| Hall Ticket Number : | | | | | | | | | | |
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**R-15**

**Code: 5GC14**

I B.Tech. I Semester Supplementary Examinations June 2022

# Engineering Mathematics-I

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks )

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**UNIT–I**

1. Solve $x\frac{dy}{dx}+y=x^3y^6$

**OR**

2. A body originally at 80° C cools down to 60° C in 20 minutes, the temperature of the air being 40° C. What will be the temperature of the body after 40 minutes from the original and when will be the temperature be 50° C.

**UNIT–II**

3. Solve $(D^2+4)y=x^2+\cos 2x$

**OR**

4. Solve $(D^3+2D^2+D)y=e^{-x}+\sin 2x$

**UNIT–III**

5. Verify Rolle's theorem for $f(x)=\frac{\sin x}{e^x} in(0,®)$

**OR**

6. Expand $e^x$ in powers $(x-1)$ upto four terms.

**UNIT–IV**

7. If $u=x^2-2y, v=x+y+z, w=x-2y+3z$ ,then find $\frac{\partial(u,v,w)}{\partial(x,y,z)}$

**OR**

8. If $x=r\cos^{-}, y=r\sin^{-}$ , then find $\frac{\partial(x,y)}{\partial(r,^{-})}$.

**UNIT–V**

9. Trace the curve $y^2(2a-x)=x^3$

**OR**

10. Trace the curve $x=a(^{-}+\sin^{-})$ , $y=a(1+\cos^{-})$

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| Hall Ticket Number : | | | | | | | | | | |
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**R-15**

**Code: 5G111**

I B.Tech. I Semester Supplementary Examinations June 2022

# Problem Solving Techniques and C Programming

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks )

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Marks

**UNIT–I**

1. a) Define Computer? Explain hardware and software components of a computer.
   b) Write and algorithm and draw a flow chart to calculate percentage of a student in six subjects.

**OR**

2. a) Explain different types of computer languages in detail.
   b) What is Keyword? Write and explain any ten keywords in C programming language.

**UNIT–II**

3. a) Define operator? Describe different types of operators used in c language with example.
   b) What are formatted input and output functions in used in C explain with an example.

**OR**

4. a) Explain different data types in C programming language.
   b) Evaluate the following expression by using rules of precedence and associativity.
      i) 4 / 3 + 5 – 2 + 3 / 5
      ii) 3 * 6 + 9 – 10 / 6

**UNIT–III**

5. a) What is an Array? Explain how to declare and initialize a one dimensional arrays in C with an example.
   b) Write code segments for displaying numbers from 1 to 10 using while, do..while and for statements.

**OR**

6. a) Write a C Program to check weather given number is Armstrong number or not
   b) Write a C program to accept and print the elements in a two dimensional arrays.

**UNIT–IV**

7. Explain about any four string handling functions with an example.

**OR**

8. Write a C program to find the given string is palindrome or not.

**UNIT–V**

9. a) What is a function? Describe different categories of function with suitable example programs.
   b) Write a C program to find factorial of a number using recursion.

**OR**

10. a) What is the scope of variables of type extern, auto, register and static? Explain with example.
    b) Describe any four preprocessor command with suitable examples.

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