



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

FIRST YEAR FIRST SEMESTER CERTIFICATE IN ELECTRICAL AND ELECTRONICS ENGINEERING

EPC 102: TECHNICAL DRAWING

DATE: 2/8/2017

TIME: 2:00 – 4:00 PM

INSTRUCTIONS:

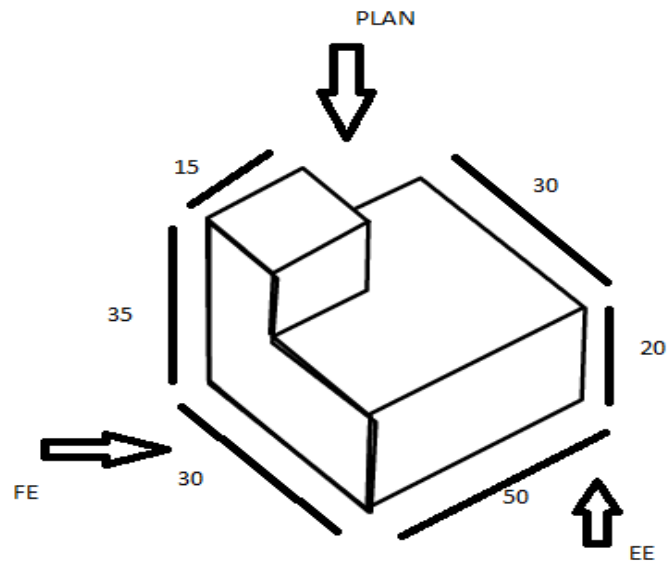
This paper consists of FIVE Questions. Answer Question ONE and ANY OTHER TWO questions.

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Explain the importance of Technical Drawing for Engineering Technicians (5 marks)
- b) Draw and briefly explain any five types of lines applied in technical drawing (10 marks)
- c) Construct a triangle ABD circumscribed in a circle where AB = 70mm, BD = 65mm and AD = 45mm (5 marks)
- d) By the use of a pair of compass and a ruler only, Show that angles in a semi-circle are right angles (5 marks)
- e) Construct a circle inscribing a triangle LMN, where LM = 70mm, MN = LN = 80mm. (5 marks)

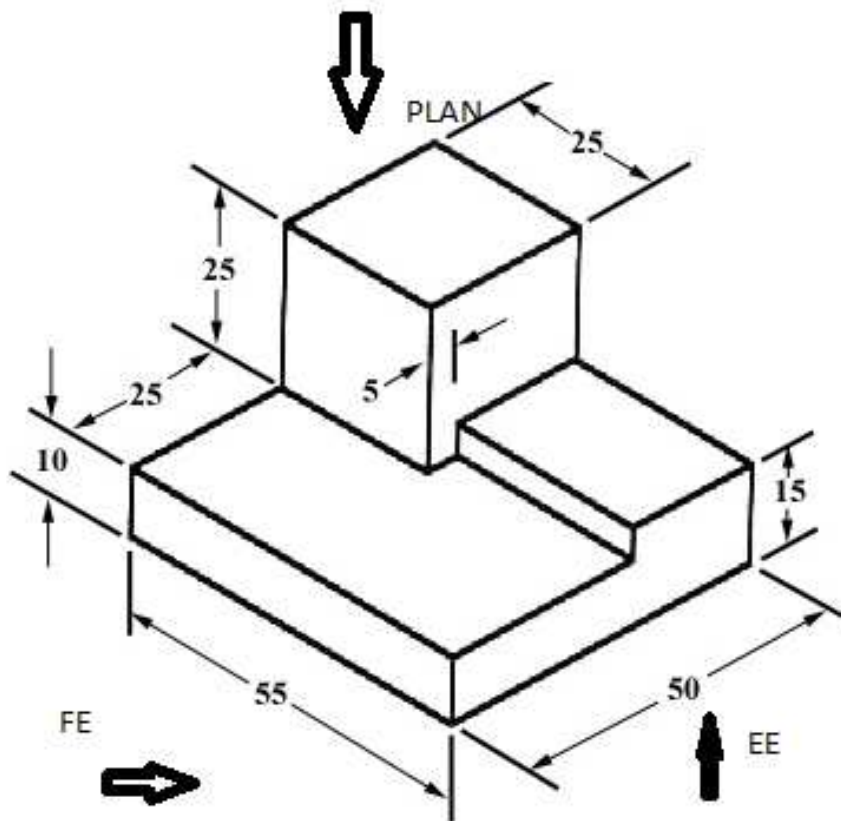
QUESTION TWO (20 MARKS)

- a) Construct an external line tangent between two circles of unequal diameter and 100mm apart. Where circle A and B are 20mm and 40mm respectively (7 marks)
- b) By using a pair of compass and a ruler, construct an angle of 105° (3 marks)
- c) Draw the front elevation, end elevation and plan of the following isometric block in third angle projection. (10 marks)



QUESTION THREE (20 MARKS)

The following figure represents an orthographic view of a block diagram, Draw the front elevation, end elevation and plan of the following block in first angle projection. (20 marks)

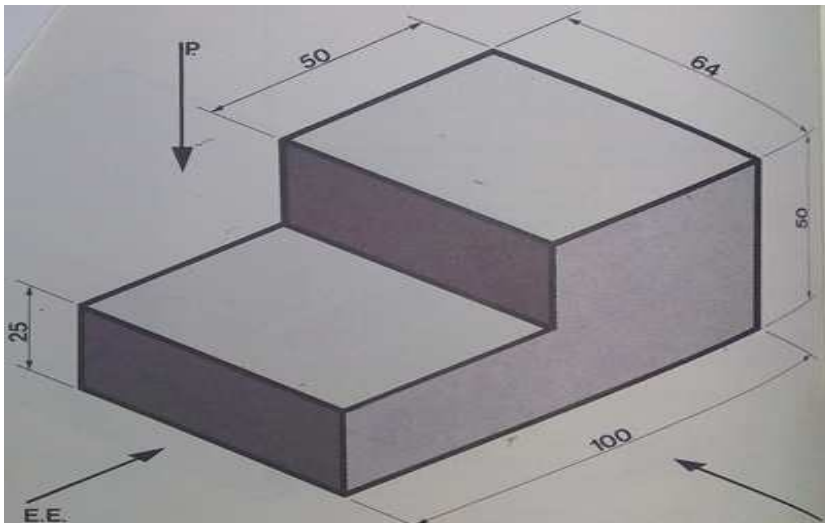


QUESTION FOUR (20 MARKS)

- a) With the aid of well labeled diagrams, draw the symbols of the following electrical components.
- Fuse
 - High voltage primary fuse cut out
 - Lighting arrestor
 - Circuit breaker general gap type
 - Circuit breaker 3-pole with magnetic overload device
- (10 marks)
- b) Draw a regular pentagon of side 55 mm and inscribe in it the same number of equal circles as the sides of the pentagon, each circle touching one side of the pentagon and two of the other circles externally.
- (10 marks)

QUESTION FIVE (20 MARKS)

Draw the front view, the top view and the left-hand side view of the following figure in first angle projection.



(20 marks)