MACHAKOS UNIVERSITY

University Examinations for 2019/2020Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

EMM 200: COMPUTER AIDED ENGINEERING DRAWING

DATE: 11/12/2020 **TIME: 8:30 -10:30 AM**

INSTRUCTIONS

I. *This paper contains **FIVE (5)** questions. Question (1) in **section 1** is compulsory and carries 30 marks. All the other questions carry 20 marks each.*
II. *Attempt **Question one** and any other two: one from **Section B** and another one from **Section C***
III. *You need a computer installed with AutoCAD 2016.*
IV. *Create a folder on the desktop and rename it your Registration Number. Save your work progressively in the renamed folder.*
V. *All dimensions are in millimetres unless otherwise stated.*
VI. *Unspecified dimensions are to be taken as per choice*

SECTION A: COMPULSORY

QUESTION ONE (30 MARKS)

a) Describe the function of the following tabs found in the status bar of AutoCAD
   i. Dynamic input (2 marks)
   ii. Object snap (2 marks)
   iii. Polar tracking (2 marks)

b) Using sketches, differentiate between ARRAYPATH and ARRAYPOLAR (4 marks)

c) Discus four advantages of computer aided engineering as opposed to the manual drawing method (4 marks)

d) Describe the following modify tools in AutoCAD
   i. Offset (2 marks)
   ii. Mirror (2 marks)

e) Explain two functions of layers in AutoCAD (2 marks)

f) Redraw the diagram in figure Q1 and insert all texts and dimensions (10 marks)

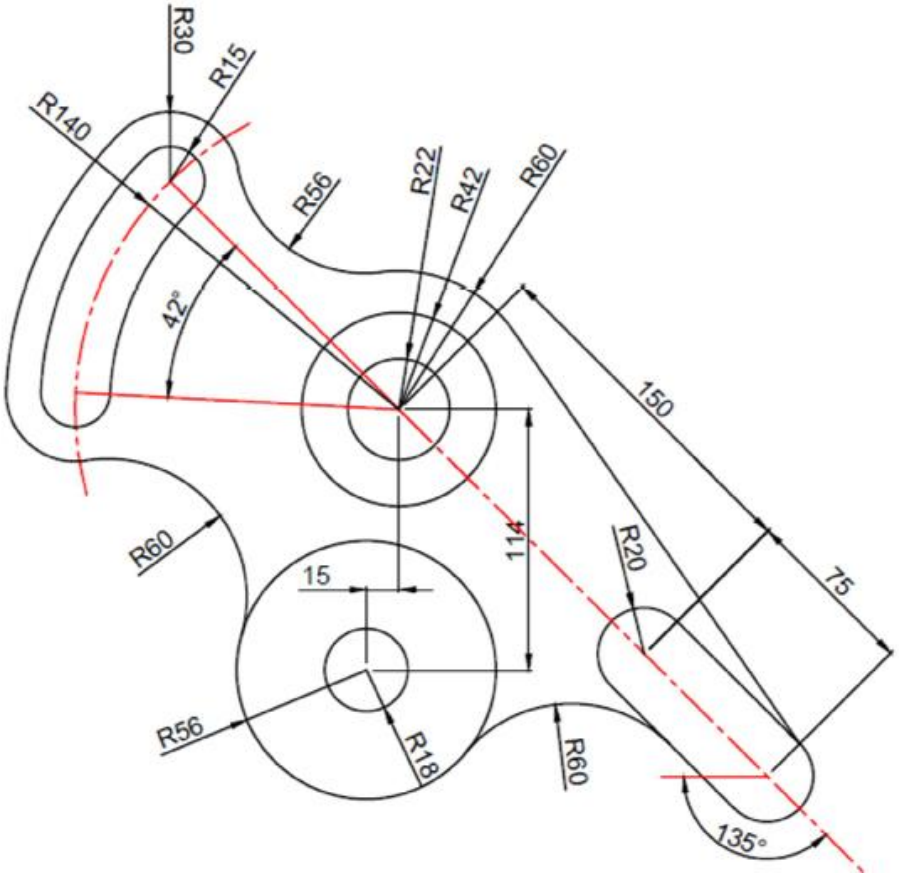

Figure Q1

SECTION B: ANSWER ANY ONE QUESTION

QUESTION TWO (20 MARKS)

Figure Q2 is a component that is to be drawn, hatched and dimensioned on AutoCAD 2016. Each of the parts of this component are placed in its appropriate layer as specified below:

Item	Layer	Property	Colour
The Object itself	Layer 1	Continuous	White
The center line	Layer 2	Centre2	Orange
The Dashed lines	Layer 3	Hidden2	Cyan
Annotations	Layer 4	Dimensioning line and text	Magenta
HATCH pattern	Layer 5	ANSI31	Blue

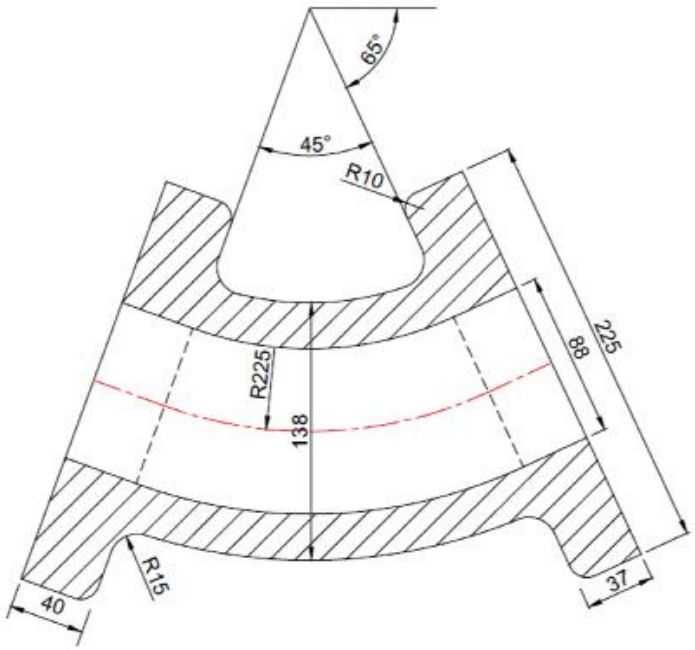

Figure Q2

QUESTION THREE (20 MARKS)

Figure Q3 shows orthographic views of a component. Using AutoCAD 2016. Draw the **solid geometry** and generate from it; the **full sectional front view, a plan, end elevation** (in 3rd Angle Orthographic projection) and **the isometric view** in paper space. Use layers to group the lines according to their functions and indicate 10 main dimensions

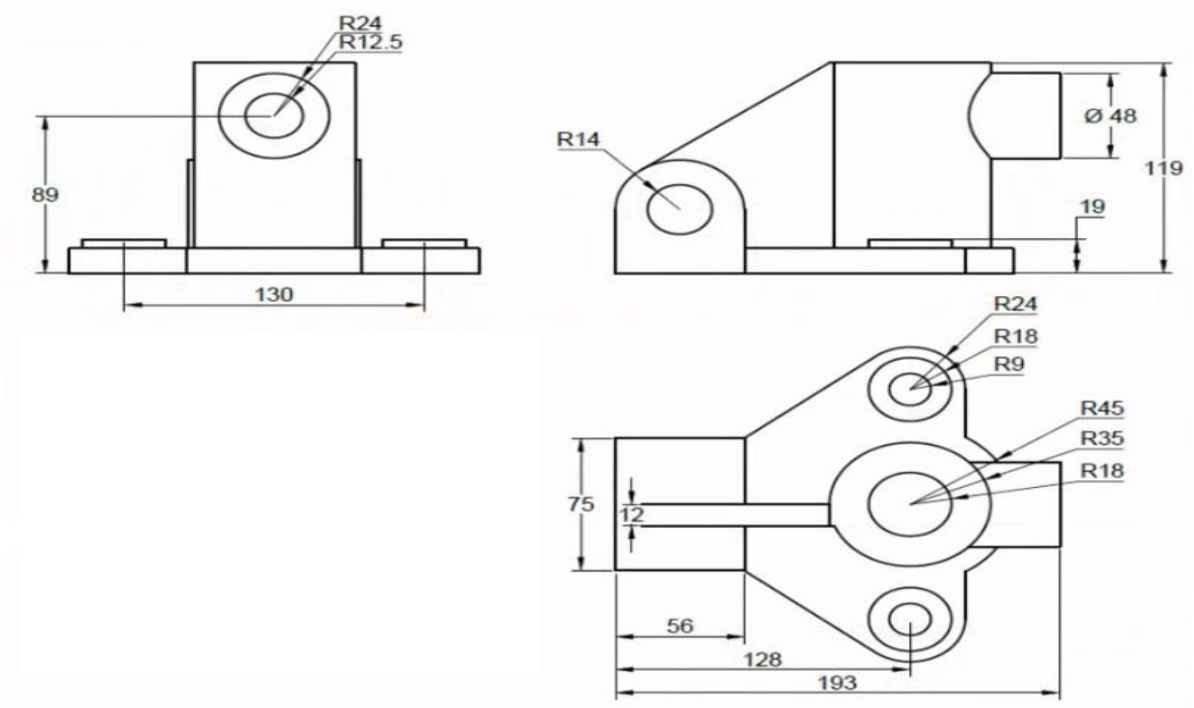

Figure Q3

SECTION C: ANSWER ANY ONE QUESTION

QUESTION FOUR (20 MARKS)

Figure Q4 shows an isometric view of a solid object, the **arrow** indicates the direction to obtain the front view. Using AutoCAD 2016 and in **Third Angle Orthographic Projection** draw the following views and present them in paper space;

a) The front view (6 marks)

b) Plan (5 marks)

c) Use layers to group lines according to function, (4 marks)

d) Include **6** major dimensions in paper space. (3 marks)

e) Suitable title block. (2 marks)

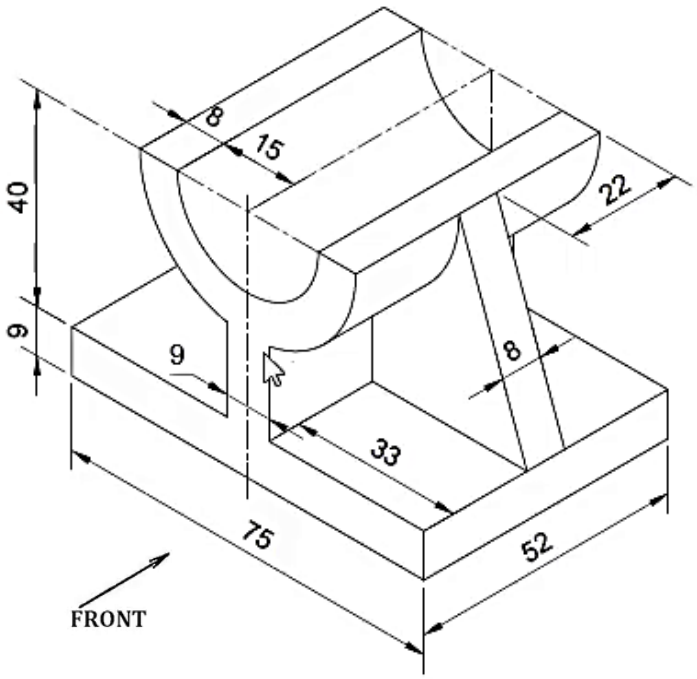

Figure Q4

QUESTION FIVE (20 MARKS)

Figure Q5 shows an isometric view of a solid object, the **arrow** indicates the direction to obtain the front view. Using AutoCAD 2016 and in **First Angle Orthographic Projection** draw the following views and present them in paper space;

a) The front view (6 marks)

b) End/Side view (5 marks)

c) Use layers to group lines according to function, (4 marks)

d) Include **6** major dimensions in paper space. (3 marks)

e) Suitable title block. (2 marks)

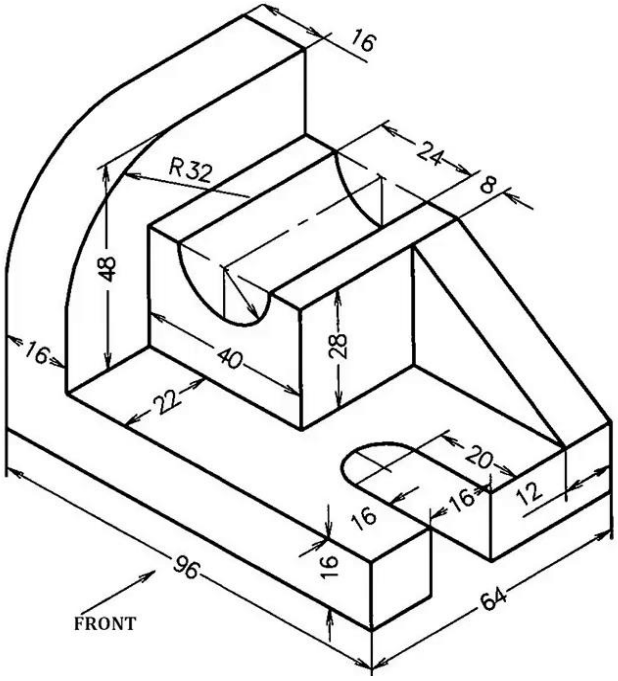

Figure Q5