JUNIOR LYCEUM ANNUAL EXAMINATIONS 2004

Educational Assessment Unit. Education Division

FORM V   **TECHNICAL DESIGN**   **Time 2hours**

Instructions

Write your name and class on ALL sheets.
Attempt ALL questions
Questions should be attempted on the pre-printed answer sheets provided
All answers are to be drawn accurately, with instruments, unless otherwise stated.
All construction lines MUST be left on each solution to show the method employed.
Drawing aids may be used.

Information

All dimensions are in millimetres
Estimate any dimensions not given.
Marks will be awarded for accuracy, clarity and appropriateness of construction

NAME _____   CLASS _____

Question No.	1	2	3	4	5	6
Total mark	10	12	12	20	23	23
Marks awarded						

1. The figure below shows a very simple laboratory electrical circuit.
Draw a wiring diagram, replacing the electrical components shown in the
sketch, with the appropriate electrical symbols from those given.

10 marks

6 Volt Battery

Switch

Voltmeter

Variable resistor

Ammeter

Filament Lamp
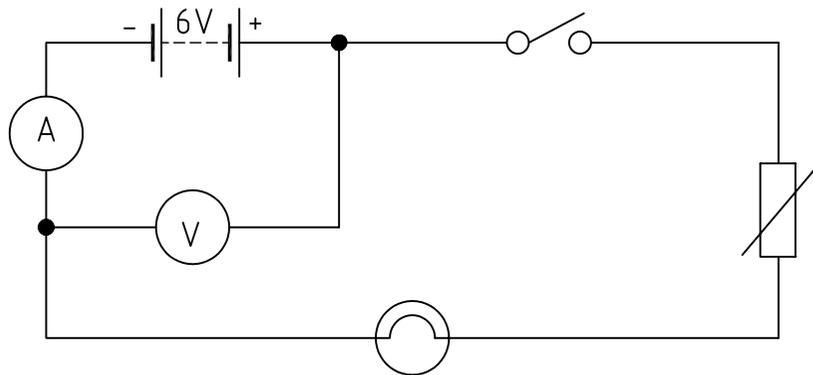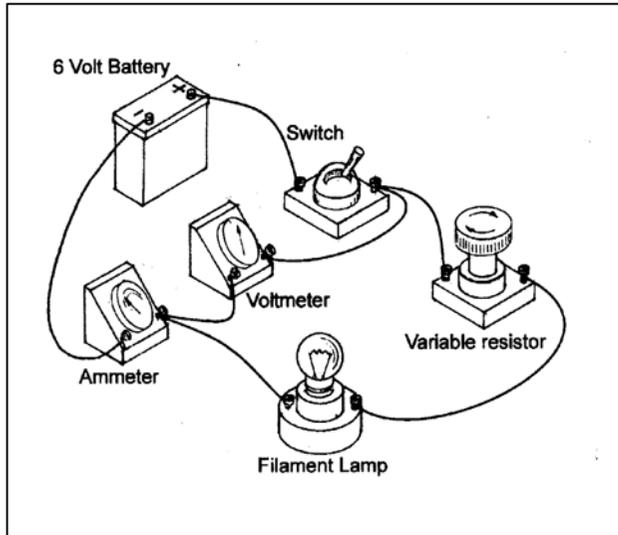
2. Using a triangle of forces determine the magnitude of the forces A and B necessary to hold P in equilibrium.

To a scale of 10mm = 10N, draw a vector diagram and state the magnitude of the forces and indicate their direction.

12 marks

A

45°

P

30°

B

120°
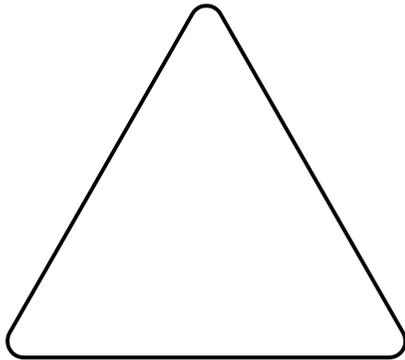
30N

– 6V +

A

V

Sheet 1 of 3
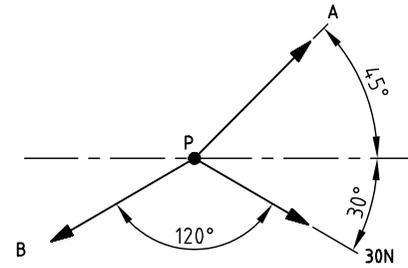
3. An ideogram is required to warn that the passage way is slippery.

In the space below draw neatly the above sign.
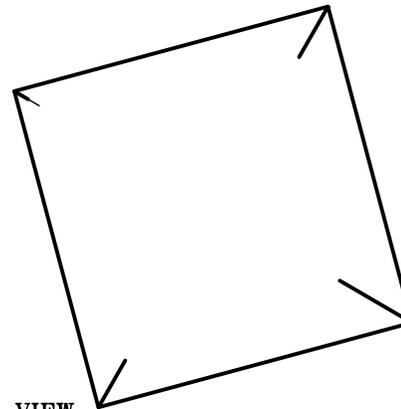
Use the correct colours.

10 marks

4. The figure below shows the elevation and an incomplete plan of a truncated Junction Piece open at both top and bottom and fabricated from tin sheet metal
(a) Complete the plan view to show the open top of the Junction Piece
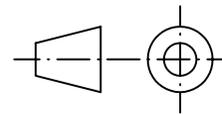(b) Draw the development of the truncated Junction with the Joint at JJ.

20 marks
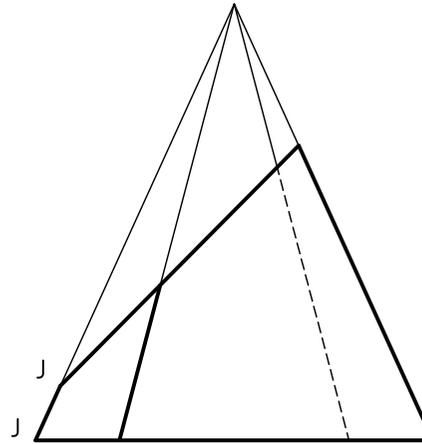
FRONT VIEW

PLAN VIEW

5. The figure shows details of a bracket produced from metal plate. The upper part of the template is shaped to a semi - ellipse where major axis is 130mm and minor axis 80mm.

(a) Draw accurately this template FULL SIZE, showing clearly the method by which the semi - ellipse, the square and the 15° angle are constructed and how the position of the 60mm radius is found.

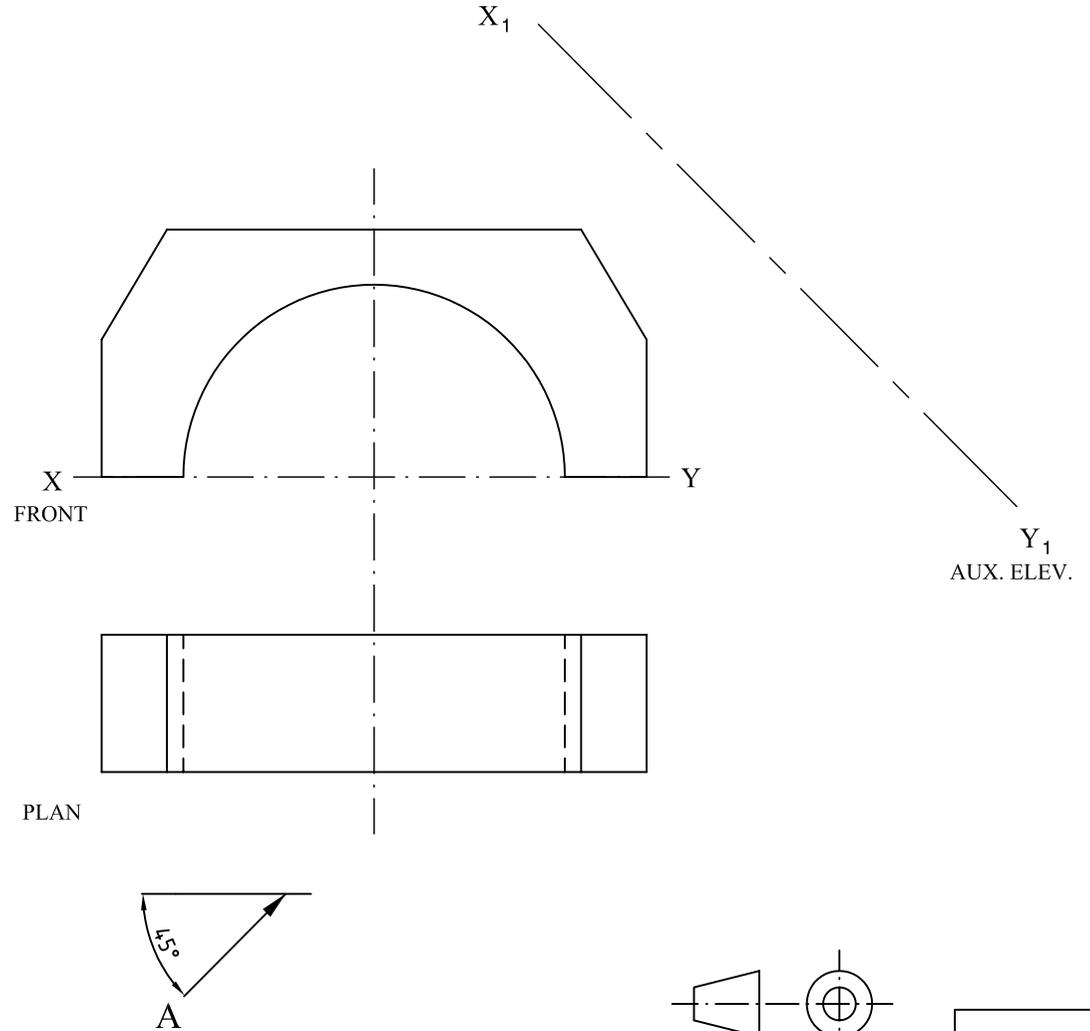(b) Draw a tangent to the radius of 30mm at point P, show full details of its construction.

23 marks

130

40

MINOR AXIS

MAJOR AXIS

R30

20

30 SQ

10

20

R60

15°

50

P

NOT TO SCALE
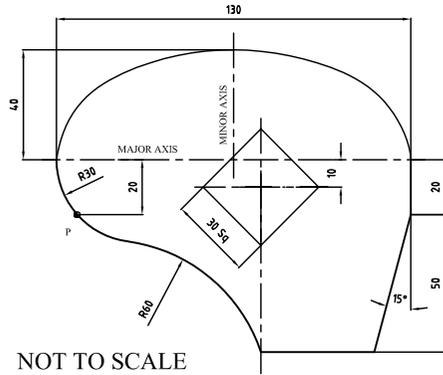
6. The figure below shows two views of a machined component.
   (a) Using first angle projection draw an auxiliary elevation looking at the given plan in the direction of arrow A.

   (b) Show all hidden details
   (c) Do not erase construction lines.

23 marks

X₁

X — FRONT — Y

Y₁
AUX. ELEV.

PLAN

45°

A

Sheet 3 of 3