Hall Ticket Number :										

R-17

Code: 7GC14

I B.Tech. I Semester Supplementary Examinations June 2024

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. Find the eigen values and eigen vectors of $\begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$

OR

2. Test for consistency and solve 5x+3y+7z=4, 3x+26y+2z=9, 7x+2y+10z=5

UNIT–II

3. Prove that the matrix $\frac{1}{\sqrt{3}}\begin{bmatrix} 1 & 1+i \\ 1-i & -1 \end{bmatrix}$ is Unitary matrix.

OR

4. Reduce the matrix $A=\begin{bmatrix} -1 & 2 & -2 \\ 1 & 2 & 1 \\ -1 & -1 & 0 \end{bmatrix}$ to the diagonal form.

UNIT–III

5. A body is kept in air with temperature 25^0c cools from 140^0c to 80^0c in 20 minutes. Find the when the body cools down to 35^0c

OR

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

UNIT–IV

7. Solve $\frac{d^3y}{dx^3}-y=e^x+\sin 3x+2$

OR

8. Solve $(D^2+1)y=\sin x\sin 2x+e^x x^2$

UNIT–V

9. Verify Rolles theorem for $f(x)=2x^3+x^2-4x-2$ in $\left[-\sqrt{2},\sqrt{2}\right]$

OR

10. Verify lagrange's mean value theorem for $f(x)=(x-1)(x-2)(x-3)$ in $[0,\,4]$

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Hall Ticket Number :										

R-17

Code: 7G511

I B.Tech. I Semester Supplementary Examinations June 2024

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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UNIT–I

1. a) What are the General Problem solving strategies? Discuss 7M

   b) Define Flowchart? Draw a flowchart to read three integers and find the biggest number. 7M

OR

2. a) Explain in detail about the computer environments. 7M

   b) Define Algorithm? What are the advantages of writing an Algorithm 7M

UNIT–II

3. a) Write and explain the structure of C Program 7M

   b) What is an identifier in C. Explain the rules of Identifiers. 7M

OR

4. a) What is Type Conversion? Illustrate type conversion with suitable examples. 7M

   b) Explain about the user defined data types in C language. 7M

UNIT–III

5. a) Write a C Program to find whether the given number is prime or not? 7M

   b) Write about the functioning of the jump statements, break and continue with suitable examples 7M

OR

6. What are Loop Control Statements in C. Explain them with suitable examples 14M

UNIT–IV

7. a) What is an Array? Explain how to declare one dimensional arrays with example. 7M

   b) Write a C Program to find whether the string is palindrome or not. 7M

OR

8. a) Write a C program to find the Average of all elements in the array. 4M

   b) What are the different String Library functions available in C? Explain them with example 10M

UNIT–V

9. a) What are type qualifiers in c language? Explain with suitable examples. 7M

   b) Write a C Program to find the factorial of a given number using recursion. 7M

OR

10. a) What is a function? What are the advantages of using functions in a program? 7M

    b) Explain function parameter passing techniques in C with suitable examples. 7M

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Hall Ticket Number :										

R-17

Code: 7G513

I B.Tech. I Semester Supplementary Examinations June 2024

Basic Engineering Drawing

(Computer Science and Engineering)

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. a) Bisect a straight line AB of length 65 mm 7M

   b) Divide a line AB of length 100mm into 9 equal parts 7M

OR

2. Construct a parabola, when the distance of the focus from the directrix is 50mm. Also draw tangent on normal to the curve at a point 35mm from the directrix 14M

UNIT–II

3. a) A line PQ, 90mm long, is in the H.P. & makes an angle 30^0 with the V.P. Its end P is 25mm in front of the V.P. Draw its projections 7M

   b) A line AB, 90mm long, makes an angle 30^0 with the H.P. Its end A is 30mm above H.P. and 25mm in front of the V.P. Draw its projections 7M

OR

4. A line AB, 70mm long, has its end A 30mm above the H.P and 30mm infront of the V.P. The line is inclined at 30^0 to the H.P and at 45^0 to the V.P. Draw the projections 14M

UNIT–III

5. a) A pentagonal plane of side 30mm is perpendicular to H.P. and parallel to V.P. The plane is 30mm infront of V.P. Draw its projections 7M

   b) A Circular plane of diameter 50mm is perpendicular to V.P. and parallel to H.P. The plane is 30mm above the H.P. Draw its projections 7M

OR

6. A hexagonal plate of side 30mm is placed with a side on VP and surface inclined at 45^0 to VP and perpendicular to HP. Draw the projections 14M

UNIT–IV

7. a) A cube of 40mm side, is resting with a face on HP such that when one of its vertical faces is inclined at 30^0 at VP. Draw its projections 7M

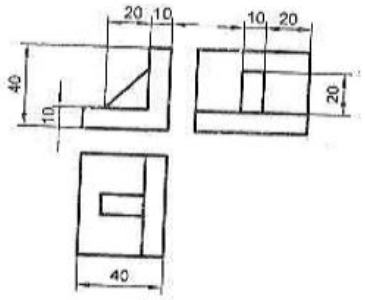
   b) A square prism of side 30mm and axis length 60mm long is resting on H.P. on its base. Draw its projections 7M

OR

8. Draw the projections of a hexagonal prism of base 25mm side and axis 60mm long, when it is resting on one of its corners of the base on HP. The axis of the solid is inclined at 45^0 to the HP 14M

UNIT–V

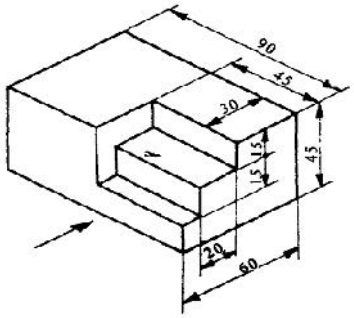
9. Convert the following orthographic views to isometric view



14M

OR

10. The Figure shows an object. Draw its (i) Front view (ii) Top view (iii) Side view. Assume all the dimensions are in 'mm '.



14M

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Hall Ticket Number :										

R-17

Code: 7GC12

I B.Tech. I Semester Supplementary Examinations June 2024

Engineering Chemistry

(Common to CE, ME & CSE)

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. What is hardness of water? How do you classify and express hardness? Determine the total, temporary and permanent hardness of water by EDTA method.

OR

2. a) Explain the process of a phosphate ,carbonate and sodium aluminate conditioning of boiler feed water

   b) Write a short notes on
   i) Break point chlorination ii) Caustic embrittlement

UNIT–II

3. a) Describe the construction and working of lithium ion battery

   b) Discuss the different types of conductometric titrations with examples

OR

4. a) Explain the construction and working of Hydrogen-Oxygen fuel cell

   b) Define corrosion. Explain dry corrosion and its mechanism.

UNIT–III

5. Explain with examples the terms: addition polymerization, condensation polymerization and co-polymerization.

OR

6. Give an account of preparation, properties and engineering uses of the following
   (i) PVC (ii) Nitrile rubber (iii) poly phosphazines

UNIT–IV

7. a) Write short note on octane number and cetane number.

   b) Describe the following
   i) Natural gas ii) Bio gas

OR

8. a) How do you determine the calorific value of solid fuel experimentally?

   b) Define calorific value of a fuel. Distinguish gross and net calorific value of fuel.

UNIT–V

9. a) Describe the essential properties of a good refractory material.

   b) What is cement? Explain with the help of chemical reaction setting and hardening of cement

OR

10. a) What is Portland cement? Illustrate the manufacture of Portland cement by dry method with a neat labelled diagram of rotary kiln

    b) Discuss the following properties of lubricants
    (i) Cloud and pour point (ii) Aniline point

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