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Total Number of Pages : 02

B.Tech.
PME6J003

6th Semester Regular Examination 2017-18

CAD / CAM

BRANCH : MECH

Time : 3 Hours

Max Marks : 100

Q.CODE : C375

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

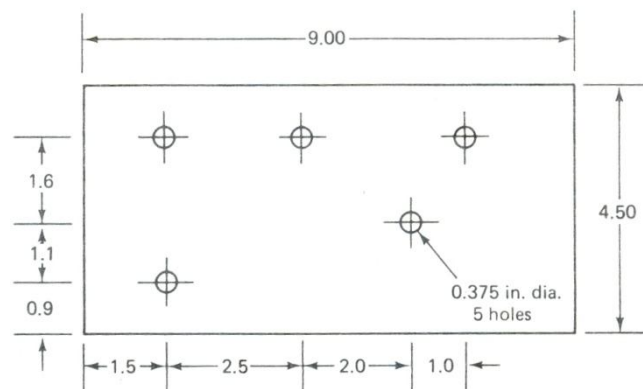
Q1 Answer the following questions : *multiple type or dash fill up type* : (2 x 10)

- a) Light pen is a
 - (a) Writing Device
 - (b) Drawing Device
 - (c) Locating device
 - (d) Lighting device
- b) The widely used computer architecture for CAD/CAM application is
 - (a) Main frame based system
 - (b) Minicomputer based system
 - (c) Microcomputer based system
 - (d) Work station based system
- c) In a point to point type NC system
 - (a) Control of position and velocity of tool is required
 - (b) Control of only position of the tool is sufficient.
 - (c) Control of only velocity of tool is sufficient
 - (d) Neither velocity nor position needs to be controlled.
- d) Digitizer is constructed on basis of
 - (a) Magnetic tablet mechanism
 - (b) Acoustic tablet mechanism
 - (c) Optical tablet mechanism
 - (d) Both (a) and (b)
- e) In the following geometric modelling techniques which are not three dimensional modelling
 - (a) Wire frame modelling
 - (b) Drafting
 - (c) Surface modelling
 - (d) Solid modeling
- f) The use of computers to control the operation of production process is known as:
 - (a) CAD
 - (b) CAM
 - (c) CAE
 - (d) CAQ
- g) Mouse is a ----- type input device.
 - (a) Text
 - (b) Graphics
 - (c) Locating
 - (d) All (a), (b) and (c)
- h) The number of lines required in a wire frame model to represent a cube is
 - (a) 6
 - (b) 8
 - (c) 12
 - (d) 16
- i) CNC drilling machine is considered to be a
 - (a) Point to point controlled machine
 - (b) Straight line controlled machine
 - (c) continuous path controlled machine
 - (d) Servo controlled machine
- j) The screen is scanned from left to right and top to bottom all the time to generate graphics by
 - (a) Roaster scan
 - (b) Random scan
 - (c) Vector scan
 - (d) Stroke writing

Q2 Answer the following questions : *Short answer type* : (2 x 10)

- a) Explain the principle of image generation on CRT screen.
- b) List out the activities of central processing unit.
- c) Differentiate Drum plotter and flat bed plotter.
- d) Name the different NC motion control systems.
- e) Differentiate the fixed zero and floating zero.
- f) Name any two editing features available on a CAD system.
- g) What is meant by Interactive Computer Graphics?

- h) CAD helps in integrating CAM- Justify this statement.
 i) What do you mean by segmenting functions?
 j) Distinguish point to point and straight cut NC motion control system.
- Q3** a) Explain in detail with help of flow diagram the application of computer in design process. (10)
 b) Discuss about the reasons for implementing a computer aided design system. (5)
- Q4** a) What is the various interactive input devices used in CAD/CAM? List down their advantages and disadvantages. (10)
 b) Write briefly on the secondary storage devices used in CAD System. (5)
- Q5** a) A line is defined by its end points (0, 0) and (2, 3) in a two dimensional graphics system. Express the line in matrix notation and perform the following transformation on this line:
 Scale the line by a factor of 2.0,
 Scale the original line by a factor of 3.0 in the x-direction and 2.0 in the y-direction.
 Rotate the original line by 45° about the origin. (10)
 b) What is the need for concatenation of transformations? Explain what care should be taken in such cases. (5)
- Q6** a) The work part is to be completed in an NC drill press. The outline of the part has already been completed and the five holes are to be drilled. The axis system for this sequence is to be located with the origin at the lower left-hand corner of the part. The part is $3/8$ in. thick. Write the complete APT programme for the work part. The post processor call statement is MACHIN/DRILL. The drill size is $1/8$ in. diameter and the work material is machinable aluminium. Cutting speed and feed rate are 900 revolutions per minute and 3 in. per minute. (10)



- b) Discuss about the applications of the NC system. (5)
- Q7** a) Explain in detail how CAD data base transferred in to CAM data base. (10)
 b) Define DNC and Explain in detail its different functions. (5)
- Q8** a) What is APT? Discuss its major statements with examples: Enlist any ten G-code and M-codes. (7)
 b) Write an APT programme to turn a cylindrical component on CNC lathe. The length of the component is 600mm and have diameters 100mm, 125mm and 160mm at equidistance of 200mm. Material of the component is mild steel. Assume any other data required. (8)
- Q9** a) Discuss in details the problems with conventional NC technology and the principal functions of CNC. (10)
 b) Briefly explain about lean manufacturing. (5)