Hall Ticket Number :										

R-23

Code: 23AHS12T

B.Tech. I Semester Regular Examinations January 2024

Communicative English

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

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	BL
1. Answer ***all*** the questions **(**10 X 2 = 20M)			
a)	Do you agree with the last paragraph of the story "The Gift of the Magi"? Give reasons.	1	L2
b)	Write antonyms for the following words: i) diffident ii) urban	1	L3
c)	Justify the brook's stand when it claims "For men may come and men may go, But I go on forever."	2	L4
d)	Differentiate between Homonyms and Homophones.	2	L2
e)	Write briefly about any one aspect of Elon Musk's innovations in his attempt at making technology a user friendly.	3	L2
f)	Explain the importance of paraphrasing / summarizing.	3	L2
g)	Describe a couple of the "peace toys" that Harvey brings for Eric and Bertie. What do these toys represent?	4	L2
h)	Define Jargon. Mention any four types of jargons that you know.	4	L3
i)	Define intrapersonal communication skills.	5	L2
j)	Convert the following sentences in passive voice. i) When are you buying motor cycle? ii) The chairman praised Sarala for her good work.	5	L3

PART-B

Answer *five* questions by choosing one question from each unit (5 x 10 = 50 Marks)

		Marks	CO	BL
	UNIT–I			
2.	How are the gifts given by the Magi can be compared to the gifts exchanged by the principal characters in O Henry's story "The Gift of the Magi."?	10M	1	L2
	OR			
3. a)	Use the prefix or suffix to the given word provided in the bracket in its appropriate form. i) You can't just believe it. The plot was _____ (believable) ii) I saw her just a few days ago. Still, I miss her. It looks like she just ____ (appeared) iii) I am sorry; I didn't mean to hurt you. I must have _____ you. (understood) Use prefix in the below words to find out its opposite words. i) Happy ii) Wrap iii) Connect	5M	1	L3
b)	Write two synonyms for each word. i) abate ii) cloth iii) hazardous iv) sparkle v) connect vi) frightened	5M	1	L3

UNIT–II

4.		Distinguish between the journeys undertaken by a human being and the brook.	10M	2	L2
		OR			
5.	a)	Fill in the blanks with 'a', 'an' or 'the' wherever necessary. i) The guide knows _____ way. ii) Let us discuss _____ matter seriously. iii) You are _____ fool to say that. iv) French is _____ easy language. v) Mumbai is _____ very dear place to live in.	5M	2	L3
	b)	Fill in the blanks with suitable prepositions. I am Andrew, and I live _(i)_ London _(ii)_ my wife. I like _(iii)_ travel and every year. The guests are coming _(iv)_ 6'o' clock _(v)__ the evening on Thursday.	5M	2	L3

UNIT–III

6.		Write in detail about the contributions of Elon Musk in the field of technology.	10M	3	L2
		OR			
7.	a)	Fill in the blanks with the correct form of verbs. i) Mathematics _____ (be) an interesting subject. ii) John_____(work) as a doctor. iii) Sita is _____ (read) a novel right now. iv) My father _____ (paint) the wall for two hours. v) I ____ (not, meet) her yesterday.	5M	3	L3
	b)	Form five compound words for each of the following cases: i) Adjective + Noun ii) Verb + Noun	5M	3	L3

UNIT–IV

8.	a)	How does the boy's transformation of the peace toys into violent scenarios reflect their exposure to real-world conflicts and societal influences in the story "The Toys of Peace"?	5M	4	L4
	b)	Analyse the role of education and upbringing in shaping children's perspectives. How does 'The Toys of Peace' highlight the challenge of redirecting established behaviors and attitudes ingrained in early childhood?	5M	4	L4
		OR			
9.		Prepare a resume/CV with a cover letter for the following job advertisements. i) Wanted an Office Assistant for a reputed company based in Delhi. The candidate must be a graduate with an experience of at least two years. Computer knowledge and Communicative English are necessary. Apply within a week to post Box No. 5665, c/o Indian Express, Sk Marg, New Delhi 110046.	10M	4	L4

UNIT–V

10.		The lesson "Power of Intrapersonal Communication" suggests that developing intrapersonal communication skills can lead to effective decision-making, problem-solving, and stress management. Can you think of any potential limitations or challenges in relying solely on intrapersonal communication for these processes? How might external perspectives and input play a role in enhancing these skills?	10M	5	L2
		OR			
11.		Attempt an expository essay on "Class room learning and online learning."	10M	5	L2

*** End ***

Hall Ticket Number :										

R-23

Q.P.Code: 23A0511T

B.Tech. I Semester Regular Examinations January 2024

Introduction to 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)

		CO	BL
1.	Answer ***all*** the following short answer questions (10 X 2 = 20M)		
a)	Define flowchart and explain different symbols used for constructing flowchart.	1	1
b)	Evaluate the expression a+b*c/d where a=20, b=10, c=15 and d=5. Also print the value through C program.	1	1
c)	List the control structures in C.	2	1
d)	List the decision-making statements in C.	2	1
e)	Explain recursion with example.	3	1
f)	List the types of functions in C.	3	1
g)	Display the first n natural number with user-defined function	4	1
h)	Compare structure and union in terms of memory allocation with an example	4	1
i)	List basic operations of a file.	5	1
j)	Explain a file opening mode with an example.	5	1

PART-B

Answer *five* questions by choosing one question from each unit (5 x 10 = 50 Marks)

		Marks	CO	BL
	UNIT–I			
2. a)	Differentiate among compiler, assembler, and interpreter.	5M	1	2
b)	Discuss tokens in C with examples.	5M	1	2
	OR			
3. a)	Explain all the data types with their ranges and examples.	5M	1	2
b)	Summarize Type Conversion and type casting in C.	5M	1	2
	UNIT–II			
4. a)	Discuss briefly about multi-way selection statements with an example.	5M	2	2
b)	Write a C program to find the sum of odd numbers using jumping statements.	5M	2	2
	OR			

5.	a)	Discuss about different format strings in c	5M	2	2
	b)	Write a C program to compute the real roots of a quadratic equation $a*x^2 + b*x+c = 0$. The program should request for the values of the constants a, b and c and print the values of root1 and root2. Use the following rules: i. No solution, if both a and b are zero There is only one root, if a=0 ii. There are no real roots, if $b^2-4*a*c$ is negative iii. Otherwise, there are two real roots. Write a C program to test all the above conditions	5M	2	4

UNIT–III

6.	a)	List the string handling function with an example	5M	3	2
	b)	Write a C program to copy the string str2 into str1 without using strcpy() function	5M	3	2

OR

7.	a)	Explain call by value and call by reference with examples.	5M	3	2
	b)	Write a C program to check whether a string is palindrome or not without using string function.	5M	3	2

UNIT–IV

8.	a)	Explain usage of structure in terms of definition, declaration and accessing members with syntax and example	5M	4	2
	b)	Differentiate structures and unions.	5M	4	2

OR

9.	a)	What are pointers? Describe pointer arithmetic with examples	5M	4	2
	b)	Explain call by reference mechanism with an example program	5M	4	2

UNIT–V

10.	a)	C program to read name and marks of n number of students and store them in a file.	5M	5	2
	b)	Write C program that uses both recursive and non-recursive functions to find the sum of n natural numbers.	5M	5	2

OR

11.	a)	Write C program that uses both recursive and non-recursive functions to find the factorial of a given number.	5M	5	2
	b)	Explain various storage classes in C with an example	5M	5	2

*** End ***

Hall Ticket Number :										

R-23

QPCode: 23AHS11T

B.Tech. I Semester Regular Examinations January 2024

Linear 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 marks.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

1. Answer ***all*** the following short answer questions (10 X 2 = 20M) CO BL

a) Define the rank of a matrix. What is the rank of an identity matrix of order n? CO1 L1

b) State Cauchy's Binet formula. CO1 L1

c) Show that the Eigen values of a matrix A and its transpose A^1 are same. CO2 L1

d) State Cayley-Hamilton theorem. CO2 L1

e) Stare Rolle's theorem. CO3 L1

f) State Maclaurin's theorem with Lagrange's form of remainder. CO3 L1

g) If $f(x, y)= ax^2+2hxy+by^2$, then find its first and second order partial derivatives. CO4 L2

h) If $x = r\cos^{-}, y = r\sin^{-}$ then find $J\left(\frac{x, y}{r, -}\right)$. CO4 L2

i) Evaluate $\int_0^1 \int_0^{\sqrt{1+x^2}} \frac{dxdy}{1+x^2+y^2}$. CO5 L2

j) Evaluate $\int_0^{\square} \int_0^{\square} x\left(x^2 + y^2\right) dx\, dy$ CO5 L1

PART-B

Answer *five* questions by choosing one question from each unit (5 x 10 = 50 Marks)

Marks CO BL

UNIT–I

2. a) Find the rank of the matrix $B = \begin{bmatrix} 0 & 1 & -3 & -1 \\ 1 & 0 & 1 & 1 \\ 3 & 1 & 0 & 2 \\ 1 & 1 & -2 & 0 \end{bmatrix}$ 5M CO1 L2

b) Solve by Gauss elimination method the following equations

$x - 2y + 3t = 2, 2x + y + z + t = -4, 4x - 3y + z + 7t = 8.$ 5M CO1 L3

OR

3. Show that the system of equations

$2x_1 - 2x_2 + x_3 = {}^{a}x_1,\ 2x_1 - 3x_2 + 2x_3 = {}^{a}x_2, -x_1 + 2x_2 = {}^{a}x_3$

can posses a non trivial solution only if ${}^{a} = 1, {}^{a} = -3$.

Obtain the solution in each case. 10M CO1 L3

UNIT–II

4. Verify Cayley-Hamilton theorem for the following matrix and hence find the inverse $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$ 10M CO2 L3

OR

5. Reduce the following quadratic form $2x_1x_2 + 2x_1x_3 - 2x_2x_3$ into canonical form or sum of squares through orthogonal reduction and hence find the nature. 10M CO2 L3

UNIT–III

6. State first mean value theorem, and using it prove that $(0 < a < b < 1)$, $\frac{b-a}{1+b^2} < \tan^{-1} b - \tan^{-1} a < \frac{b-a}{1+a^2}$.

Hence show that $\frac{®}{4} + \frac{3}{25} < \tan^{-1}\frac{4}{3} < \frac{®}{4} + \frac{1}{6}$. 10M CO3 L3

OR

7. Expand $\log_e^x$ in powers of (x-1) and hence evaluate $\log_e^{1.1}$ correct to 4 decimal places. 10M CO3 L3

UNIT–IV

8. If $u = x^2 - y^2, v = 2xy$ and $x = r\cos^{-}, y = r\sin^{-}$, find $\frac{\partial(u,v)}{\partial(r,^{-})}$. 10M CO4 L3

OR

9. If u=log($x^3 + y^3 + z^3 - 3xyz$) then show that$(\frac{\partial}{\partial x} + \frac{\partial}{\partial y} + \frac{\partial}{\partial z})_2 u = \frac{-9}{(x+y+z)^2}$

UNIT–V

10. Change the order of integration in $I = \int_0^1 \int_{x^2}^{2-x} xydxdy$ and hence evaluate the same. 10M CO5 L3

OR

11. Evaluate, by changing to spherical polar coordinates

$$\int_0^1 \int_0^{\sqrt{1-x^2}} \int_0^{\sqrt{1-x^2-y^2}} \frac{dxdydz}{\sqrt{1-x^2-y^2-z^2}}$$

10M CO5 L4

*** End ***

Hall Ticket Number :										

R-23

Q.P.Code: 23A0111T

B.Tech. I Semester Regular Examinations January 2024

Basic Civil & Mechanical Engineering

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

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-1** and **Part-2)**
2. Use separate Answer booklets for **Part-1 and Part-2**
3. Part-1 & Part-2 of question paper consists of Part-A & Part-B
4. In Part-A, each question carries **One marks.**
5. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-1 (Basic Civil Engineering)

PART-A

(Compulsory question)

1. Answer ***all*** the following short answer questions (5 X 1 = 5M) CO BL

a) List out various disciplines in Civil Engineering. CO1 L2

b) Define Surveying. CO2 L2

c) What is the definition of a contour line? CO2 L2

d) Name any two Railway Gauges. CO3 L2

e) Define Hydrology. CO3 L2

PART-B

Answer *five* questions by choosing one question from each unit (3 x 10 = 30 Marks)

		Marks	CO	BL
	UNIT-I			
2.	Explain role and scope of Civil Engineering in the society.	10M	CO1	L2
	OR			
3.	What are the various materials used for construction? Explain in detail.	10M	CO1	L2
	UNIT-II			
4.	Enumerate the objectives of Surveying and Explain in detail the types of Bearings.	10M	CO2	L2
	OR			
5.	Explain in detail about all available estimates for buildings.	10M	CO2	L2
	UNIT-III			
6.	Differentiate between Flexible Pavements and Rigid Pavements.	10M	CO3	L2
	OR			
7.	What is rainwater harvesting? Explain the methods used for the rainwater harvesting.	10M	CO3	L1

PART-2 (Basic Mechanical Engineering)

PART-A

(Compulsory question)

1. Answer ***all*** the following short answer questions (5 X 1 = 5M)		CO	BL
a)	Interpret the fields which dealt by a Mechanical Engineer?	CO1	L2
b)	Summarize the mechanical engineering role in Aerospace sector	CO1	L2
c)	Explain the basic Refrigeration and air conditioning cycles?	CO2	L2
d)	Outline the links and Joints used in robot?	CO3	L3
e)	Illustrate the advantages and Disadvantages of hydro power plants.	CO3	L2

PART-B

Answer *five* questions by choosing one question from each unit (3 x 10 = 30 Marks)

			Marks	CO	BL
		UNIT-I			
2.		Analyze the mechanical engineering technologies role in Energy sector?	10M	CO1	**L4**
		OR			
3.	a)	Distinguish the ferrous and non-ferrous metals?	5M	CO1	**L2**
	b)	What do you mean by composites? Outline the applications of composites?	5M	CO1	**L2**
		UNIT-II			
4.		Classify the manufacturing processes and analyze about any three types of manufacturing processes.	10M	CO2	**L4**
		OR			
5.	a)	Distinguish between 2 stroke and 4 stroke IC engines?	5M	CO2	**L4**
	b)	Explain the working principle of Boilers with a neat sketch?	5M	CO2	**L2**
		UNIT-III			
6.		Draw the layout of a steam Power Plant and explain its working.	10M	CO3	**L2**
		OR			
7.	a)	State the type of mechanical power transmission and explain any one in detail.	5M	CO3	**L4**
	b)	Explain the Basic components of Robot configurations?	5M	CO3	**L2**

*** End ***

Hall Ticket Number :										

R-23

Code: 23AHS14T

B.Tech. I Semester Regular Examinations January 2024

Chemistry

(Common to CSE, CSE(DS) and AI&ML)

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	BL
1.	Answer ***all*** the following short answer questions (10 X 2 = 20M)		
a)	Calculate the bond order based on MOT for O_2 molecule with diagram	1	L3
b)	State the Schrodinger Wave equation and indicate the terms present in it.	1	L1
c)	Define nano materials. Give examples	2	L1
d)	Define n-type and p-type semiconductors with examples	2	L1
e)	State the Nernst equation for galvanic cell.	3	L1
f)	Define conductivity. Mention the units for conductivity.	3	L1
g)	Explain the functionality of monomers with suitable example	4	L2
h)	What are Biodegradable polymers? Give examples.	4	L1
i)	Summarize the electronic transitions formed in visible region.	5	L2
j)	Demonstrate the applications of HPLC	5	L3

PART-B

Answer *five* questions by choosing one question from each unit (5 x 10 = 50 Marks)

		Marks	CO	BL
	UNIT-I			
2. a)	Apply molecular orbital theory to explain bond formation of and bond order in homo-nuclear diatomic molecules with the help of energy level diagram.	5M	1	L3
b)	Describe the π-molecular orbitals of butadiene with a neat diagram.	5M	1	L2
	OR			
3.	Formulate (derive) the Schrödinger wave equation and describe its significance.	10M	1	L6
	UNIT-II			
4. a)	Explain the properties of carbon nano tubes and applications of CNT'S.	6M	2	L2
b)	Describe the properties and applications of Super conductors.	4M	2	L2

OR

5.	a)	Define Fullerenes. Describe the properties and applications of fullerenes.	6M	2	L1
	b)	Describe the properties and applications of Super capacitors.	4M	2	L2

UNIT-III

6.	a)	Discuss the construction, working and reactions involved in lithium ion battery.	5M	3	L6
	b)	Describe potentiometric titrations-redox titrations	5M	3	L2

OR

7.	a)	Discuss the construction, working of galvanic cell. Discuss the role of salt bridge.	5M	3	L6
	b)	Describe conductometric titrations (acid-base titrations).	5M	3	L1

UNIT-IV

8.	a)	Discuss the preparation, properties and applications of Bakelite.	5M	4	L6
	b)	Discuss preparation, properties and uses of Teflon	5M	4	L6

OR

9.	a)	Differentiate Thermo plastics from Thermosetting plastics	5M	4	L2
	b)	Discuss preparation, properties and uses of Buna-S	5M	4	L6

UNIT-V

10.	a)	What is the region of the infrared spectrum**?** List out the applications of infrared spectroscopy.	6M	5	L1
	b)	Differentiate between UV visible and IR spectroscopy.	4M	5	L2

OR

11.		Illustrate the setup and functioning of an HPLC instrument, demonstrating the step-by-step procedure of analyzing a sample.	10M	5	L3

*** End ***