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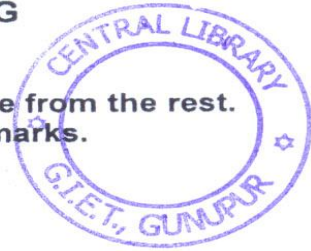
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M.TECH CMPC102

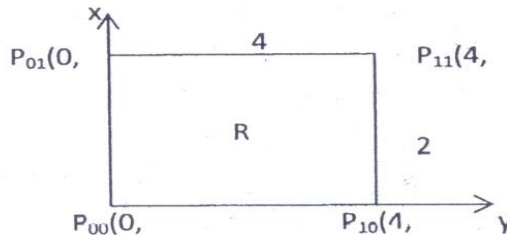
1st Semester Regular/Back Examination – 2014
COMPUTER APPLICATION IN DESIGN
BRANCH(S): CAD / CAM ENGINEERING

Time: 3 Hours
Max Marks: 70

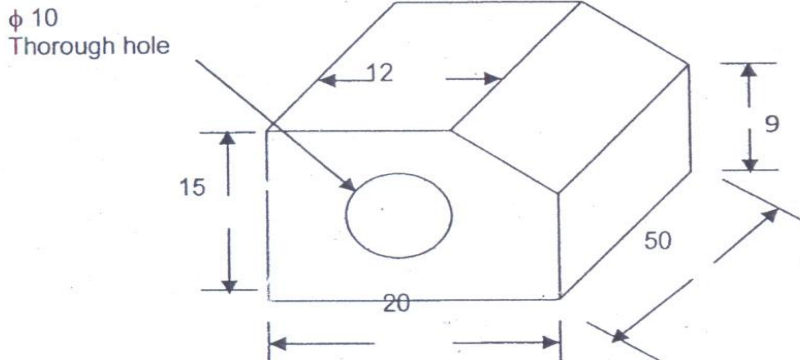


Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

- Q1 Answer the following questions:
a) For a given radius and centre point write Auto LISP command to draw circle.
b) What are the various types of geometric tolerances?
c) What is visual realism? Explain with an application.
d) For the position vectors P1 [2, 3] and P2 [4, 5], determine the parametric representation of the line segment between them.
e) Explain the parametric surface with two variables and mention its advantages.
f) Illustrate translational and rotational sweep models.
g) Distinguish between hidden line removal and hidden surface removal models.
h) Briefly explain the top-down assembly approach.
i) What is the importance of WCS method in the assembly model?
j) Sketch the four Boolean operations of a block and a cylinder B.
Q2 a) Derive decision parameters for the Bresenham's circle generating algorithm assuming the starting point as (0, 10) and generate the pixel positions for one fourth of a circle.
b) The two coordinates of a straight line are (6,9) and (6,5). Reduce the straight line to half size in the same position. Derive the matrix involved for the above scaling operation.
Q3 A flange coupling is to transmit 5 kW power at 1500 rpm. The coupling is made of cast iron. Write a C/LISP/FORTRAN program to design the coupling and draw the production drawing of the coupling.
Q4 a) Explain the window transformation with example.
b) Find the equation of a B-Spline surface that covers the region R, Also , find the surface vectors and its mid point.



- Q5 a) Use appropriate Auto LISP commands to develop the object as shown in the following Figure: (5)



All dimensions are in mm.

- Q6 a) What do you mean by solid modeling? Explain briefly. (5)
b) How the documentation helps in Solid modeling? Explain with details. (5)
Q7 a) What are the techniques used for visual realism. Explain briefly. (5)
b) Discuss the sequential steps in mechanism simulation and its important features. (5)
Q8 a) Explain the principle of parametric modification of geometric models. (5)
b) Write Short Notes (Any Two) (5x2)
a) View ports clipping Transformations b) Solid modeling pack
c) Tolerance analysis mass property calculations d) Data exchange system