GEOMETRICAL AND MECHANICAL DRAWING

Maximum Marks: 80

Time Allowed: Three hours

(Candidates are allowed **additional 15 minutes** for **only** reading the paper.

They must **NOT** start writing during this time).

All dimensions are in millimeters.

Arcs of circles less than 4mm radius may be drawn freehand.

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*Candidates are required to attempt all questions from **Section A** and
all questions **EITHER** from **Section B** **OR** **Section C**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A – 25 MARKS

Question 1 [25]

Figure 1 given below shows a machine block. Draw the front view, top view and
side view by using first or third angle method of projection. Also, draw the symbol
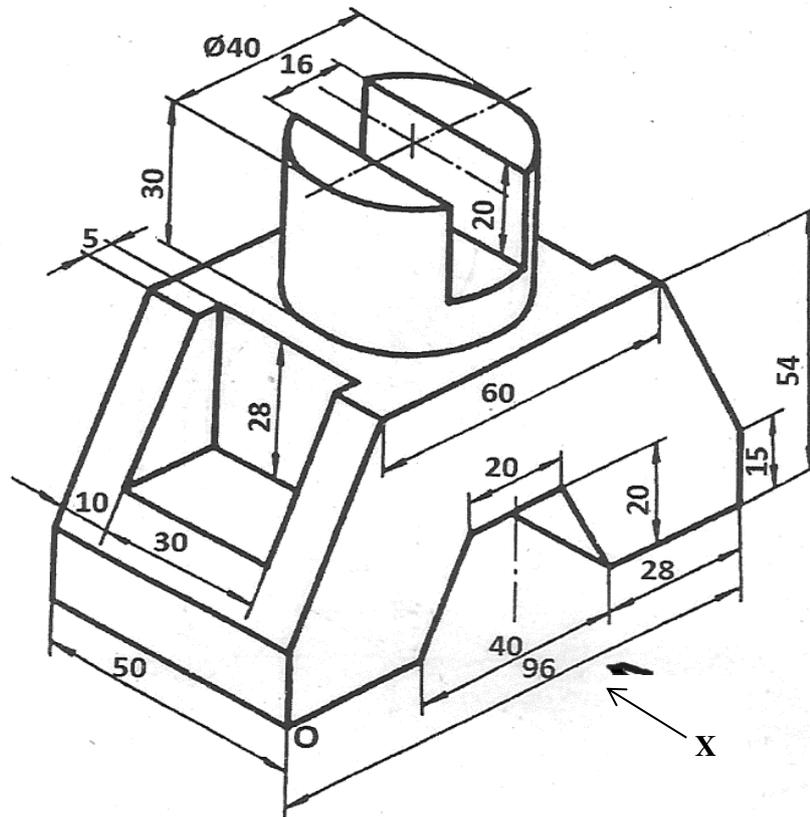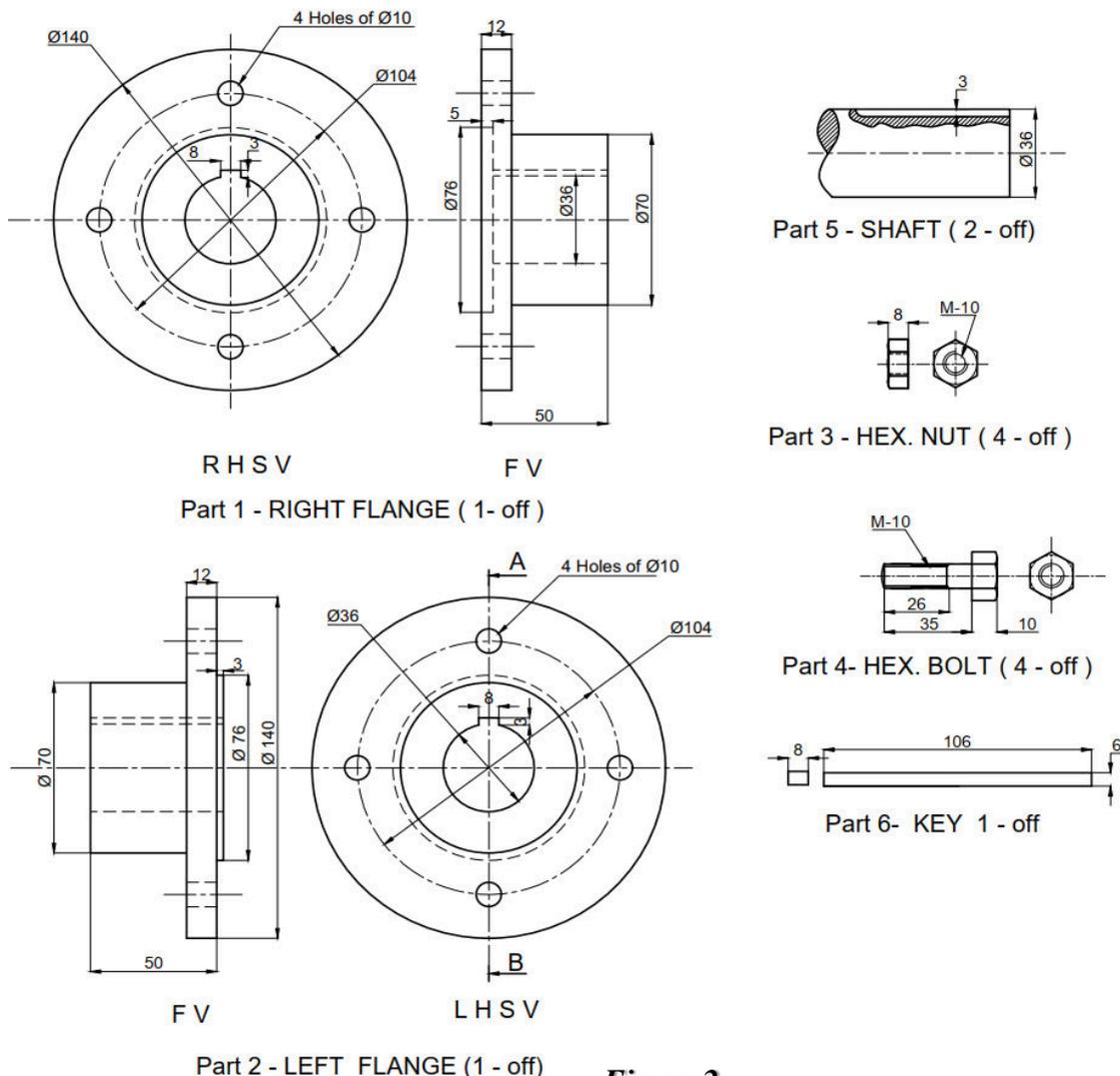of method of projection which you have chosen.

Figure 1

SECTION B – 55 MARKS

Question 2

(i)   *Figure 2* shows details of components of a flange coupling used to transmit power from one shaft to another shaft.

Left flange (part 2, Qty 1) is connected to the right flange (part 1, Qty 1) using hexagonal nut (part 3, Qty 4) and bolt (part 4, Qty 4). Both the shafts (part 5, Qty 2) are passed through the main central cavity of both the flanges creating a space for inserting the key (part 6, Qty) in the respective flanges thereby providing a locking arrangement for the shafts.

   (a)   Draw full size sectional elevation along A-B of the assembled components.   **[25]**

   (b)   Draw the plan (Top View) of the complete assembly omitting all hidden details.   **[10]**

   (c)   Draw the left-hand side view of the assembly omitting all hidden details.   **[10]**

   (d)   Make a neat parts list for all the components on your drawing sheet.   **[10]**

Part 1 - RIGHT FLANGE (1- off)

Part 5 - SHAFT (2 - off)

Part 3 - HEX. NUT (4 - off)

Part 4- HEX. BOLT (4 - off)

Part 6- KEY 1 - off

Part 2 - LEFT FLANGE (1 - off)

Figure 2

SECTION C – 55 MARKS

(i)   ***Figure 3*** given below shows the isometric view of a machine block. Copy the   **[20]** isometric view.
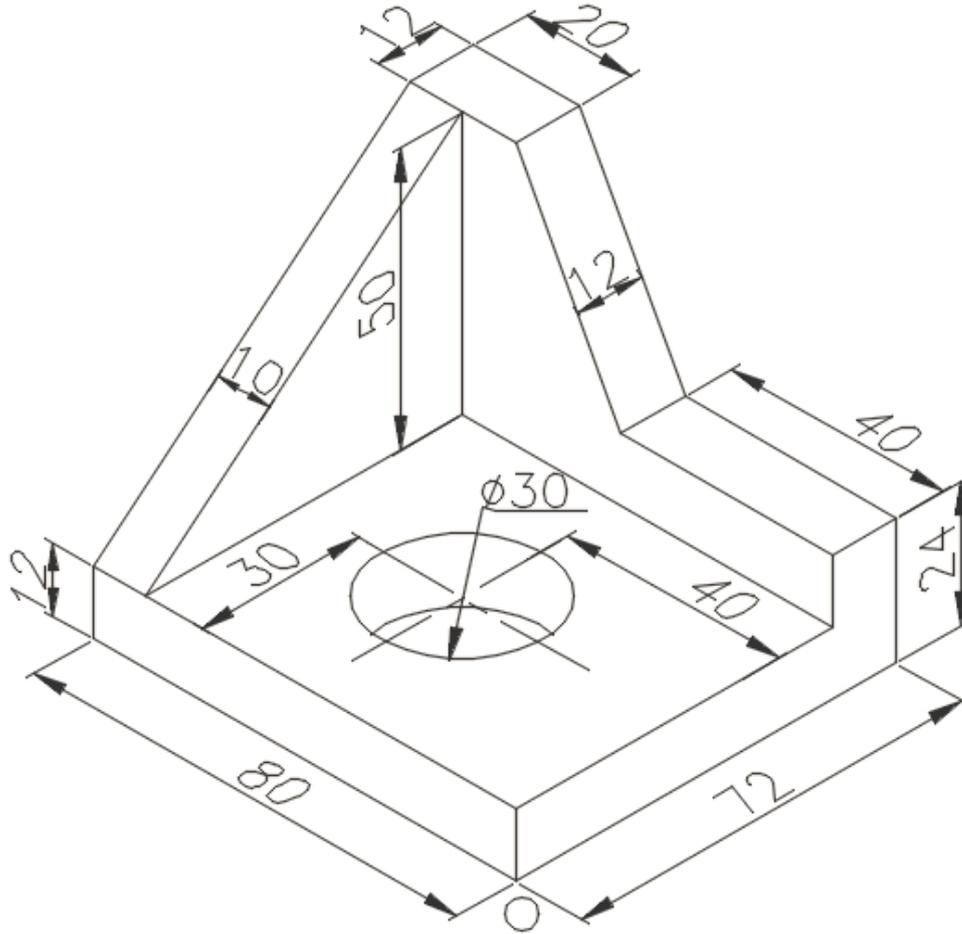

Figure 3

(ii)   *Figure 4* given below shows the machine block. Draw by using first or third   **[20]**
        angle method of projection Sectional Front View (along A-A), Top View and
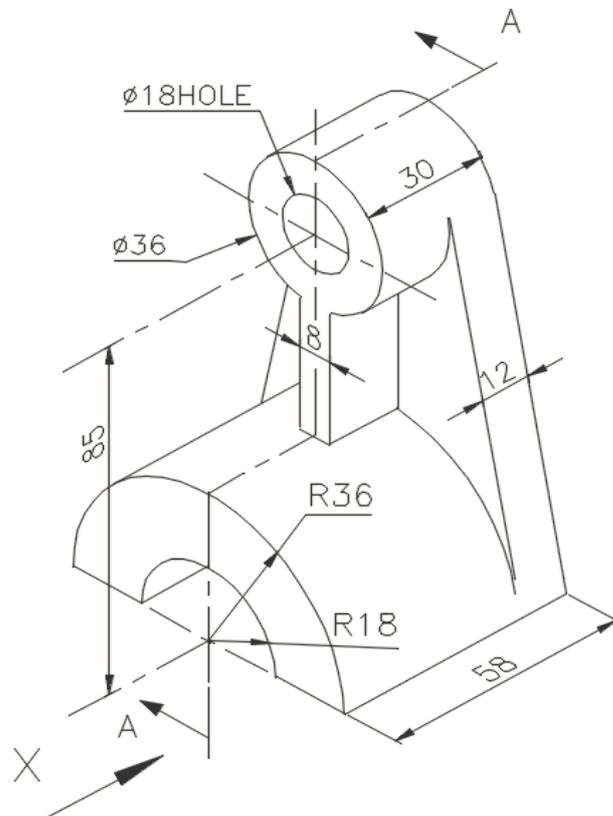   Side View.

Figure 4

(iii) *Figure 5* given below shows Top View of a square base pyramid in first angle **[15]** method of projection. Copy the given figure. Complete the Front View and draw its Front View and Top View if its axis is inclined at 45^0 to Horizontal Plane and Top View of the axis is inclined at 30^0 to Vertical Plane.
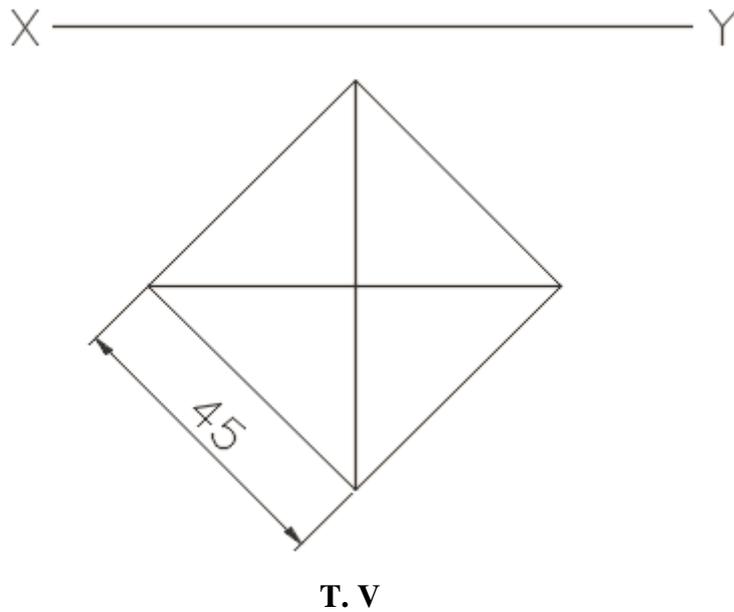
Given :

Axis height = 75mm

T. V

Figure 5