sheet	Plywood	PVC sheet	Textile
	0.5mm thick	8mm thick	4mm thick	Light weight

7 MARKS

8. In the picture we can see that Joe is not very safe in this workshop.

Identify five hazards to his safety.



a) _____

b) _____

c) _____

d) _____

e) _____

5 MARKS

9. Below are signs which give information to control health and safety risks.
Give the meaning of each sign.



A



B



C



D



E

A: _____

B: _____

C: _____

D: _____

E: _____

5 MARKS

10. Symbols or pictograms are a very important method of giving instructions.

An Italian factory printed symbols on the outside of boxes in order to ensure that its product is handled correctly during transportation to Malta.

Ninu is a port worker and needs to know the meaning of these symbols.

Help him find each right meaning.



A



B



C



D



E

Which symbol shows:

1. that the product must be handled with care? _____
2. that the product is fragile (breaks easily)? _____
3. that the product must be protected from moisture (water)? _____
4. how many boxes can be placed on top of each other? _____
5. the way up the boxes should be kept? _____

5 MARKS

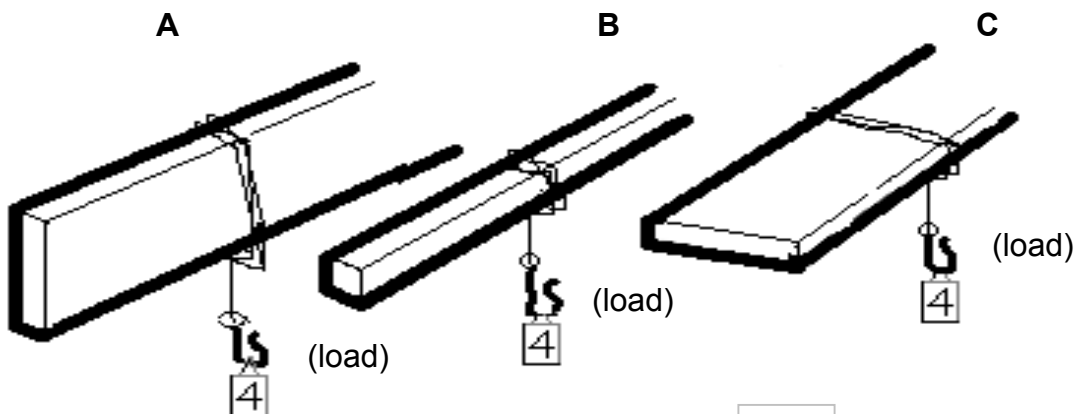
11. State whether each of the following statements is true or false.
Mark your answer with a tick (✓) .

	True	False
a) Voltage and current are used to measure temperature.		
b) An LED allows current to flow in any direction.		
c) Four 1.5V batteries in series are equal to one 6V battery.		
d) The value of a resistor is measured in ohms (Ω).		
e) Cranks, pulleys and cams are types of mechanisms.		
f) Pulleys can rotate each other if connected by a belt.		
g) Stainless steel rusts quickly.		
h) Aluminium is heavier than steel.		
i) Expanded polystyrene is used to make take-away food boxes.		
j) Welding is used to join steel.		

10 MARKS

12. In structures, any member which has to resist bending is called a beam.
The stiffness of a beam depends on its ability to resist bending.

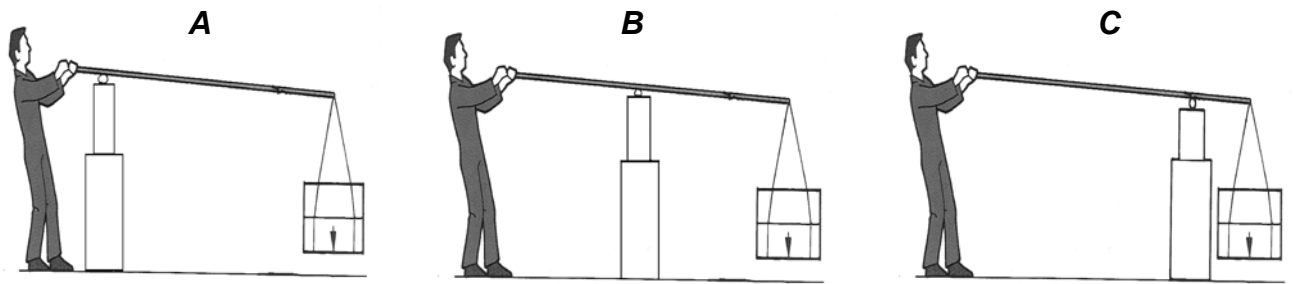
If the following beam sections are made of the same material, which one is the stiffest and does not bend easily?



The stiffest beam section is:

1 MARK

13. Tommy needs to raise a heavy box. Which of the three methods shown below will make Tommy's work (i) most easy and (ii) most difficult?



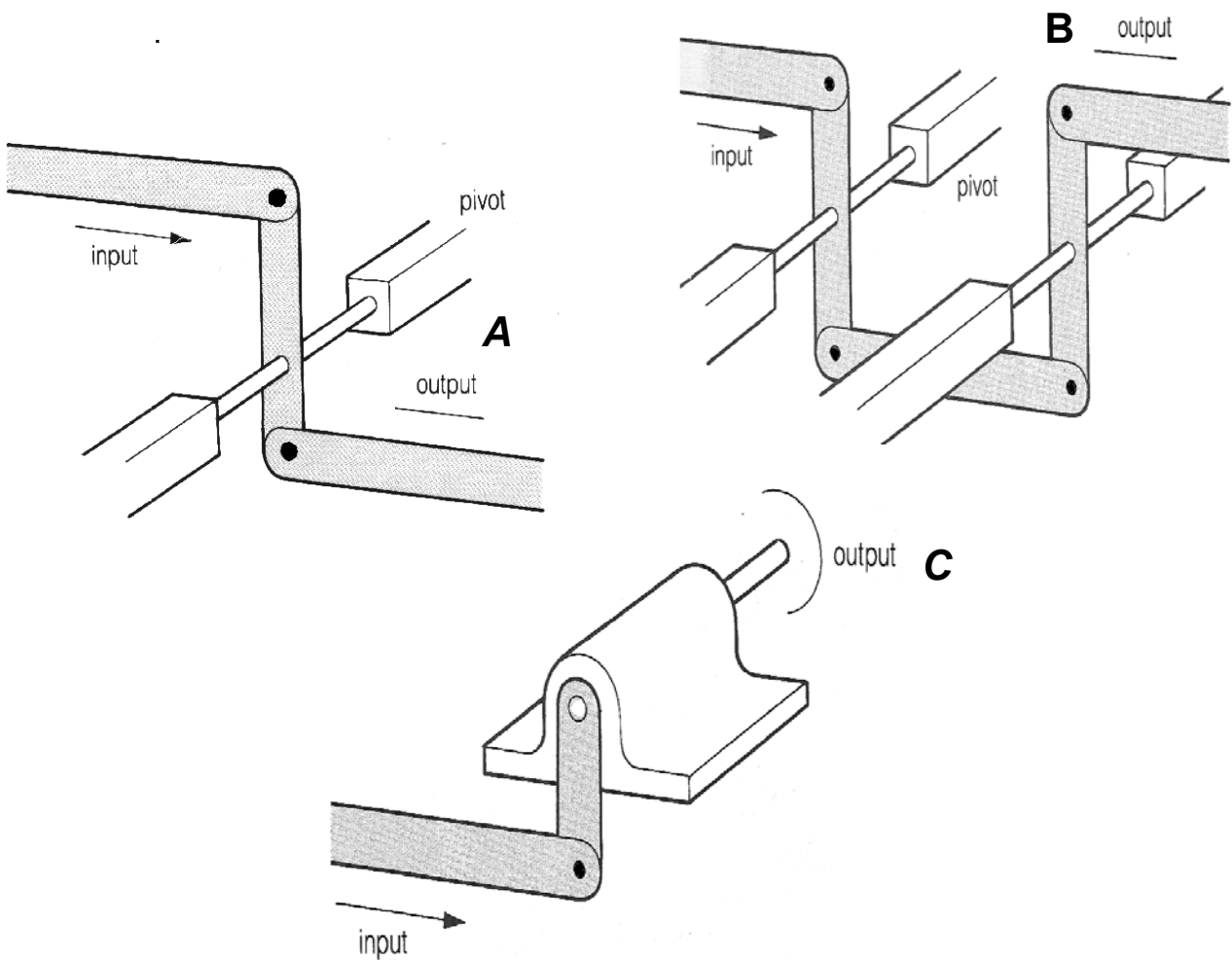
(i) Most easy: _____

(ii) Most difficult: _____

2 MARKS

14. Below are three link mechanisms.

Draw an arrow to show the direction of motion on the output side of these mechanisms.



3 MARKS

15. Match the following appliances with the type of energy conversion each one involves.

<u>APPLIANCE</u>	<u>CONVERSION OF ENERGY</u>
Wall lantern	Electrical energy to heat energy
Food mixer	Electrical energy to light energy
Hi-fi system	Electrical energy to mechanical energy
e.g. Water heater	Electrical energy to sound energy

3 MARKS

16. State whether each of the following statements is true or false.
Mark your answer with a tick (✓).

	True	False
a) The design brief shows what you need to do to solve a problem.		
b) A successful design depends on how good your research is.		
c) Colour, fashion and style affect the appearance of a design.		
d) Surface finish of a product depends on the material you use.		
e) Planning makes your work more difficult.		
f) Planning helps you to finish work in time.		
g) You can work from a freehand drawing if it has all details.		
h) When drawing large objects, you can draw them to a scale.		
i) Models can be used to test and compare different design ideas.		
j) A working drawing must include a list of tools needed for the job.		
k) A 2-D sketch shows width, length and height.		
l) You can draw your design ideas, using a computer programme.		
m) You test a product to check your intelligence.		
n) When you check for sharp edges, you will be testing for safety.		
o) When you check a seat height, you will be testing ergonomics.		
p) Evaluation of your work must be done by other people.		

16 MARKS