

**Code: 1G513**

B.Tech. I Year Supplementary Examinations October 2020

**Engineering Drawing**  
( Common to EEE, ECE, CSE & IT )

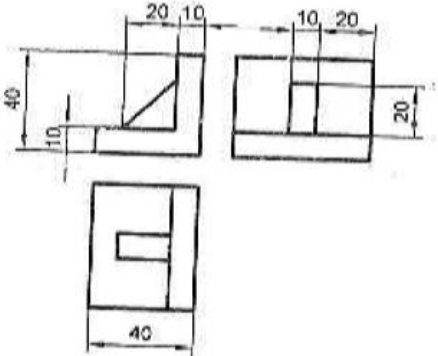
Max. Marks: 70

Time: 3 Hours

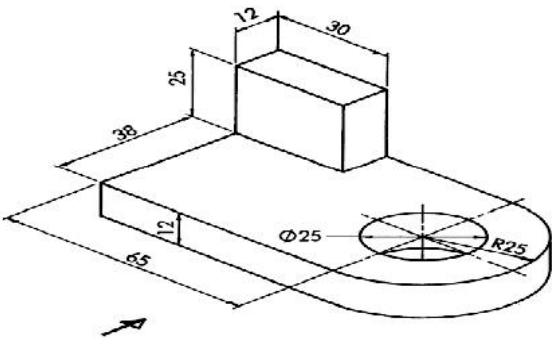
Answer any **five** questions  
All Questions carry equal marks (**14 Marks** each)

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1. a) To construct regular pentagon of given side 25mm by using Inscribe circle method  
b) Inscribe a regular heptagon in a circle having an 80mm diameter
2. Draw an epicycloids generated by a rolling circle of 60mm diameter for one complete revolution. The radius of circle is 100mm. Draw a tangent and normal to the epicycloids at 150mm from the centre of the directing circle.
3. a) A line AB is 30mm long and inclined at 30° to HP and parallel to VP. The end A of the line is 15mm above HP and 20mm in front of VP. Draw the projections of the line.  
b) A line AB is 30mm long and inclined at 30° to VP and parallel to HP. The end A of the line is 15mm above HP and 20mm in front of VP. Draw its projections.
4. A circular plate of 60mm diameter has a hexagonal hole of 20mm side, centrally punched. Draw the projections of the plate, resting on HP on a point with a surface inclined at 30° to HP. Any two parallel sides of the hexagonal hole are perpendicular to VP. Draw the projections of the plate.
5. a) Draw the projections of a cylinder of base 30mm diameter and axis 50mm long when it is resting on HP on one of its base.  
b) Draw the projections of a cone of base 30mm diameter and axis 50mm long, when it is resting on HP on its base
6. Draw the isometric view of a square prism, with side of base 40mm and length of axis 70mm, when its axis is a) vertical and b) horizontal
7. Draw the Isometric View of the following.



8. Draw the Front View, Top View and Side View of the following.



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| <b>R-11 / R-13</b> |
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**Code: 1GC14**

B.Tech. I Year Supplementary Examinations October 2020

**Mathematics-I**

( Common to All Branches )

Max. Marks: 70

Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks** each)

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1. a) Solve  $x \log x \frac{dy}{dx} + y = \log x^2$ . 7M  
 b) If the temperature of the air is 30°C, and the substance cools from 100°C to 70°C in 15 minutes, find when the temperature will be 40°C? 7M
  
2. Solve  $\frac{d^2 y}{dx^2} + \frac{dy}{dx} + y = (1 - e^x)^2$  14M
  
3. a) Verify Rolle's theorem for  $f(x) = (x + 2)^3(x - 3)^4$  in  $(-2, 3)$ . 7M  
 b) Verify Lagrange's mean value theorem for  $f(x) = \log_e x$  in  $[1, e]$ . 7M
  
4. a) Trace the curve  $y^2(2a - x) = x^3$  7M  
 b) Trace the curve  $x^3 + y^3 = 3axy$  7M
  
5. a) Evaluate  $\int_0^1 \int_0^x e^y dx dy$  7M  
 b) Evaluate  $\int_0^1 \int_x^{\sqrt{x}} (x^2 + y^2) dx dy$  7M
  
6. a) Find the Laplace transform of  $e^{2t} + 4t^3 - 2 \sin 3t + 3 \cos 4t - 5 \sinh t$  7M  
 b) Find the Laplace transform of  $e^{-3t} (2 \cos 5t - 3 \sin 5t + 2t)$  7M
  
7. Solve  $y^{11} - 3y^1 + 2y = e^{3t}$  when  $y(0) = 1, y^1(0) = 0$ . 14M
  
8. Evaluate the line integral  $\int_C (x^2 + xy)dx + (x^2 + y^2)dy$  where C is the square formed by the lines  $x = \pm 1, y = \pm 1$ . 14M

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**R-11 / R-13**

**Code: 1G111**

B.Tech. I Year Supplementary Examinations October 2020

**Programming in C and Data Structures**

(Common to CSE & IT)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks** each)

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1. a) Define the flow chart? Explain different symbols used in flow charts.  
b) Write an algorithm to perform the greatest of three numbers.
2. a) Explain briefly the structure of 'c'.  
b) Write a program to check that the entered year is a leap year or not using any one of the control statement.
3. a) What is an Array? Explain different types of Arrays with suitable examples.  
b) Write a C program to find sum of elements in a one dimensional array.
4. a) Explain in detail about pointers with suitable examples.  
b) Write a program to display array elements and their address using pointers?
5. a) What is Structure? Explain with suitable example program.  
b) Distinguish between structures and unions.
6. Explain stack operations (Push and Pop) with an example?
7. Explain Tree Traversal techniques with an example.
8. a) Explain the algorithm for bubble sort and give a suitable example.  
b) Write and explain the algorithm for sequential search with suitable example.

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