Hall Ticket Number :

R-19

I B.Tech. I Semester Supplementary Examinations February 2022
Engineering Graphics-I
(Common to All CE & ME)

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	CO	Blooms Level

UNIT–I

1.	a)	Divide a straight line AB of length 50 mm, into 9 equal parts.	07M	CO1	L6
	b)	Construct a regular Pentagon and Hexagon given the length of its side is 50mm.	07M	CO1	L6

OR

2.	The major and minor axes of an ellipse are 120mm and 80mm. Draw an ellipse by Arcs of circles method.	14M	CO1	L3

UNIT–II

3.	Draw epicycloid of a circle of 40mm diameter, which rolls outside on another circle of 120mm diameter for one revolution clockwise. Draw a tangent and a normal to it at a point 95mm from the center of the directing circle.	14M	CO2	L3

OR

4.	Draw the curve traced out by an end of a thin wire unwound from a regular hexagon of side 15mmm the wire being kept tight. Draw a tangent & a normal to the curve at a point 80mm from the center of the hexagon.	14M	CO2	L3

UNIT–III

5.	A line AB has its end A 20mm above H.P. & 20mm in front of V.P. It is inclined at 40° to V.P and parallel to H.P. Draw its projections by taking the distance between the end projectors to be 50mm. Also find the true length of the line.	14M	CO3	L3

OR

6.	One end A of a line AB, 75mm long is 20mm above the H.P. and 25mm in front of the V.P. The line is inclined at 30° to the H.P. and the top view makes 45° with the V.P. Draw the projections of the line and find the true inclinations with the vertical plane.	14M	CO3	L3

UNIT–IV

7.	Draw the projections of a circle of 50mm diameter, having its plane vertical and inclined at 30° to the VP. Its center is 30mm above the HP and 20mm in front of the VP.	14M	CO4	L3

OR

8.	A semi-circular lamina of 64mm diameter has its straight edge in VP and inclined at an angle of 45° to HP. The surface of the lamina makes an angle of 30° with VP. Draw the projections.	14M	CO4	L3

UNIT–V

9.	A hexagonal pyramid side of base 25mm and axis 50mm longs, rests with one of the corners of its base on HP, its axis is inclined at 30° to HP and 45° to VP. Draw its projections.	14M	CO5	L3

OR

10.	A pentagonal prism is resting on one of the corners of its base on the HP. The longer edge containing that corner is inclined at 45° to the base. The axis of the prism makes an angle of 30° to the V.P. Draw the projections of the solid.	14M	CO5	L3

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Code: 19AC15T

I B.Tech. I Semester Supplementary Examinations February 2022
Functional English and Life Skills
(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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		Marks	CO	Blooms Level

UNIT–I

1. a) Why does Hazlitt prefer to advise his son never to "despise anyone at all" in" On the Conduct of life,"?   **7M   CO2   L3**

   b) What is the meaning of the lines "If you can bear to hear the truth you've spoken ... And stoop and build 'em up with worn-out tools" in poem "If—"?   **7M   CO2   L2**

OR

2. a) **Fill in the blanks with appropriate form of the verbs**
   i.   These books _____ (belong/ belongs) to me.
   ii. She _____ (want/ wants) to go out there and play with friends.
   iii. We _____(visited/ have visited) him yesterday.
   iv. He _____ (recovered/ has recovered) completely.
   v.   We _____ (will like/ would like) to visit the museum.
   vi. My brother _____ (enjoy/ enjoys) playing cricket.
   vii. Now he _____ (asks/ asking) questions to see if students have understood the lesson   **14M   CO3   L2**

   b) **Change the following sentences as directed**.
   i.   I saw him yesterday (change it into Negative statement)
   ii. She is singing a song. (change it into Interrogative)
   iii. He comes to college by bus. (change it into Negative statement)
   iv. They have not done an excellent job in repairing the machine. (change it into Assertive)
   v.   She felt very happy about her results. (change it into Negative statement)
   vi. Does man live by water alone? (change it into Assertive)
   vii. The quality of the apples are not good.(change it into Interrogative)   **7M   CO3   L2**

UNIT–II

3. How did George Bernard Shaw confront his fear of public speaking and became a great speaker?   14M   CO2   L3

OR

4. a) **Fill in the blanks with A/An/The/No article**
   i. Could you get me _____ kilogram of tea, please.
   ii. They are staying at _____ hotel.
   iii. Have you had _____ breakfast?
   iv. I read _____ amazing story yesterday.
   v. I saw _____ eagle fly by.
   vi. The table is made of _____ wood.
   vii. I saw _____ movie yesterday.   14M   CO3   L2

   b) Fill in the blanks with the most suitable transitions from the list. Use each transition only once unless instructed otherwise.
   (Thus, This, Then, First, Second, For example, A further, They, The final, Indeed, Finally, Rather)
   A child may leave home for a number of reasons, but three seem to be more common than any others. 1-_____, a child may leave home because of lack of parental affection, which can leave the child with emotional scars. When parents are cold and uncaring, a child senses 2- _____ and feels that s/he does not belong in the home. The child will 3- _____ leave, seeking a home where s/he at least feel s wanted and a part of a family. 4- _____, when a child feels that s/he is not given just recognition as a person and as an individual, s/he may feel frustrated enough to leave home-especially if he parents do not stop what they are doing long enough to really listen to him/her or at least to respect some of the child's opinions. 5- _____, severe punishment by a child's parents, which does not suit the child's misconduct, may cause him/her to leave home. 6- _____, severe punishment is child abuse, and a child will normally feel that s/he is not safe in such a home. 7- _____ for his/her own protection and for affection s/he may leave home.   7M   CO3   L2

UNIT–III

5. Describe the conversation between Stronetz and the Prince in the play" The Death Trap". What do you understand from it?   14M   CO1   L2

OR

6. a) **Fill in the blanks in the sentences below using the appropriate form of the verb in the brackets.**
   i. She told me that something _____ to him. (happen)
   ii. James is a student. But he _____ this week (work)
   iii. When I arrived at the party, everybody __ home. (go)
   iv. All the guests _____ . let us go to bed now.(leave)
   v. Computers _____ large amounts of data. (store)
   vi. Jhon _____ a lot of friends. (have)
   vii. He _____ all his childhood in a quaint village in China. (spend)   7M   CO3   L2

   b) **Choose the correct form of the verb that agrees with the subject.**
   i. Sally _____ (run) to the park every day.
   ii. One of the team _____ (be) missing.
   iii. Both the rice and the curd _____ (be) fresh and tasty.
   iv. Eight fifty dollars __ (be) what it would cost to buy the new pixel phone?
   v. He _____ (live) in that big house.
   vi. _____ (do) she know what she is doing?
   vii. I_____ (visit) my grandparents every Sunday.   7M   CO3   L2

   UNIT–IV

7. **Choose the correct form of the verb that agrees with the subject.**
   a) Each of these producers _____ his own advantage, (have)
   b) Ten miles _____ long distance, (be)
   c) Many a student _____ hard to pass his entrance exam, (try)
   d) The furniture in his house _____ impressive, (look)
   e) Few students _____ present in the class today, (be)
   f) Ritesh, my best friend _____ leaving for Japan next week, (be)
   g) Most of my friends_____ government employees, (be)
   h) The level of intoxication_____ from subject to subject, (vary)
   i) Either boys or girls_____ telling lies, (be)
   j) A number of people_____ reported to be missing in the train accident at Jhansi.(be)
   k) The coat or the hats _____ (be) in that closet.
   l) Many Japanese _____ fascinated by American popular culture.
   m) The young ___their whole lives ahead of them.(have)
   n) The local news (begins, begin) at eleven.   14M   CO3   L2

OR

8. How does the doctor stop the conspirators from killing the prince in" The Death Trap"? What is the irony behind this trick? 14M CO1 L2

UNIT–V

9. Explain the character of Chindu Yellamma and her efforts to make "Chindu Bhagavatam" as a popular Folk-art form? 14M CO1 L2

OR

10. Write an essay on "Problems and Issues faced by women in India" in not less than 400 words. 14M CO4 L4

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Code: 19A511T

I B.Tech. I Semester Supplementary Examinations February 2022

Problem Solving 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	CO	Blooms Level

UNIT–I

| 1. | a) | What is an algorithm? Describe the characteristics of an Algorithm | 6M | | |
| | b) | What is flowchart? Describe various symbols used in flowcharts. | 8M | | |

OR

| 2. | a) | What is data type? Explain basic data types and their sizes used in a C Language | 7M | | |
| | b) | What are the relational operators? Explain with example. | 7M | | |

UNIT–II

| 3. | a) | Describe Conditional Statements used in C Language | 7M | | |
| | b) | Compare While and do.. While statements with suitable example code. | 7M | | |

OR

| 4. | a) | Define an array. Explain how to declare and initialize arrays. | 7M | | |
| | b) | Write a c program to sort the list of numbers using bubble sort. Explain with an example. | 7M | | |

UNIT–III

| 5. | a) | What is a string with respect to C? How is it declared, initialized and manipulated? | 7M | | |
| | b) | Describe parameter passing techniques for functions. | 7M | | |

OR

| 6. | a) | Illustrate the storage classes extern, static and auto with an example to each. | 7M | | |
| | b) | Write a C program to perform multiplication of two matrices | 7M | | |

UNIT–IV

| 7. | a) | What is a pointer? What are the features of pointers? Write a C program to print address of a variable | 7M | | |
| | b) | Write a c program to swap two numbers using call by reference. | 7M | | |

OR

| 8. | | Differentiate static and dynamic memory allocation. How to allocate and freeing dynamic memory allocation. Explain with an example. | 14M | | |

UNIT–V

| 9. | a) | Define Structures. Explain with an example how structure members are initialized and accessed | 7M | | |
| | b) | Explain different modes to open a file | 7M | | |

OR

| 10. | a) | Write a program to copy content of existing file to another file. | 7M | | |
| | b) | Differentiate between a structure and union with respective allocation of memory by the compiler. Given an example of each. | 7M | | |

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I B.Tech. I Semester Supplementary Examinations February 2022
Algebra and Calculus
(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	CO	Blooms Level

UNIT–I

1. a) Find the rank of $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 4 & 4 \\ 7 & 10 & 12 \end{bmatrix}$ | 7M | CO1 | L3 |

b) Solve $x + y + z = 4, 2x + 5y - 2z = 3, x + 7y - 7z = 5$ | 7M | CO1 | L3 |

OR

2. Show that the system of equations
$2x_1 - 2x_2 + x_3 = \}x_1, 2x_1 - 3x_2 + 2x_3 = \}x_2, - x_1 + 2x_2 = \}x_3$ can possess a non-trivial solution only if $\} = 1, \} = -3$. Obtain the general solution in each case. | 14M | CO1 | L2 |

UNIT–II

3. Verify Cayley-Hamilton theorem for the matrix $A = \begin{bmatrix} 1 & -1 & 0 \\ 0 & 1 & 1 \\ 2 & 1 & 2 \end{bmatrix}$ and hence find

A^{-1} using Cayley-Hamilton theorem. | 14M | CO2 | L2 |

OR

4. Reduce the quadratic form $3x^2 + 2y^2 + 3z^2 - 2xy - 2yz$ to canonical form by using orthogonal transformation. | 14M | CO2 | L3 |

UNIT–III

5. If $u = x + 3y^2 - z^3, v = 4x^2 yz, w = 2z^2 - xy$, then evaluate $\dfrac{\partial(u, v, w)}{\partial(x, y, z)}$ at (1,-1,0) | 14M | CO3 | L3 |

OR

6. Find the minimum value of $x^2 + y^2 + z^2$ given $x + y + z = 3a$ | 14M | CO3 | L3 |

UNIT–IV

7. a) Using Taylor's theorem, express the polynomial $2x^3 + 7x^2 + x - 6$ in powers of $(x - 1)$. | 7M | CO4 | L3 |

b) Using Maclaurin's series , expand e^x in powers of x. | 7M | CO4 | L3 |

OR

8. Trace the curve $y^2(2a - x) = x^3$ | 14M | CO4 | L4 |

UNIT–V

9. Evaluate $\displaystyle\int_0^1 \int_0^1 \int_0^1 xyz\,dx\,dy\,dz$ | 7M | CO5 | L3 |

OR

10. Define Gamma Function, Beta Function and Evaluate $\displaystyle\int_0^1 x^4 \left(\log\dfrac{1}{x} \right)^3 dx$ using

$- \Gamma$ function. | 14M | CO5 | L1 |

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R-19

Code: 19AC13T

I B.Tech. I Semester Supplementary Examinations February 2022
Chemistry of Materials
(Common to CE & ME)

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	CO	Blooms Level

UNIT–I

			Marks	CO	Blooms Level
1.	a)	Define Hardness of water with example. Differentiate hard and soft water	7M	CO1	L1
	b)	Explain the principle involved in the estimation of hardness by EDTA method	7M	CO1	L2

OR

2.		Define Hardness of water with example. Differentiate hard and soft water	7M	CO1	L1

UNIT–II

3.	a)	What is electrochemical series and explain its applications	7M	CO2	L3
	b)	Differentiate primary cell and secondary cell	7M	CO2	L2

OR

4.		Describe the construction and principle involved in dry cell (leclanche cell). Summarize the important applications of dry cell	14M	CO2	L3

UNIT–III

5.	a)	What are metallic coating explain with example	7M	CO3	L1
	b)	Discuss any one method of cathodic protection	7M	CO3	L2

OR

6.	a)	How is corrosion prevented by sacrificial anode protection	7M	CO3	L1
	b)	Differentiate dry and wet corrosion	7M	CO3	L2

UNIT–IV

7.	a)	Define Portland cement and explain its constituents	7M	CO4	L2
	b)	Discuss the chemistry behind the setting and hardening of cement	7M	CO4	L2

OR

8.	a)	A sample of coal was found to have the following percentage composition C=72%, H=8%, O=13%, N=4% and ash 3% Calculate the higher calorific value (HCV) and lower calorific value (LCV) of coal sample	7M	CO4	L5
	b)	Define Higher Calorific value (HCV) and Lower Calorific Values (LCV)	7M	CO4	L1

UNIT–V

9.		Discuss the applications of nanomaterials in the waste water treatment, Lubricants and engine	14M	CO5	L3

OR

10.	a)	Explain the working principle of SEM	7M	CO5	L2
	b)	Define smart materials and explain its property of self-healing	7M	CO5	L1

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