H.T No: | | | | | | | | | | | **R22** | **Course Code: A400001**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech I Semester Supplementary Examinations July/August-2024

Course Name: Matrices and Calculus

(Common for all Branches)

Date: 16.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries ONE mark. **10x1=10M**

1. Find the Rank $of\ A = \begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$ 1 M
2. State the conditions for consistency of the system of Non -homogeneous Linear equations. 1 M
3. Is $\begin{bmatrix} -2 \\ 1 \end{bmatrix}$ an eigen vector of A= $\begin{bmatrix} 3 & 2 \\ 3 & 8 \end{bmatrix}$? 1 M
4. Explain Algebraic and Geometric Multiplicity of a matrix. 1 M
5. Describe Geometrical interpretation of Roll's theorem. 1 M
6. Find the value of $\Gamma\frac{7}{2}$ 1 M
7. Find $\frac{\partial z}{\partial x}$ and $\frac{\partial z}{\partial y}$ if $z = ax^2 + hxy + by^2$ 1 M
8. If $u=x^3+y^3$ then find the value of $\frac{\partial^2 u}{\partial x\, \partial y}$ 1 M
9. Evaluate $\int_0^1 \int_0^x e^{\frac{y}{x}}\, dy\, dx$ 1 M
10. Find limits of integration $\iint (x^2 + y^2)$ dxdy over the region bounded by the curves $y=x^2$ and $y^2=x$ 1 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Find the rank of the following matrix by reducing it to echelon form 10M

$$A= \begin{bmatrix} 1 & 2 & 3 & -1 \\ -2 & -1 & -3 & -1 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & -1 \end{bmatrix}$$

OR

11. B). Solve the system of equation by using Gauss -Seidel method correct to three decimal places 10M

(i) $8x - 3y + 2z = 20,$

(ii) $4x + 11y - z = 33,$

(iii) $6x + 3y + 12z = 35$

12. A). Verify Cayley-Hamilton theorem for the matrix $A=\begin{bmatrix} 3 & 4 & 1 \\ 2 & 1 & 6 \\ -1 & 4 & 7 \end{bmatrix}$. Hence find A^{-1} and A^4 10M

(P.T.O..)

OR

12. B). Reduce the following quadratic form to canonical form by orthogonal transformation. Also find the rank, index, signature and nature of the quadratic form $2x^2 + 2y^2 + 2z^2 - 2xz$. 10M

13. A). i) Obtain Taylors series expansion of sinx in powers of $(x-\frac{\pi}{4})$ 5M

ii)Verify Rolle's theorem for the function f(x) = $\frac{sinx}{e^x}$ 5M

OR

13. B). i) Show that $\int_0^{\frac{\pi}{2}} \sqrt{cosx}\,dx \times \int_0^{\frac{\pi}{2}} \frac{dx}{\sqrt{cosx}} = \pi$ 5M

ii) Evaluate $\int_0^{\infty} x^4 e^{-x^2} dx$ 5M

14. A). Show that the functions $u = xy + yz + zx$, $v = x^2 + y^2 + z^2$ and $w = x + y + z$ are functionally related. Find the relation between them 10M

OR

14. B). Find the point on the plane $3x + 2y + z - 12 = 0$ which is nearest to the origin. 10M

15. A). Change the order of integration and evaluate 10M

$$\int_0^{4a} \int_{\frac{x^2}{4a}}^{2\sqrt{ax}} dydx$$

OR

15. B). Evaluate $\iiint \frac{xyz}{\sqrt{x^2+y^2+z^2}}\,dx\,dy\,dz$ taken throughout the volume of the sphere $x^2 + y^2 + z^2 = a^2$. 10M

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H.T No: | | | | | | | | | | | R22 | Course Code: A400008

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech I Semester Supplementary Examinations July/August-2024

Course Name: Applied Physics

(Common for CE, ME, CSC, CSM, CSD & AIM)

Date: 19.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries ONE mark. **10x1=10M**

1.	Define work function.	1 M
2.	Draw the neat diagram of E-K curve.	1 M
3.	Write any two applications of Zener diode.	1 M
4.	Define radiative recombination.	1 M
5.	Write the conditions for lasing action.	1 M
6.	What is the significance of acceptance cone?	1 M
7.	Define piezoelectricity.	1 M
8.	What are the two main types of magnetoresistance?	1 M
9.	What are the materials used as electrolytes in superionic conductors?	1 M
10.	What are the fabrication techniques in bottom-up approach?	1 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	i) Outline black body radiation and discuss how Max Plank explained black body radiation.	4M
	ii) Describe the experimental verification of matter waves using Davisson and Germer experiment.	6M
	OR	
11. B).	i) Discuss briefly about Fermi Dirac distribution.	6M
	ii) Classify the solids into conductors, insulator and semiconductors.	4M
12. A).	Explain Hall effect and derive the expression for Hall coefficient.	10M
	OR	
12. B).	Discuss the principle, mechanism and V-I characteristics of solar cell.	10M
13. A).	Discuss the essential requirements and mechanism to produce laser from He-Ne gas laser.	10M
	OR	
13. B).	i) Describe the working mechanism of light in optical fibers.	5M
	ii) Discuss the attenuations in optical fibers.	5M
14. A).	What is local field in dielectrics? Derive the expression for the local field in a dielectric medium?	10M
	OR	
14. B).	Discuss briefly about magnetic field sensors and multiferrites.	10M

(P.T.O..)

15. A). i) Discuss the potential applications of solid electrolytes? 5M

ii) What are the key advantages and disadvantages of using solid electrolytes compared to liquid electrolytes in fuel cells? 5M

OR

15. B). How is Transmission Electron Microscopy (TEM) used to characterize nanoparticles? (with diagram). 10M

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H.T No: | | | | | | | | | | | R22 Course Code: A400009

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech I Semester Supplementary Examinations July/August-2024

Course Name: Engineering Chemistry

(Common for EEE, ECE, CSE & IT)

Date: 19.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries ONE mark. **10x1=10M**

1.	Differentiate Primary and Secondary cells.	1 M
2.	Define Electrochemical corrosion.	1 M
3.	Define Biodegradable Polymer.	1 M
4.	Explain two properties of Nylon 6,6.	1 M
5.	Define Cetane number.	1 M
6.	Explain two uses of LPG and CNG.	1 M
7.	Define Temporary Hardness.	1 M
8.	What are Zeolites?	1 M
9.	What is Smart material? Give one engineering application.	1 M
10.	Summarize the composition of Portland cement	1 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Discuss the reactions involved in the Li-Ion battery with a neat diagram.	10M
	OR	
11. B).	Explain the process of Galvanization with a neat diagram.	10M
12. A).	What are Fiber Reinforced plastics? Explain its applications.	10M
	OR	
12. B).	Explain the Preparation, properties and applications of PVC and Nylon 6,6	10M
13. A).	Discuss the Ultimate analysis of coal and its significance.	10M
	OR	
13. B).	What is Cracking? Explain the Moving Bed Catalytic Cracking.	10M
14. A).	Explain the Internal Conditioning methods.	10M
	OR	
14. B).	i) Explain the process of Reverse Osmosis with a neat diagram. ii) How do determine the hardness of water by EDTA method?	4M 6M
15. A).	Explain the Characteristics and Properties of a Good Lubricant.	10M
	OR	
15. B).	i) Explain the Physico-Chemical characteristic of glasses and their constituents. ii) Discuss the process involved in the setting and hardening of cement.	4M 6M

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H.T No: | | | | | | | | | | | **R22** | **Course Code: A403201**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech I Semester Supplementary Examinations July/August-2024

Course Name: Engineering Mechanics

(Common for CE & ME)

Date: 22.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries ONE mark. **10x1=10M**

1.	State and explain Lami's theorem.	1 M
2.	What is free-body diagram.	1 M
3.	Differentiate between static friction and kinetic friction.	1 M
4.	Define limiting friction and impending motion.	1 M
5.	Explain why the first moment of an area with an axis of symmetry is zero.	1 M
6.	What condition does the centre of mass coincide with the centre of gravity?	1 M
7.	Differentiate between polar moment of inertia and product of inertia.	1 M
8.	Define radius of gyration for mass moment of inertia.	1 M
9.	When the work done upon a body positive and negative?	1 M
10.	Describe how to estimate the impulsive force.	1 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). A bar AB of 6 m length and 100 N weight is hinged at A as shown in figure 1. It supports a load of 25 kg at point B. The end B of the bar is connected to the wall by a string BC. Determine the tension in the string and the reaction at A. 10M

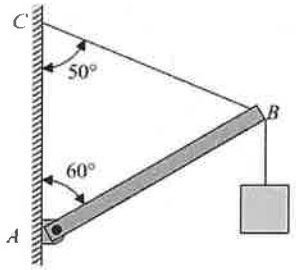

Figure 1

OR

11. B). Three smooth cylinders are placed in a rectangular channel as shown in Figure 2. Determine the reactions at all contact surfaces. The weights of smaller cylinders are W and that of the larger one is $2W$. The corresponding radii are respectively r and $2r$. 10M

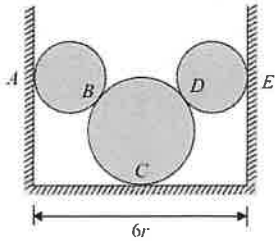

Figure 2

(P.T.O..)

12. A). A 12° wedge is pushed inside a gap in between two blocks by a vertical force P as shown in Figure 3. Determine the value of P to just move the 1000 kg block to the left. Also, determine the value of W to maintain equilibrium. The coefficient of friction at all contact surfaces is 0.25. 10M

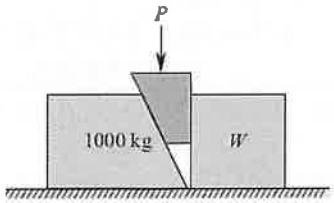

Figure 3

OR

12. B). An 8 m long uniform ladder weighing 500 N is resting on a rough horizontal floor and inclined at an angle of 30° with a vertical wall. A man weighing 750 N climbs the ladder. At what position will he induce slipping? The coefficient of friction between the ladder and the wall is 0.3 and that between the ladder and the floor is 0.2. 10M

13. A). Determine the centroid of the composite sections shown in Figure 4. 10M

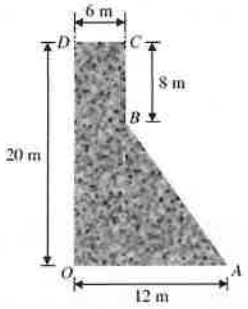

Figure 4

OR

13. B). Determine the centroid of the shaded area as shown in Figure 5. 10M

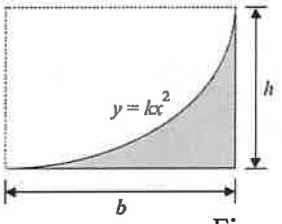

Figure 5

14. A). Determine the area moment of inertia of given section shown in figure 6. 10M

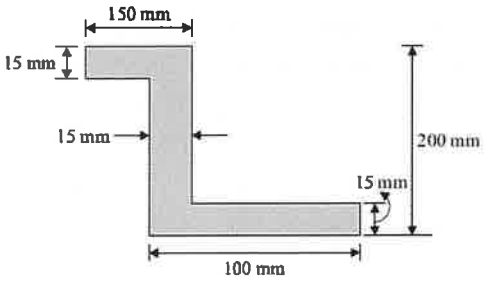

Figure 6

(P.T.O..)

OR

14. B). Derive the expression for the moment of inertia of a homogeneous right circular cone of mass m, base radius r and altitude h with respect to its geometric axis. 10M

15. A). In the system of blocks shown, if $m_1 = 8\ kg$ and $m_2 = 5\ kg$, determine the velocities of the blocks after the block of mass m_2 displaces by 2 m. 10M

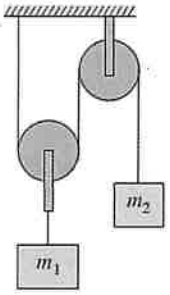

Figure 7

OR

15. B). A heavy block of 500 kg mass is to be loaded onto a truck. A man pulls it by a rope attached to the block and parallel to the plank as shown in Figure 8. Determine the work done by him if he pulls it up at a constant speed; the length of plank being 4 m and coefficient of friction between plank and block is 0.2. 10M

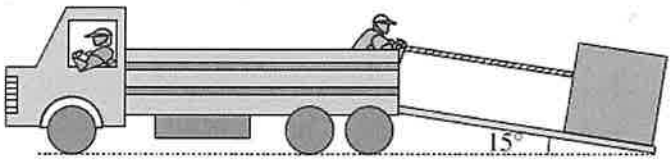

Figure 8

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H.T No: | | | | | | | | | | | R22 | Course Code: A405202

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech I Semester Supplementary Examinations July/August-2024

Course Name: C Programming and Data Structures

(Common for EEE & ECE)

Date: 22.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries ONE mark. **10x1=10M**

1. Write the rules of identifier. 1 M
2. What is an Arithmetic Expression? 1 M
3. What is the ternary operator? 1 M
4. Write the syntax and example of 2D Array. 1 M
5. How to read a string from the terminal? 1 M
6. What is the idea of pointer? 1 M
7. What is the Data Structure? 1 M
8. Define stack. 1 M
9. List the different sorting techniques? 1 M
10. What is the time complexity? 1 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Demonstrate the basic structure of C program and explain various components of it. 10M

OR

11. B). Explain in detail about various Data Types. 10M

12. A). i) Distinguish between pre controlled and post controlled loops. 4M
ii) Implement a program to print the Fibonacci sequence using do-while loop. 6M

OR

12. B). Write a program to perform all the Arithmetic operations using switch statement. 10M

13. A). i) What is the string? 2M
ii) Write a program to concatenate the two strings using your own implementation. 8M

OR

13. B). Explain about pointers to Arrays and Structures. 10M

14. A). i) What is the Queue? 2M
ii) Write a program to implement Queue using Array. 8M

OR

14. B). i) Define the Singly Linked List with neat sketch. 3M
ii) Write a program to implement the operations of linked list. 7M

15. A). i) Explain the Selection Sort algorithm with example. 5M
ii) Write the program to implement Selection Sort. 5M

OR

15. B). i) What is Linear Search? 2M
ii) Write a program to implement the Binary Search algorithm. 8M

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H.T No: | | | | | | | | | | | R22 | Course Code: A405201

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech I Semester Supplementary Examinations July/August-2024

Course Name: Programming for Problem Solving

(Common for CSE, IT, CSC, CSM, CSD & AIM)

Date: 22.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries ONE mark. **10x1=10M**

1.	Solve a<<1 and b>>2 where a=24 and b=36	1 M
2.	Define algorithm.	1 M
3.	Differentiate between while and do-while loops.	1 M
4.	Give the syntax of 1D array	1 M
5.	Define recursive function.	1 M
6.	How do you initialize a string?	1 M
7.	Define pointer.	1 M
8.	Define union.	1 M
9.	Explain about ftell() and rewind()	1 M
10.	Define Sorting.	1 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	i) What are the symbols used in flowchart? Draw a flowchart to find the reverse of a given number.	5M
	ii) Explain about printf() and scanf() with examples.	5M
	OR	
11. B).	i) Explain about bit wise operators in C.	5M
	ii) Write a C program to check whether the number is power of 2 or not.	5M
12. A).	i) Write a C program to perform matrix addition.	5M
	ii) Explain about for loop. Write a C program to check whether the number is prime or not.	5M
	OR	
12. B).	i) Explain about switch statement with syntax and example.	5M
	ii) Write a c program to find the largest and smallest number among the list of numbers.	5M
13. A).	i) Write a c program to concatenate two strings without string handling function.	5M
	ii) Explain about auto and static storage classes in C.	5M
	OR	
13. B).	i) Explain the concept of parameter passing mechanism?	5M
	ii) Write a C program to generate Fibonacci Series using recursive function.	5M

(P.T.O..)

14. A). Explain about Dynamic Memory Allocating Functions with syntax and examples. 10M

OR

14. B). i) Explain any two Preprocessor commands with examples. 5M

ii) Explain self-referential structure with an example. 5M

15. A). i) What are the different operations that can be performed on a file? 5M

ii) Write a C program to merge the contents of two files into third file? 5M

OR

15. B). i) Arrange the following elements 65,70,75,80,85,60,55,50,45 using Insertion sort technique. 5M

ii) Write a C program to implement Linear Search. 5M

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H.T No: | | | | | | | | | | | R22 Course Code: A400101

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech I Semester Supplementary Examinations July/August-2024

Course Name: English for skill Enhancement

(Common for CE, ME, CSC, CSM, CSD & AIM)

Date: 24.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries ONE mark. **10x1=10M**

1. **Fill in the blanks by adding a suitable affix.** 1 M
   i. She_____ her strength; she lacks confidence. (Prefix + estimate)
   ii. You need a _____ of hard work and strength to succeed. (Combine+ Suffix)
2. **Fill in the blanks with appropriate word in the brackets.** 1 M
   i. Our library has three copies of _____Mahabharata. (a/the).
   ii. I congratulated her _____her promotion. (on/for)
3. **Fill in the blanks with the correct pronoun/verb given in brackets.** 1 M
   i. Many volunteers offered _____ help. (our/their)
   ii. 150 kilometers_____ not a long distance. (is/are).
4. **Fill in the blanks with the correct homophone from the options given in the brackets.** 1 M
   i. I bought a_____ of gloves. (pare/pair)
   ii. If you park here, the police will _____ your car. (tow/toe)
5. **Identify and correct the misplaced modifier in the following sentences.** 1 M
   i. The leather was torn made of sofa.
   ii. Sindhu bought a pen from a shop that didn't cost much.
6. **Rewrite the following sentences with correct tense forms.** 1 M
   i. She is having a lot of work.
   ii. I did not met Akash yesterday.
7. **Spot the cliché/redundancy in the following sentences and rewrite the sentence without cliché /redundancy.** 1 M
   i. Sunny's cap was red in colour.
   ii. She summarized the report briefly.
8. **Expand the following abbreviations.** 1 M
   i. PAN
   ii. RAM
9. **Fill in the blanks with the correct collocation from the options given in the brackets.** 1 M
   i. The manger has_____ a meeting (presided/chaired)
   ii. Anu speaks_____English (fluent/easy)
10. **Complete the following sentences by choosing correct option.** 1 M
    i. She did not_____for the test last month. (sit/sat)
    ii. If she _____, she would get emotional (failed/fails)

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). What has happened to English in America through the process of 'toasting'? In your opinion, what has language gained and what has it lost through such 'toasting'? 10M

OR

11. B). Elaborate on the significance of reading along with strategies for effective reading skills. 10M

(P.T.O..)

12. A). Why does Sudha Murthy have such great respect for JRD Tata? What did Sudha Murthy's encounters with JRD Tata reveal about the latter? 10M

OR

12. B). Describe any electronic gadget of your choice highlighting its uses, physical attributes and functions. 10M

13. A). What are four takeaways related to online learning that should be retained post-pandemic? 10M

OR

13. B). The laptop you just purchased has a problem with several keys on its keypad. It is in the guarantee period. Write to the supplier and ask for a free replacement. 10M

14. A). What is the importance of art and literature in one's life, according to APJ Abdul Kalam? 10M

OR

14. B). Write an expository essay on 'The role of youth in nation-building'. 10M

15. A). The sentences below contain errors of different kinds. Re-write each sentence correctly. 10M

i) She said me that she likes maths.

ii) My cell phone was under the sofa which rang all night long.

iii) Please explain me this problem.

iv) Salma give to me the bracelet.

v) I am telling my students all the time not to talk.

OR

15. B). Discuss the significance of Report writing and Elaborate on the various elements of a report. 10M

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H.T No: | | | | | | | | | | | R22 | Course Code: A402202

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech I Semester Supplementary Examinations July/August-2024

Course Name: Electrical Circuits Analysis-I

(Electrical & Electronics Engineering)

Date: 24.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

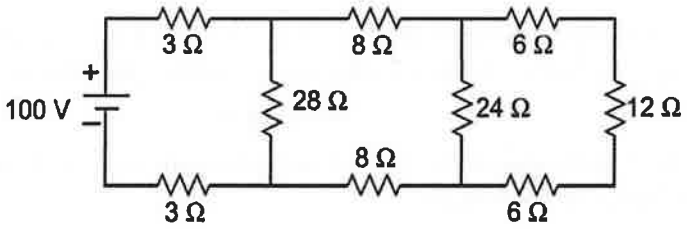
Each question carries ONE mark. **10x1=10M**

1. State Kirchhoff's voltage law. 1 M
2. Write the examples for active elements. 1 M
3. Define RMS value. 1 M
4. Define resonance in series RLC circuit. 1 M
5. State superposition theorem. 1 M
6. State reciprocity theorem. 1 M
7. Define balance load. 1 M
8. Write voltage and current relations in balanced three phase delta network. 1 M
9. What is self-inductance? 1 M
10. Define tree. 1 M

PART-B

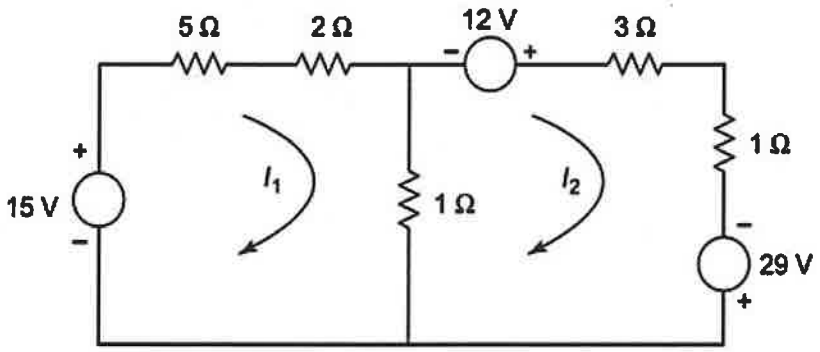
Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Find the current delivered by the source for the network shown in Figure. 10M



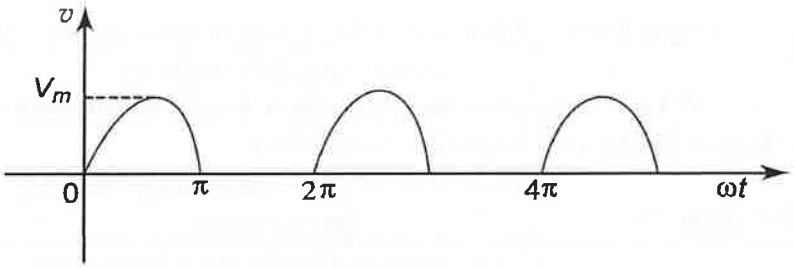
OR

11. B). Write and solve the equation for Mesh Current in the network shown Figure. 10M



(P.T.O..)

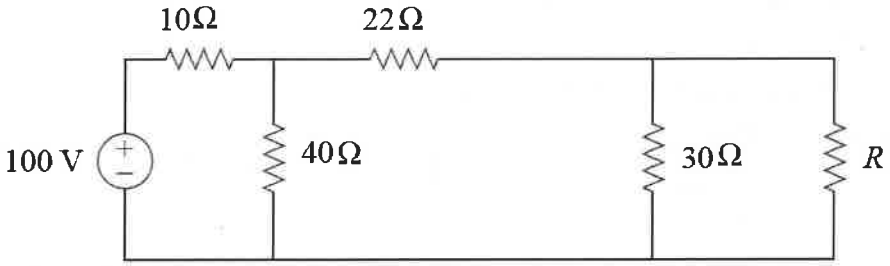
12. A). Find the average value of the half-wave rectified sine wave shown in Figure. 10M



OR

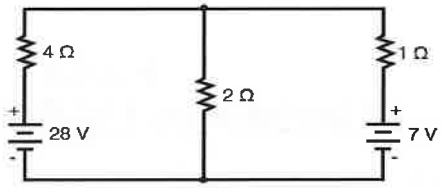
12. B). Obtain the power factor and the apparent power of a load whose impedance is Z = 60 + j40 Ω when the applied voltage is $v(t) = 160\cos(377t + 10°)\,V$. 10M

13. A). Find the maximum power transferred to resistor R in the circuit of Figure. 10M



OR

13. B). Find current through 2 Ω resistors by using Millman's theorem. 10M

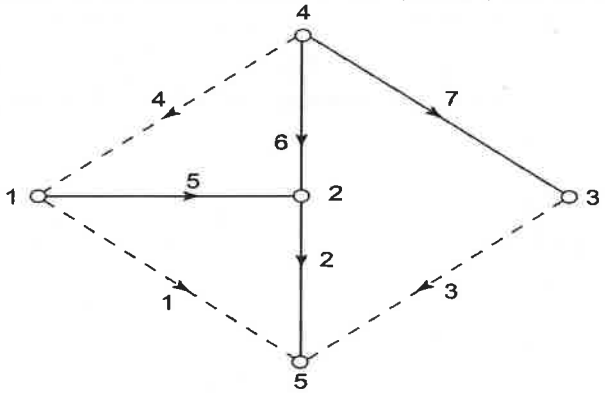


14. A). A balanced Delta Connected load of (2+j3) Ω per phase is connected to a balanced three phase supply of 440V. Determine the phase currents and line currents. 10M

OR

14. B). Derive the relationship between line and phase voltages and currents in a balanced star connected three phase system. 10M

15. A). Obtain the fundamental cut-set matrix from the tree (2,5,6,7) shown in the figure. 10M



OR

15. B). Explain in detail about dot convention and derive the expression for coefficient of coupling for two mutually coupled coils. 10M

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H.T No: | | | | | | | | | | | R22 | Course Code: A402201

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech I Semester Supplementary Examinations July/August-2024

Course Name: Basic Electrical Engineering

(Common for ECE, CSE, & IT)

Date: 24.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries ONE mark. **10x1=10M**

1. State KCL and KVL. 1 M
2. State Thevenin's Theorem. 1 M
3. Define Average value and RMS value. 1 M
4. Define power factor. 1 M
5. What are the properties of an ideal Transformer? 1 M
6. List the three phase transformer common connections. 1 M
7. What is Back EMF in DC motor? Write down it's equation. 1 M
8. Define the efficiency of DC machine and list its losses. 1 M
9. What are the advantages of power factor improvement. 1 M
10. What is the necessity of earthing in domestic buildings? 1 M

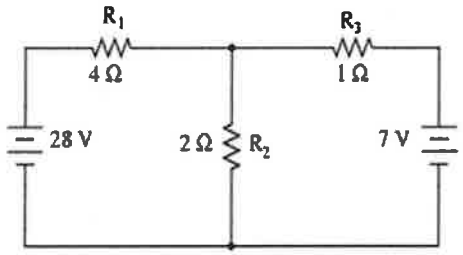
PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Explain in detail about the various DC networks. 10M

OR

11. B). Find the current flowing through 2Ω resistor using Superposition theorem for the circuit shown below. 10M



12. A). Explain about Star and Delta connected three phase balanced circuits with necessary diagrams. 10M

OR

12. B). i) Define: a) Frequency b) Average value c) RMS value d) Phase e) Power factor. 5M

ii) A Circuit consists of resistance of 15 Ω, a capacitance of 200μF and inductor of 0.05H all in series. If the supply of 230V, 50Hz is applied to the ends of the circuit, Calculate: (a) Current in the coil (b) Potential difference across each element (c) Draw the phasor diagram. 5M

13. A). i) Derive an e.m.f equation of a single phase transformer. 5M

ii) Enumerate the various losses in a transformer. How can these losses be minimized? 5M

(P.T.O.)

OR

13. B). Explain Y/ Y and Δ/ Δ connections used in 3-phase connection of transformers. Also, state their advantages and disadvantages? 10M

14. A). Explain the principle of operation and construction of a DC Generator. 10M

OR

14. B). i) Explain how rotating magnetic field is produced in 3-Φ induction motor. 5M

ii) A 4-pole, 3-phase induction motor operates from a supply whose frequency is 50Hz.Determine the speed of the RMF and speed of the rotor when the slip is 0.04? 5M

15. A). i) What are the different types of wires and cables? Explain 5M

ii) What are the applications of MCB? Explain its working principle. 5M

OR

15. B). Explain different types of batteries in detail. Also describe its characteristics. 10M

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