| Hall Ticket Number : | | | | | | | | | | |
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**R-20**

**Code: 20AC15T**

I B.Tech. I Semester Supplementary Examinations July 2023

# Communicative English

(Common to CE, ME, CSE, AI&DS, CSE(AI) and CSE(DS) )

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two marks.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

## PART-A
**(Compulsory question)**

| | | CO | Blooms Level |
|---|---|---|---|
| 1. | **Answer ALL the following short answer questions** ( 5 X 2 = 10M ) | | |
| a) | What is young boy's attitude towards his new school? | CO1 | L2 |
| b) | What are the various words the poet uses to describe the sound of the brook? | CO1 | L2 |
| c) | How does the doctor stop the conspirators from killing the prince, Dimitri? What is the irony behind the trick? | CO1 | L2 |
| d) | Explain microcredit system introduced by Muhammad Yunus. | CO1 | L2 |
| e) | Write a few words about Darpana Academy of Performing Arts started by Mrinalini Sarabhai. | CO1 | L2 |

## PART-B
**Answer *five* questions by choosing one question from each unit ( 5 x 12 = 60 Marks )**

| | | Marks | CO | Blooms Level |
|---|---|---|---|---|
| | **UNIT–I** | | | |
| 2. | What is the author's attitude towards how one should behave with other people? Do you agree with his reasoning? Give reasons for your answer? | 12M | CO1 | L4 |
| | **OR** | | | |
| 3. a) | Change the following statements into questions.<br>i. The prince decided to invite his enemies for dinner.<br>ii. My sister submitted the assignment yesterday.<br>iii. She comes from Madrid.<br>iv. I can have a smart phone for my birthday.<br>v. It is raining now in our village.<br>vi. They arrived at 6 O' clock. | 6M | CO3 | L4 |
| b) | Identify the parts of speech of the underlined words in the following sentences.<br>i. The soldiers were <u>rewarded</u> for their <u>bravery.</u><br>ii. The <u>service</u> in the bank was really <u>quick.</u><br>iii. Peter <u>happily</u> eats <u>fresh</u> oranges at home. | 6M | CO3 | L4 |
| | **UNIT–II** | | | |
| 4. | Who is the speaker of the poem, "The Brook"? What is the technique of investigating humanqualities into non-living things called? Why do you think the poet has chosen to use this technique here? How does it contribute to the effect of the poem? | 12M | CO1 | L2 |
| | **OR** | | | |
| 5. | Develop the following hints into a meaningful paragraph:<br>Cyber crime is criminal act takes place over internet - a great threat to our society and nation - hackers have various motives of crime - identity theft, cyber stalking, creating and sending malware like viruses for destroying systems or steal data - severe loss to victim - measures should be taken to avoid such crimes. | 12M | CO4 | L3 |

**UNIT–III**

6. Discuss the significance of the title 'The Death Trap'? 12M CO1 L3

**OR**

7. a) Rearrange each group of jumbled sentences below so as to have well-written paragraphs.
   i. When finally they made their first ascent from the desert tract beside the sea, to be borne aloft for almost a whole minute, a great change was effected in the nation's attitude.
   ii. Accordingly, the brothers, each a man of mettle and each the perfect complement to the other, set out with their ingenious device, but with their very little capital.
   iii. Those who had formerly been skeptical and had prophesied that the wright machine would remain forever stationary on the earth, were loudest in their praise of the pioneers of the air.
   iv. Men laughed at the Wright Brothers, mechanics from Dayton, saying that a practicable flying machine would never be built and counseled them to stay on the ground.
   v. The wrights, however, refused to accept this advice or to alter their plans, for they were certain that their machine embodied the principles of aviation and they were confident of their success. 7M CO4 L4

   b) Fill in blanks in the sentences below using appropriate form of the verb in brackets.
   i. Where _____ (do) you stay last night?
   ii. I _____ (just submit) my assignment.
   iii. The student's _____ (play) games since early morning.
   iv. I met with an accident while I _____ (go) to college.
   v. The teacher _____ (start) the lesson before she entered the class room. 5M CO4 L4

**UNIT–IV**

8. Discuss the role of Muhammad Yunus in eradicating the poverty of women in Bangladesh. . 12M CO2 L4

**OR**

9. Prepare an analytical essay on the topic, "Influence of online games on young people" 12M CO4 L4

**UNIT–V**

10. Correct the following sentences and rewrite them. 12M CO3 L3
   i. I don't have the informations that you wanted.
   ii. Where you did go last night? I looked everywhere for you.
   iii. My mother has to go to the hospital to have an operation on her leg.
   iv. I hate get up early in the morning, especially when it's raining.
   v. The boy over there looks exactly as my younger brother.
   vi. Can you please sponsor the event to be organize on our campus in the next month?
   vii. I am knowing all the grammar, but it's difficult to remember.
   viii. I'm work in a restaurant at the moment but I'd like have a more interesting job.
   ix. I advised my friend to prepared well for the online entrance test.
   x. Fresh vegetables are said to being very good for our health.
   xi. People in Italy must to carry their identity cards at all times.
   xii. Last night, we congratulated our neighbours for the birth of their daughter.

**OR**

11. Narrate the story of Mrinalini Sarabhai and describe how she used her dance performances to fight against social evils.

*** End ***

| Hall Ticket Number : | | | | | | | | | | |
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**R-20**

**Code: 20A311T**

I B.Tech. I Semester Supplementary Examinations July 2023

# Engineering Graphics

(Mechanical Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *five full* questions by choosing one question from each unit (5 x 14 = 70 Marks)

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| | | Marks | CO | BL |
|---|---|---|---|---|
| | **UNIT–I** | | | |
| 1. | Draw a parabola having a distance of 50 mm between the focus and the directrix. Draw a normal and a tangent to the parabola at a point 35 mm from the focus. | 14M | CO1 | L2 |
| | **OR** | | | |
| 2. | Draw a straight-line AB of any length. Mark a point F, 65 mm from AB. Trace the path of a point P moving in such a way that the ratio of its distance from the point F, to its distance from AB is 3:2. Plot at least 10 points. Name the curve. Draw a normal and tangent to the curve at a point which is 45 mm from F. | 14M | CO1 | L2 |
| | **UNIT–II** | | | |
| 3. | An inelastic string AB of 110 mm length is tangent to a circular disc of 50 mm diameter at a point A on the disc. The string is having its end A fixed while the B is free. Draw the locus of the end point B if the string is wound over the disc keeping it always taut. Name the curve. | 14M | CO2 | L2 |
| | **OR** | | | |
| 4. | Draw a hypocycloid of a circle of 40 mm diameter which rolls inside another circle of 200 mm diameter for one revolution. Draw a tangent and normal at any point on it. | 14M | CO2 | L2 |
| | **UNIT–III** | | | |
| 5. | The distance between the end projectors of a line is 60 mm. One end is 15 mm above H.P and 50 mm in front of V.P. The other end is 60 mm above H.P and 10 mm in front of V.P. Draw the projections and find the true length of the line. | 14M | CO3 | L3 |
| | **OR** | | | |
| 6. | A straight-line AB has end point A at 15 mm in front of the VP and end point B at 50 mm above H.P. The line is inclined at $45^0$ to the H.P, while its front view is inclined at $60^0$ to the XY line. Draw the projections of the straight-line AB if its top view is 35 mm long. Find the true length and the angle of inclination of the line with the V.P. | 14M | CO3 | L3 |
| | **UNIT–IV** | | | |
| 7. | A thin semi-circular plate of 70 mm diameter, has its straight edge in H.P and inclined at $45^0$ to V.P; while the surface of the plate is inclined at $30^0$ to H.P. The end A of the diameter AB is nearer to the V.P and is at a distance 25 mm from it. Draw the projections of the plate. | 14M | CO4 | L3 |
| | **OR** | | | |
| 8. | A regular pentagon ABCDE, of side 25 mm side has its side BC on ground. Its plane is perpendicular to H.P and inclined at 45° to the V.P. Draw the projections of the pentagon and show its traces when its comer nearest to V.P is 15 mm from it. | 14M | CO4 | L3 |
| | **UNIT–V** | | | |
| 9. | A line AB 60 mm long has one of its extremities 60 mm in front of V.P and 45 mm above H.P. The line is inclined at $30^0$ to H.P and $45^0$ to V.P. Draw the projections of the line by the auxiliary plane method. | 14M | CO5 | L3 |
| | **OR** | | | |
| 10. | Draw the projections of a regular hexagon of 25 mm side, having one of its sides in the H.P and inclined at $60^0$ to the V.P and its surface making an angle of $45^0$ with the H.P. (Use auxiliary plane method). | 14M | CO5 | L3 |

*** End ***

| Hall Ticket Number : | | | | | | | | | | |
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**R-20**

**Code: 20A511T**

I B.Tech. I Semester Supplementary Examinations July 2023

# Problem Solving through C Programming

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two marks.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

## PART-A

**(Compulsory question)**

| **1. Answer the following ( 5 X 2 = 10M )** | **CO** | **BL** |
|---|---|---|
| a) Summarize the basic Datatypes supported in C Programming. | CO1 | L2 |
| b) Differentiate break and continue statements. | CO2 | L2 |
| c) Interpret the declaration of a header file with < > and " ". | CO3 | L2 |
| d) Define Pointer. | CO4 | L2 |
| e) Differentiate text files and binary files. | CO5 | L3 |

## PART-B

**Answer five questions by choosing one question from each unit (5 x 12 = 60 Marks)**

| | | | Marks | CO | BL |
|---|---|---|---|---|---|
| | | **UNIT–I** | | | |
| 2. | | Discuss the types of operators in C programming. | 12M | 1 | L2 |
| | | **OR** | | | |
| 3. | a) | Define a variable and list the rules for variable declaration. | 6M | 1 | L2 |
| | b) | Differentiate global and local variables with examples. | 6M | 1 | L2 |
| | | **UNIT–II** | | | |
| 4. | a) | Model a C program to produce the Transpose of a given matrix. | 6M | 2 | L3 |
| | b) | Apply selection sort on the following list of elements 30, 60, 80, 10, 50, 90, 70, 20 | 6M | 2 | L3 |
| | | **OR** | | | |
| 5. | a) | Discuss the conditional control statements in C programming. | 6M | 2 | L3 |
| | b) | Model a C program for Linear search. | 6M | 2 | L2 |

## UNIT–III

| | | | | | |
|---|---|---|---|---|---|
| 6. | a) | Analyze the storage classes in C. | 8M | 3 | L4 |
| | b) | Describe the built-in functions strcmp(), strcpy(). | 4M | 3 | L2 |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 7. | a) | Model a C program to find the GCD of two integers using functions. | 6M | 3 | L5 |
| | b) | Describe actual and formal parameters in C programming. | 6M | 3 | L2 |

## UNIT–IV

| | | | | | |
|---|---|---|---|---|---|
| 8. | a) | Differentiate call by value and call by reference. | 6M | 4 | L3 |
| | b) | Develop a C program using the predefined functions malloc, and realloc. | 6M | 4 | L6 |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 9. | a) | Differentiate static and dynamic memory allocation. | 4M | 4 | L2 |
| | b) | Apply bubble Sort over the list of integers using pointers | 8M | 4 | L3 |

## UNIT–V

| | | | | | |
|---|---|---|---|---|---|
| 10. | a) | Demonstrate the accessing members of a structure using variable. | 6M | 5 | L3 |
| | b) | Describe the file opening modes of operation. | 6M | 5 | L2 |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 11. | a) | Develop a c program to read and write data into a text file. | 6M | 5 | L5 |
| | b) | Demonstrate the passing array of structures to functions. | 6M | 5 | L4 |

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| Hall Ticket Number : | | | | | | | | | | |
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**R-20**

**Code: 20AC11T**

I B.Tech. I Semester Supplementary Examinations July 2023

# Algebra and Calculus

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two mark.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

## PART-A

**(Compulsory question)**

1.Answer ALL the following short answer questions ( 5 X 2 = 10M ) CO BL

a) The rank of the matrix $\begin{bmatrix} 1 & 1 & -1 \\ 2 & -3 & 4 \\ 3 & -2 & 3 \end{bmatrix}$ is ..... 1 3

b) Using Cayley-Hamilton theorem , the value of $A^4 - 4A^3 + 5A^2 - A + 2I$ when $A = \begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix}$ is 2 3

c) Expand $e^x$ by Maclaurin's series 3 2

d) Evaluate $\int\int x^2y^3 dxdy$ over the rectangle $0 \le x \le 1$ and $1 \le y \le 3$ 4 3

e) Find the value of $\Gamma(-1/2)$ 5 3

## PART-B

**Answer *five* questions by choosing one question from each unit ( 5 x 12 = 60 Marks )**

Marks CO BL

### UNIT–I

2. a) Reduce the following matrix into Echelon form and hence find its rank. $\begin{bmatrix} 2 & 3 & -1 & -1 \\ 1 & -1 & -2 & -4 \\ 3 & 1 & 3 & -2 \\ 6 & 3 & 0 & -7 \end{bmatrix}$ 6M 1 3

b) Test for consistency and solve
4x-2y+6z = 8
x+y-3z = -1
15x-3y+9z = 21 6M 1 3

**OR**

3. Find the eigenvalues and eigenvectors of the matrix $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$ 12M 2 3

## UNIT–II

4. Find the characteristic equations of the matrix; $\begin{bmatrix} 2 & 1 & 1 \\ 0 & 1 & 0 \\ 1 & 1 & 2 \end{bmatrix}$ And hence compute $A^{-1}$. Also find the matrix represented by $A^8 - 5A^7 + 7A^6 - 3A^5 + A^4 - 5A^3 + 8A^2 - 2A + I$. 12M 2 3

**OR**

5. Find the matrix **P** which transforms the matrix $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$ To the diagonal form. Hence calculate $A^4$ 12M 2 3

## UNIT–III

6. a) Use Maclaurin's series, to prove that $\log(1 + \sin x) = x - \frac{x^2}{2} + \frac{x^3}{6} - \frac{x^4}{12} + \cdots\cdots$ 6M 3 2

   b) Discuss the maxima and minima of $f(x, y) = x^3y^2(1 - x - y)$ 6M 3 2

**OR**

7. a) If $x = r\sin\theta\cos\emptyset, y = r\sin\theta\sin\emptyset, z = r\cos\theta$ then show that $\frac{\partial(x,y,z)}{\partial(r,\theta,\emptyset)} = r^2\sin\theta$ 6M 3 3

   b) Find the volume of the greatest rectangular parallelepiped that can be inscribed in the ellipsoid $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$ 6M 3 3

## UNIT–IV

8. Evaluate $\int\int r^3 dr d\theta$ over the area bounded between the circles $r = 2\cos\theta$ & $r = 4\cos\theta$ 12M 4 3

**OR**

9. Evaluate $\int_{-1}^{1}\int_{0}^{z}\int_{x+z}^{x+y+z}(x + y + z)\,dx dy dz$ 12M 4 3

## UNIT–V

10. Express the following integrals in terms of gamma function

$$(i)\ \int_0^1 \left(\frac{1}{\sqrt{1 - x^4}}\right) dx \qquad (ii)\ \int_0^{\pi/2} \sqrt{\tan\theta}\, d\theta$$

12M 5 2

**OR**

11. Prove that $\int_0^1 \left(\frac{x^2}{\sqrt{1-x^4}}\right) dx \times \int_0^1 \left(\frac{1}{\sqrt{1+x^4}}\right) dx = \frac{\pi}{4\sqrt{2}}$ using gamma and beta functions. 12M 5 3

*** End ***