Question 9

50mm

50mm
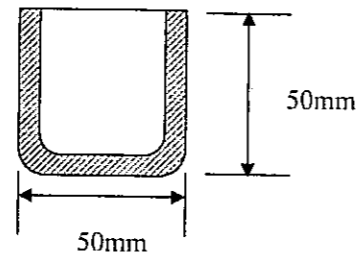
Figure

(a) The cup shown in the figure is drawn from a blank. Estimate the theoretical diameter of the blank required to draw this cup. Assume that the thickness of the blank and the cup drawn remain unchanged.

(b) What is the best metal forming operation that can be employed to draw the cup? Sketch and explain the function of the press used for this operation.

(c) What are the major defects in an unsuccessful deep drawing? What precautionary measures should be taken at the planning stage of the product and the drawing operation in order to avoid such defects?

THE OPEN UNIVERSITY OF SRI LANKA

DIPLOMA IN TECHNOLOGY (LEVEL 03)

FINAL EXAMINATION – 2005
IN
ENGINEERING DRAWING – MEX 3234

DATE	: 20th March 2006
TIME	: 1330 hrs to 1730 hrs
DURATION	: Four (04) hours

CAREFULLY READ THE FOLLOWING INSTRUCTIONS BEFORE ATTEMPTING TO ANSWER THE QUESTION PAPER.

1. Read carefully and understand the questions before you start answering.
2. Clarify any doubts with the supervisor/invigilator in the examination hall.
3. Question in **SECTION A** is compulsory. Answer this question and one another question of your choice from **SECTION B**.
4. It is strongly advised to prepare a sketch of the solution on a rough paper, before drawing it on the drawing paper. If you wish, you could attach the sketch to your answer scripts.
5. Spend approximately three hours for question Q1 and rest of the time for the other question.
6. Use both sides of the drawing paper.
7. Draw the standard cage, title block, projection symbol etc. only for the question Q1. (Marks will be deducted if the title block is not properly placed)
8. All construction details, centerlines etc. should be clearly shown.
9. Candidate is strictly advised to write his/her Index Number, Registration Number, and Course Code only. Do not write your name or any other information.

This paper contains five (05) pages

SECTION A
(Compulsory)

Q1. Figure.1 shows the views of different components of a "SAFETY VALVE" presented as an exploded view of the valve, and all views are orthographic projections.

1.	Base	6.	Pillar. (Nos. 2)
2.	Valve seat	7.	Check nut
3.	Valve	8.	Bridge
4.	Spring	9.	Adjuster.
5.	Spring holder	10.	Standard Nut. (Nos. 2)

The fluid enters from down side of the Base. The fluid flow is controlled by turning the adjuster. The position of the adjuster is secured by the check nut. The free length of the spring is 70 mm. It has a mean diameter of 25 mm and a coil diameter of 5 mm. It consists of 8 turns.

Assemble the components in their correct positions with the compressed length of the spring as 65 mm.

Draw the following views to a scale of full size in **first angle** projection.

(a) Sectional Front Elevation of the assembly on X – X corresponding to the given front elevation of the base.

(b) End Elevation of the assembly projected to the right of view (a).

(c) Half Plan. (Top half)

Adhere to the following instructions;
- Assume any missing dimensions.
- No hidden details are necessary.
- Give a minimum of five main dimensions of the assembly.
- Indicate the symbol of projection
- Print the main title **"SAFETY VALVE"**, sub titles and scale.
- Radii of casting curves may be taken suitably.

SECTION B
(Answer only one question)

Q2. A vertical cylinder is intersected by an object as shown in the Plan view and incomplete Elevation given in first angle projection as shown in Fig. Q2.

(i) Complete the Elevation.

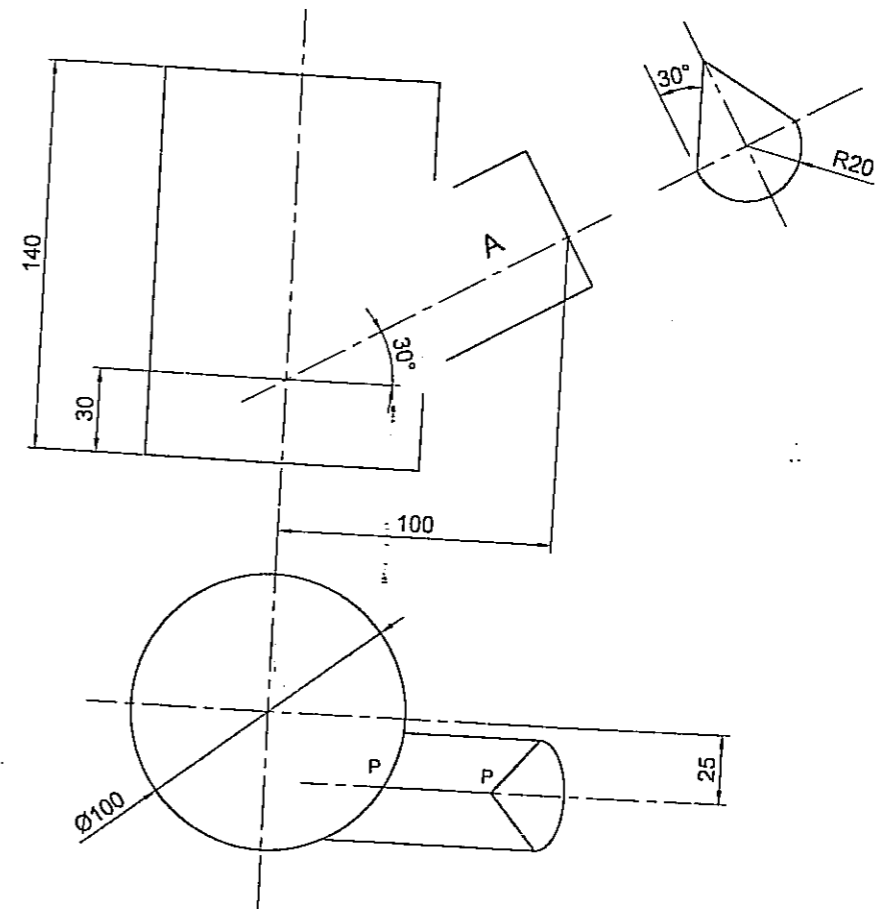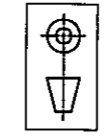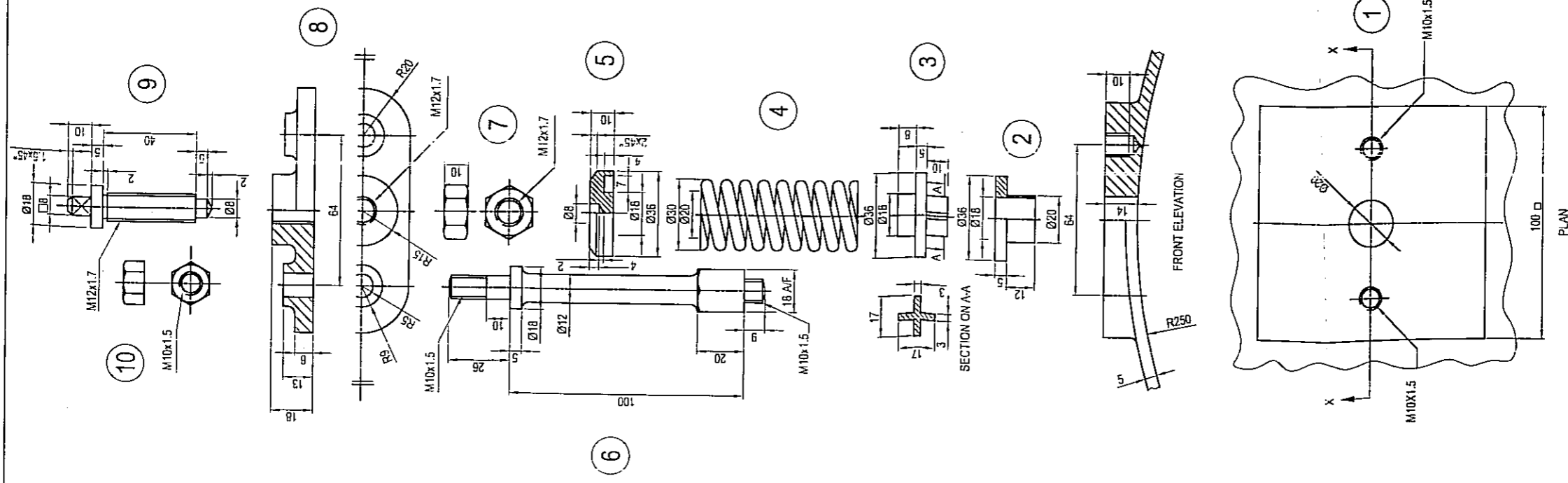(ii) Draw the development of the part " **A** " taking **P – P** as the seam.

Fig.Q2

SAFETY VALVE

FINAL EXAMINATION - 2005

ENGINEERING DRAWING

MEX3234

FIG.1

NOT TO SCALE

ALL DIMENSIONS IN MILLIMETERS

Q3. Fig.Q3 shows two orthographic views of an object. Draw the isometric projection of the object to a scale of full size taking the near point as shown by the arrows. **Use natural scale.**
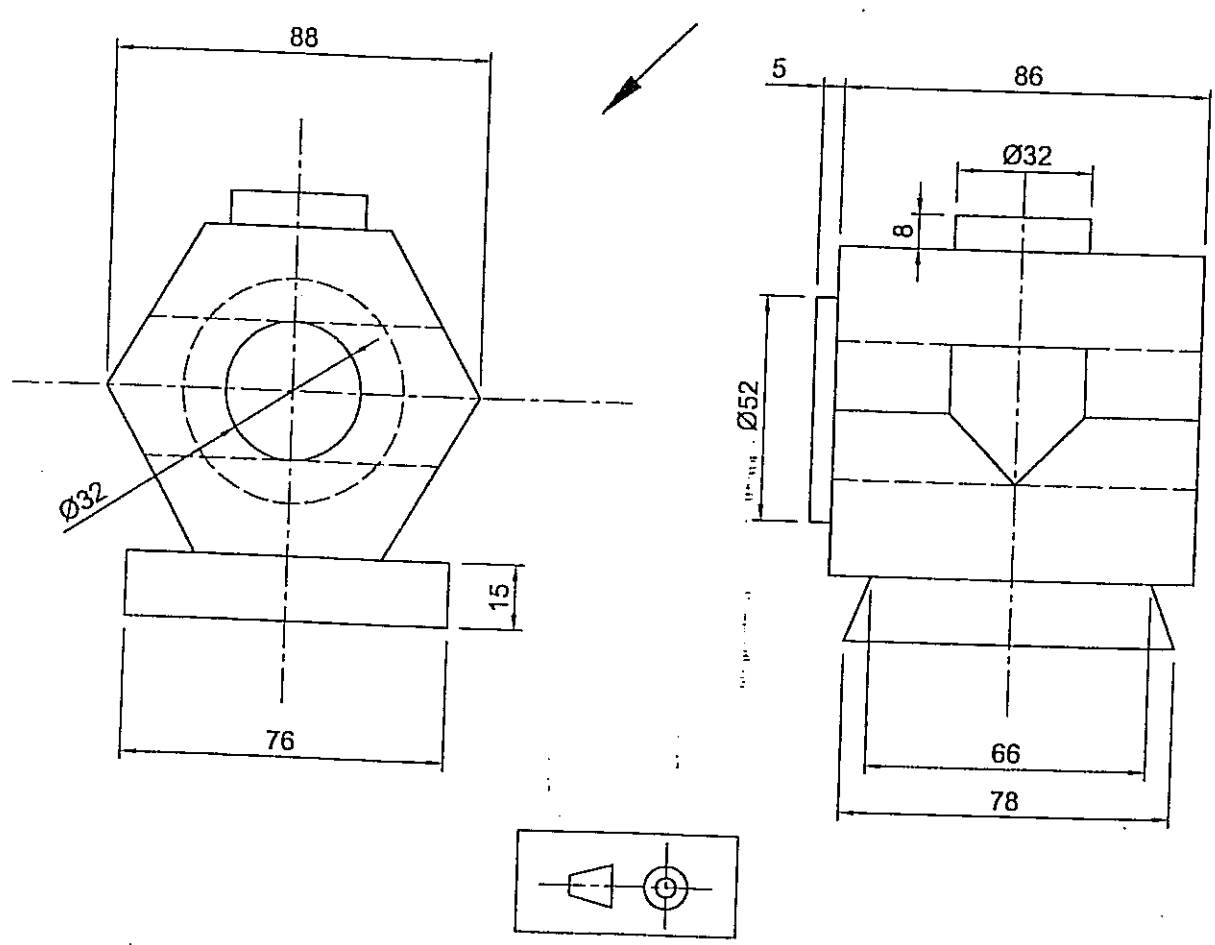

Fig.Q3