

# THE INSTITUTION OF ENGINEERS, SRI LANKA

## PART I EXAMINATION – AUGUST 2007

### PRESENTATION OF ENGINEERING INFORMATION PART II – ENGINEERING DRAWING

DATE: August 2007

TIME ALLOWED: FOUR HOURS

Please follow the instructions given below carefully in answering the question paper.

#### INSTRUCTIONS

1. Read carefully and understand the given question before answering it.
2. You are strongly advised to sketch the solution on a blank paper prior to drawing it on the drawing sheet. If you wish, you could attach the sketch to your answer script.
3. You are required to draw the standard cage, title box, appropriate symbols, etc. Marks will be deducted if the title block is not properly placed.
4. All construction details, centerlines, etc. should be clearly shown.
5. Clarity, accuracy, neatness and following engineering drawing standards and conventions are important in answering this question paper. Marks will be deducted if the above requirements are not fulfilled.
6. Attempt to complete all three views. It is important that you project a relevant geometrical entity in all three views simultaneously.

**Question**

The figure attached shows scattered orthographic views of different components and when they are assembled in their correct positions, the assembly provides an adjustable pulley mechanism. The entire mechanism consists of following components.

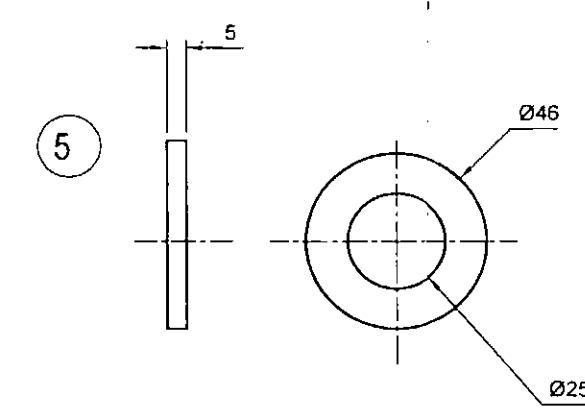
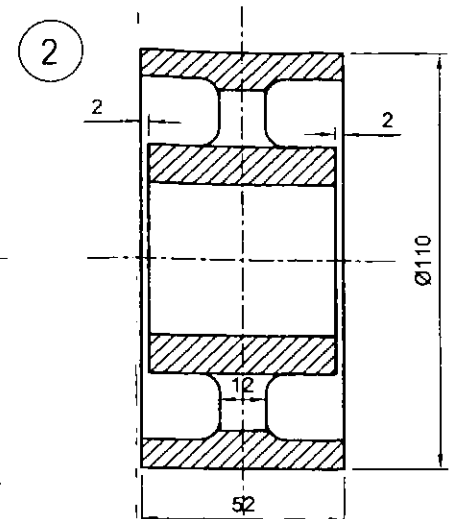
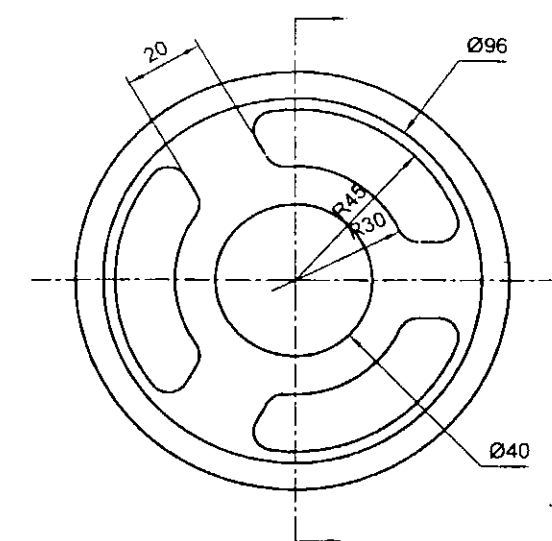
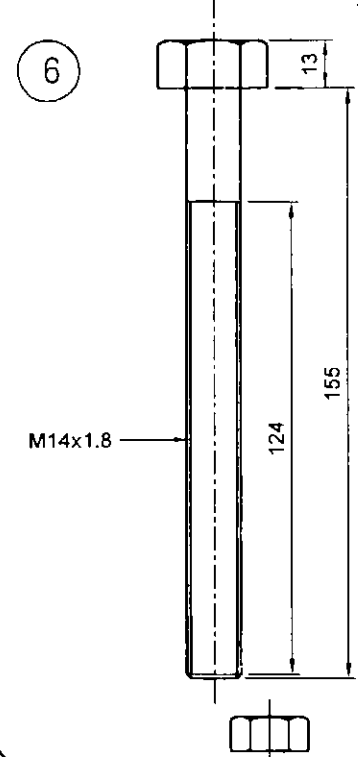
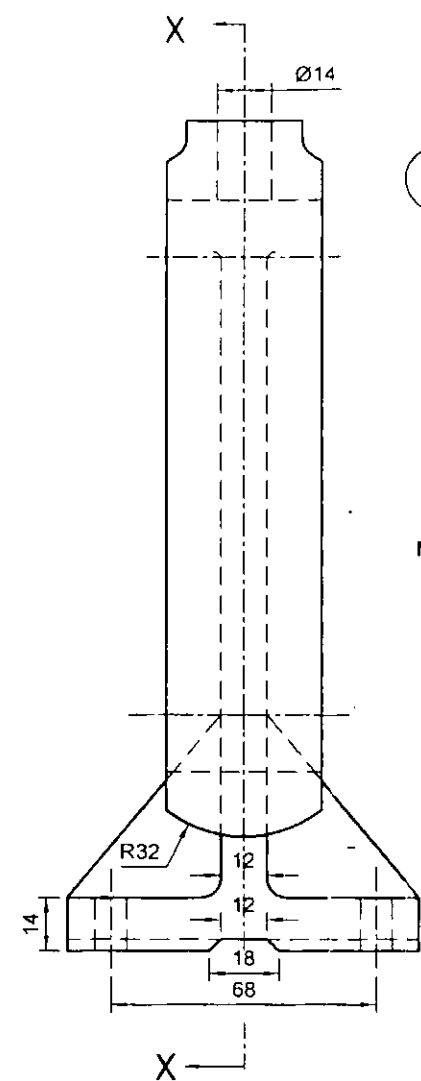
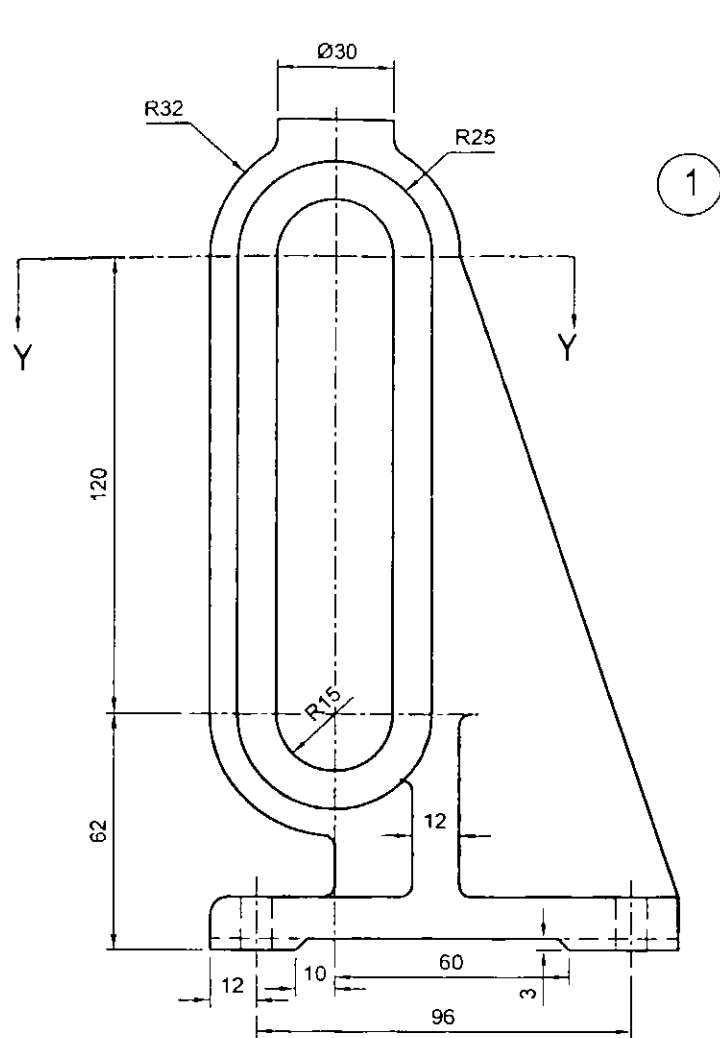
Component identifications	Identification Number	Additional information
Frame	1	
Pulley	2	
Shaft	3	
Collar	4	
Washer	5	One washer
Bolt	6	
Washer	7	Two washers
Standard Hexagonal Nut	8	M24 x 3
Lock Nut	9	M24 x 3 and Thickness 12 mm

Assemble the different components at their correct positions that result in a functional mechanism. In the assembly, the pulley should be held to the right of the frame and the shaft placed at the lowest possible position of the frame.

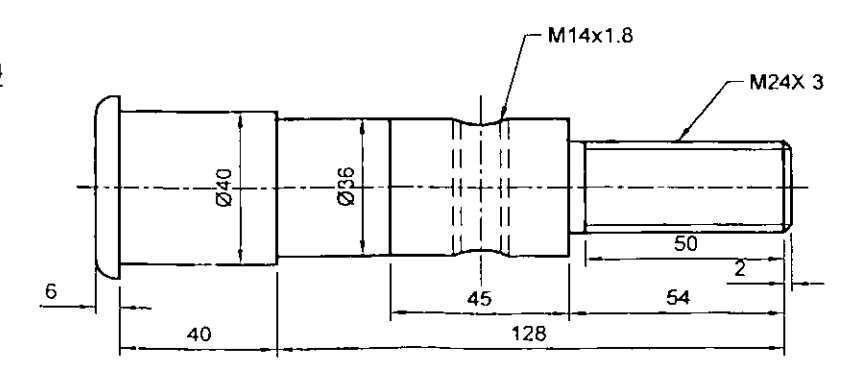
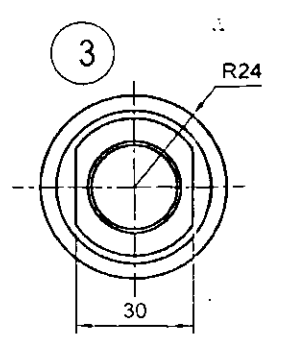
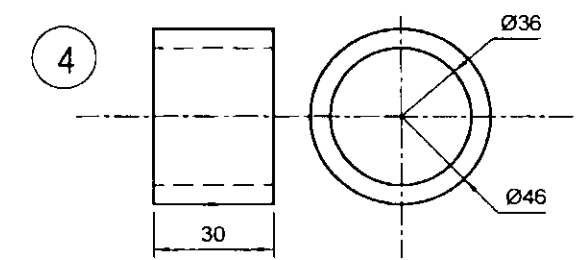
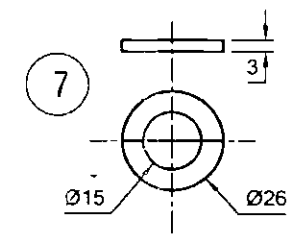
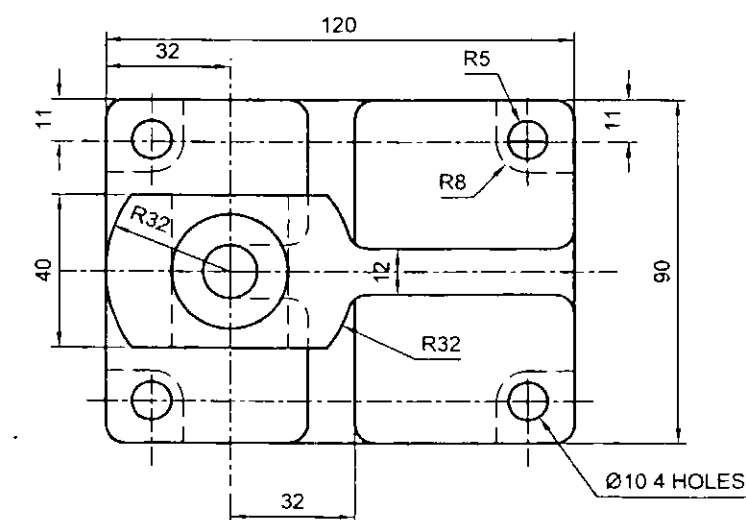
Draw to a scale of full size in the first angle projection the following views of the assembly.

- a) Sectional Front Elevation on **X - X**
- b) End Elevation projected to the left of view (a)
- c) Sectional Plan on **Y - Y**

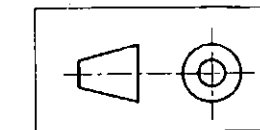
Hidden details are not necessary. Give only eight main dimensions of the assembly. Radii of casting curves may be suitable taken unless otherwise stated in the question. Assume any missing dimensions.



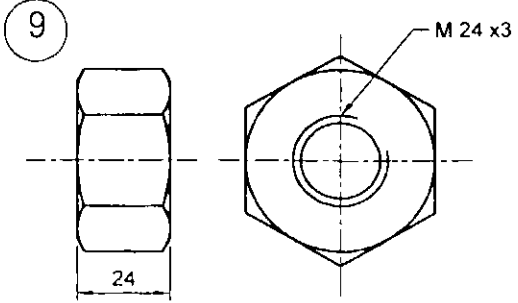
8 STD. HEX. NUT  
M 14 x 1.8



ADJUSTABLE PULLEY



ALL DIMENSIONS IN mm  
NOT TO SCALE



LOCK NUT