



MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATIONS FOR

BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

EEE 210: COMPUTER AIDED DESIGN

DATE: 27/7/2023

TIME: 2.00-4.00 PM

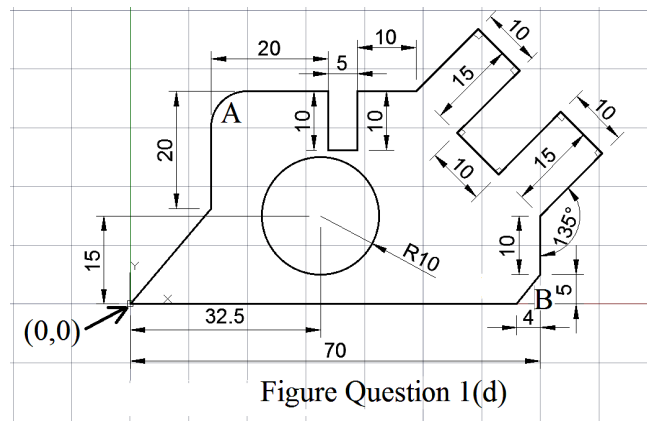
INSTRUCTIONS

ANSWER YOUR QUESTIONS IN ANSWER BOOKLET PROVIDED.

ANSWER QUESTION ONE [COMPULSORY] AND ANY OTHER TWO QUESTIONS.

QUESTION ONE (30 MARKS) (COMPULSORY)

- a) State **six** disadvantages of Computer Aided Design (6 marks)
- b) State the use of each of the following terminologies in AutoCAD
- Filename
 - Search Bar
 - Ribbon
 - Tabs
 - Panels (5 marks)
- c) Indicate the Name, Keystroke, Location and the Result of the following icons as used in AutoCAD:
- 
 -  (4 marks)
- d) Write the command line history to draw **Figure Question 1(d)** in AutoCAD using the line tool, starting from the coordinate point (0,0) and in the anticlockwise direction. Use fillet and chamfer commands for corner A and B respectively. **Do not** indicate dimensioning and lettering history. (10 marks)



- e) Write a command line history to draw a cone of the following specifications in AutoCAD using CONE command:
- i. Apex point: 5,5,6
 - ii. Radius of base: 3 units
 - iii. Centre point of base: 0,0,0
- (5 marks)

QUESTION TWO (20 MARKS)

- a) Explain **any six** Questions to be asked when selecting software. (8 marks)
- b) Explain **four** industrial sectors where Computer Aided Design has commonly been applied (12 marks)

QUESTION THREE (20 MARKS)

- a) Explain how to create a block from a drawing in AutoCAD using **six** steps. (12 marks)
- b) Explain the use of each of the following modifying tools in AutoCAD. Use example sketch diagram with command line history in your explanation for each of the tools.
 - i. Line (To draw a 2" square using absolute co-ordinates in anti-clockwise direction, starting point is 1, 2).
 - ii. Trim tool (8 marks)

QUESTION FOUR (20 MARKS)

- a) Explain the mode of locating points in the AutoCAD drawing area for each of the Figures Question 4(a) (i) to (iii). Give an example for each. (13 marks)

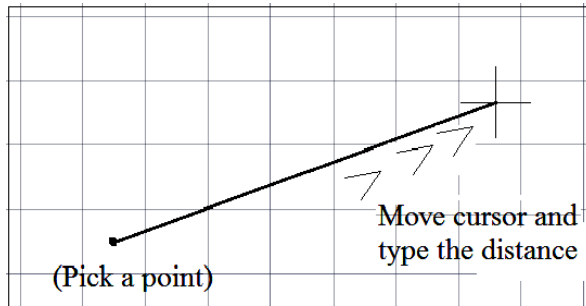


Figure Question 4(a)(i)

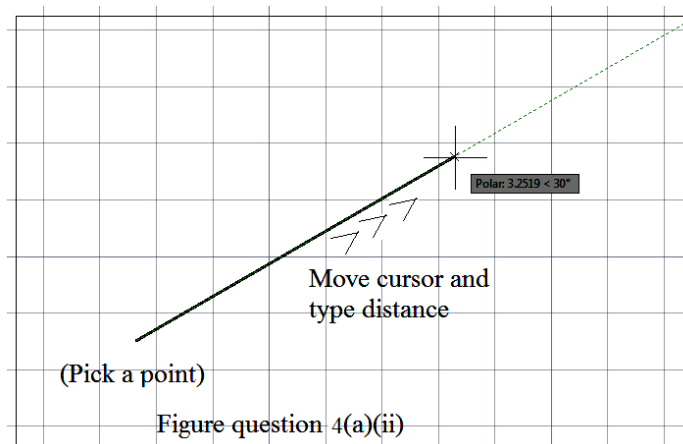


Figure question 4(a)(ii)

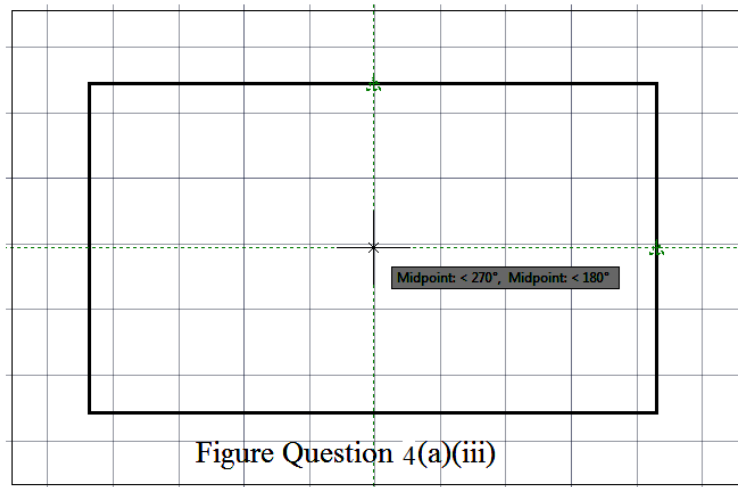
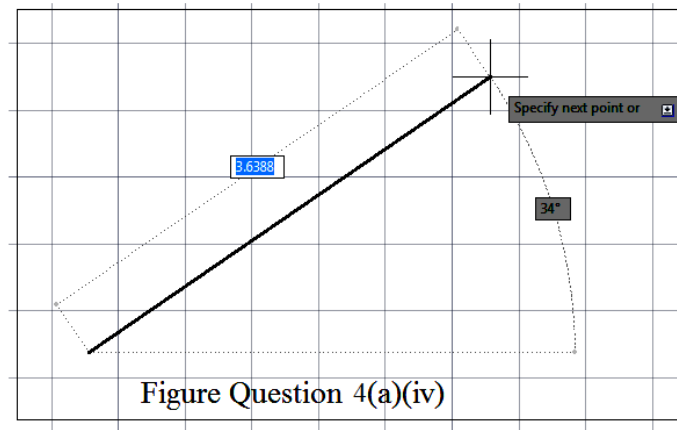


Figure Question 4(a)(iii)



- b) Sketch the screen output of the following AutoCAD command line input in the acadiso template. (7marks)

Command: LINE **or** L **or** PLINE

Specify first point: 10,10(*enter*)

Specify next point or [Undo]: 41,10 (*enter*) **or** @31,0(*enter*)

Specify next point or [Undo]: @25<120 (*enter*) **or** @25<-240(*enter*)

Specify next point or [Close/Undo]: @23<60(*enter*) **or** @23<-300(*enter*)

Specify next point or [Close/Undo]: @10<180(*enter*) **or** @-10,0(*enter*)

Specify next point or [Close/Undo]: @15<135(*enter*) **or** @15<-225(*enter*)

Specify next point or [Close/Undo]: @10<180(*enter*) **or** @-10,0(*enter*)

Specify next point or [Close/Undo]: @22<225(*enter*) **or** @22<-135(*enter*)

Specify next point or [Close/Undo]: @14<90(*enter*) **or** @14<-270(*enter*) **or** @0,14 (*enter*)

Specify next point or [Close/Undo]: @13<180(*enter*) **or** @-13,0(*enter*)

Specify next point or [Close/Undo]: @16<240(*enter*) **or** @16<-120(*enter*)

Specify next point or [Close/Undo]: @21<270(*enter*) **or** @21<-90(*enter*) **or** @0,-21 (*enter*)

Specify next point or [Close/Undo]: @14<-30(*enter*) **or** @14<330(*enter*)

Specify next point or [Close/Undo]: @23<0(*enter*) **or** @23,0(*enter*)

Specify next point or [Close/Undo]: c **or** 10,10 (*enter*)(*enter*)

QUESTION FIVE (20 MARKS)

- a) Explain how one can write the texts shown in **Figure Q5 (a)** in AutoCAD. (4 marks)
- b) Identify and explain **any six** tools and commands used to generate Figure Question 5(b) (12 marks)
- c) Give the command line history to draw a torus using AutoCAD primitive solid. The radius of the torus is 30mm while its tube radius is 5mm. (4 marks)

