1503/104
TECHNICAL DRAWING
Oct./Nov. 2011
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

TECHNICAL, INDUSTRIAL, VOCATIONAL AND ENTREPRENEURSHIP TRAINING

CRAFT CERTIFICATE IN AUTOMOTIVE ENGINEERING MODULE I

TECHNICAL DRAWING

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

- *Drawing papers*
- *Drawing Instruments*

*This paper consists of **TWO** sections; **A** and **B**.*
*Answer questions **ONE**(compulsory) in section **A** and any **FOUR** out of **FIVE** questions in section **B**.*
Maximum marks for each part of a question are as indicated.
All dimensions are in millimetres.

This paper consists of 6 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

Turn over

SECTION A

(Compulsory Question)

1. Figure 1 shows details of a pulley bracket. Assemble all the parts and draw full size the following views in 3rd angle projection:

   (a) A sectional front elevation along cutting plane Z-Z.
   (b) A plan
   (c) End elevation.

   - Design a fastener to suit part No. 2.
   - Draw a parts list
   - Include six major dimensions (40 marks)

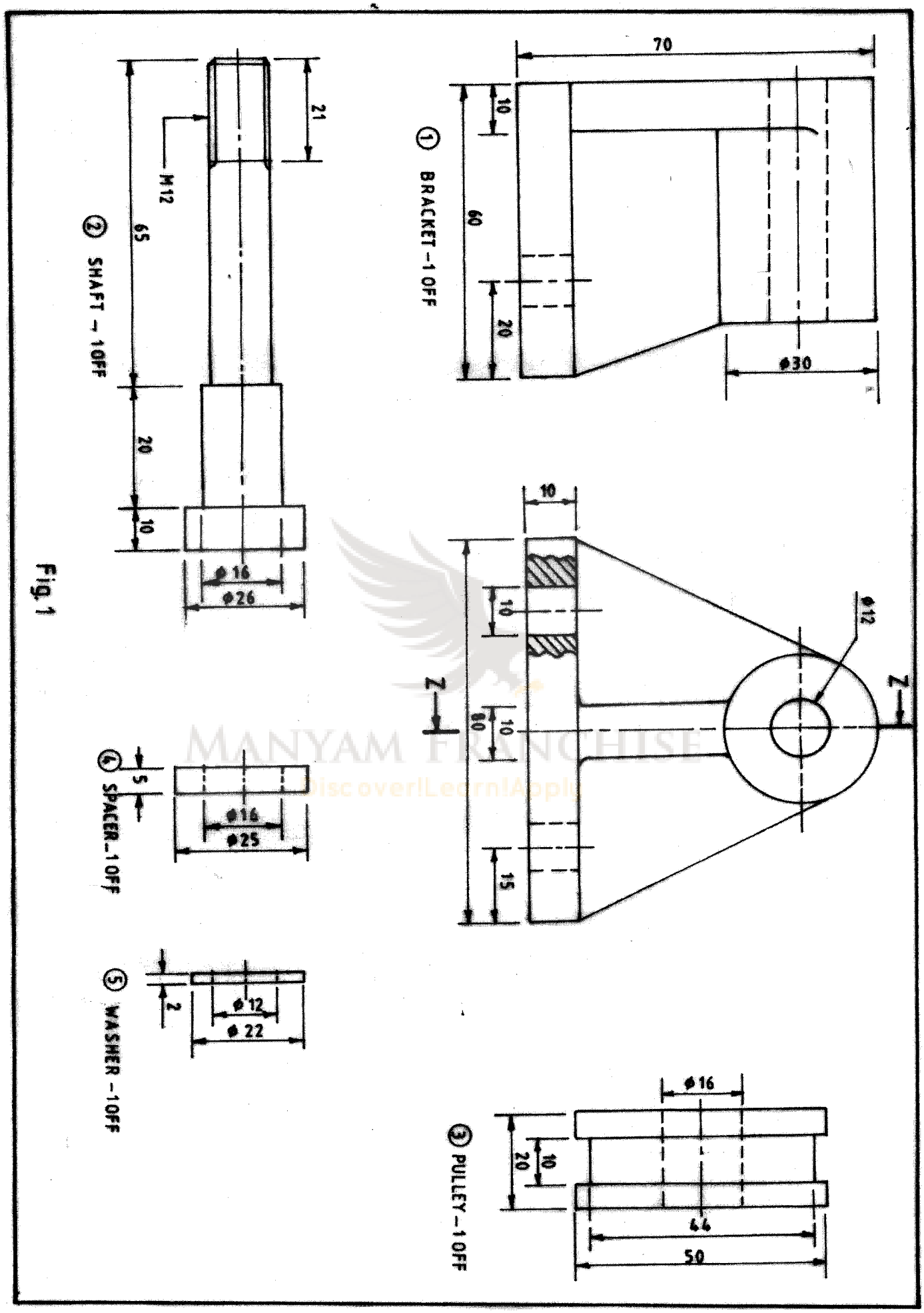

Fig. 1

SECTION B

*(Answer at least **FOUR** questions from this section)*

2. Figure 2 shows a machine block drawn in orthographic projection. Draw full size, an isometric view of the block with corner y as the lowest point. (15 marks)

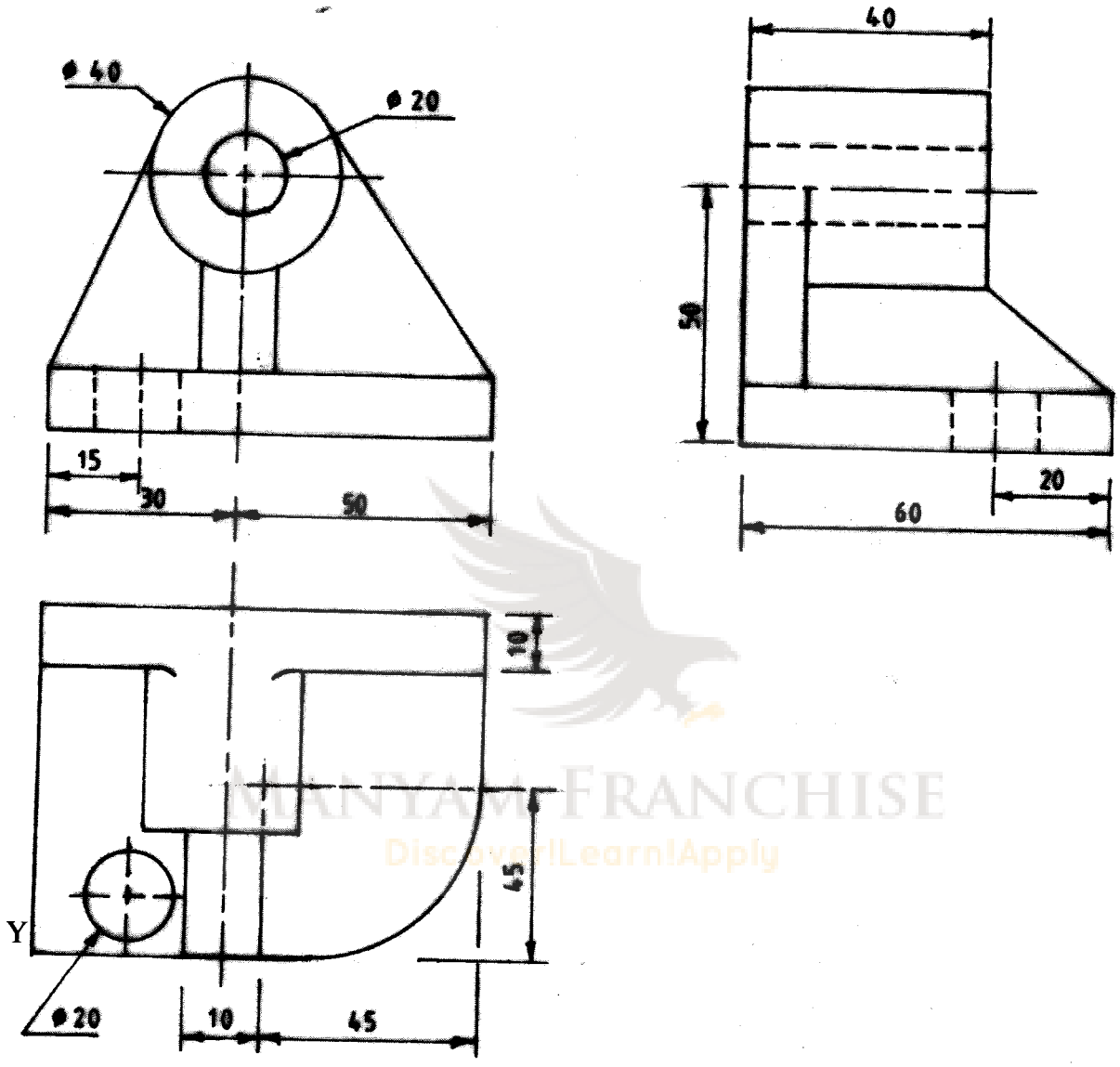

Fig. 2

3. Figure 3 shows a square prism vertically penetrating a cone. Draw the given views and:

(i) Construct the line of intersection.
(ii) Draw the surface development of the square prism. (15 marks)

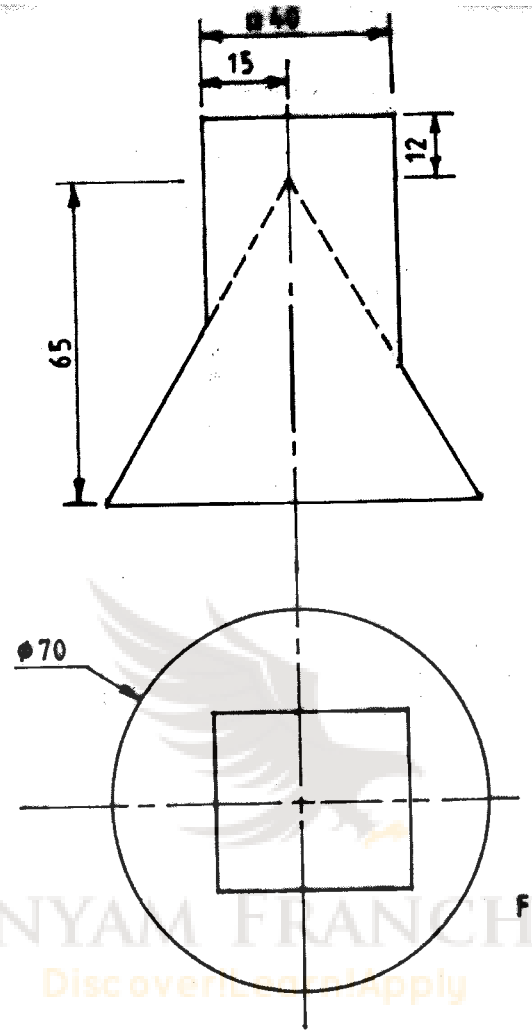

Fig. 3

4. (a) Draw figure 4 as shown and reduce its area by a ratio of 2:3. Use corner P as the centre of reduction. (7 marks)

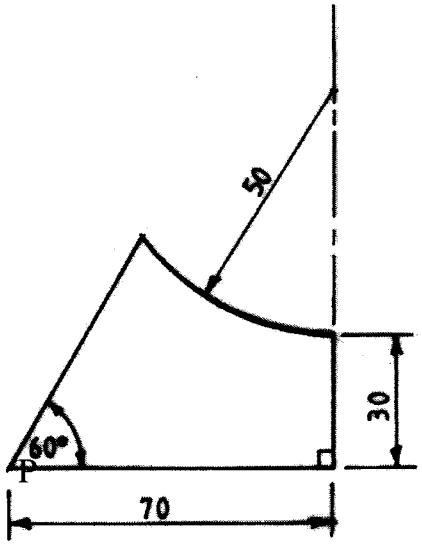

Fig. 4

(b) A point P moves such that the sum of its distance AP + PB from two fixed points A and B remains constant at 130 mm. The distance between A and B is 90 mm. Draw the locus of point P and name the locus. (8 marks)

5. Figure 5 shows a truncated hexagonal pyramid. Draw:

(i) the given view;
(ii) the plan;
(iii) an auxiliary view from the director of arrow A. (15 marks)

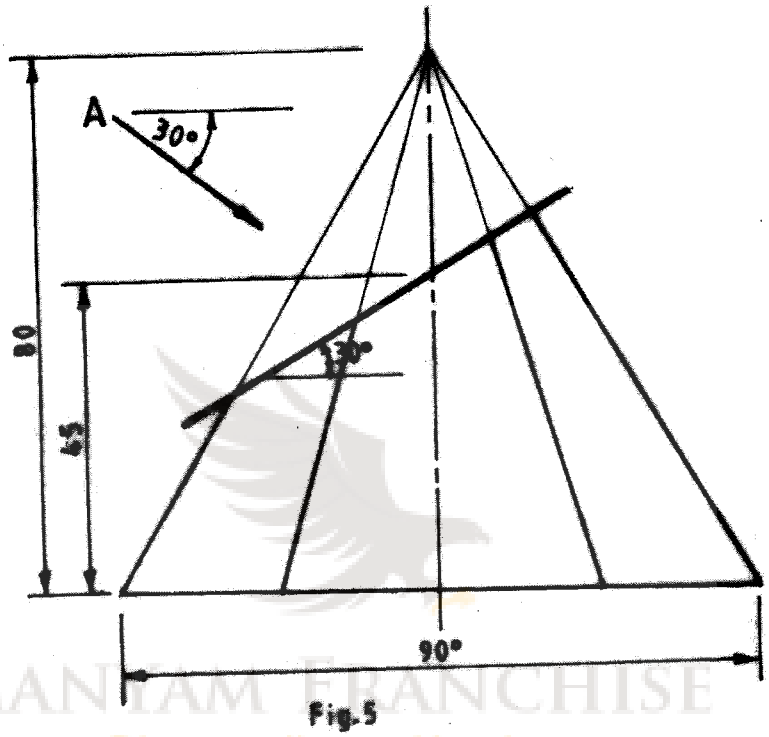

Fig. 5

6. (a) Sketch each of the following:

(i) scrap section;
(ii) part section;
(iii) revolved section. (9 marks)

(b) Draw the symbols of the following electrical components use in automotive wiring:

(i) battery
(ii) diode
(iii) fuse
(iv) bulb
(v) resistor
(vi) switch. (6 marks)