H.T No: | | | | | | | | | | | R22 Course Code: A400002

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Ordinary Differential Equations and Vector Calculus
(Common for CE, EE, ME, ECE, CSE, CSC, CSM & CSD)

Date: 15.07.2024 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 $\left(3x^2+6xy^2\right)dx+\left(6x^2y+4y^3\right)dy=0.$ 1 M
2. State law of natural growth. 1 M
3. Solve $y''-2y'+10y=0.$ 1 M
4. Find the P. I. of $\left(D^2+2D+1\right)y=e^{-x}.$ 1 M
5. Compute the Laplace transform of $\left(\sin t-\cos t\right)^2.$ 1 M
6. Find the inverse Laplace transform of $\frac{1}{s^2-5s+6}.$ 1 M
7. Find a unit vector normal to the surface $x^3+y^3+3xyz=3$ at the point (1, 2, -1). 1 M
8. If $\mathbf{F}=(x+y+1)\,\mathbf{i}+\mathbf{j}-(x+y)\mathbf{k}$, show that $\mathbf{F}.\ \text{curl}\ \mathbf{F}=0.$ 1 M
9. Evaluate div $\mathbf{F}$ at the point (1, 2, 3) where $\mathbf{F}=x^2yz\,\mathbf{i}+xy^2z\,\mathbf{j}+xyz^2\,\mathbf{k}.$ 1 M
10. Calculate the angle between the normal to the surface $xy = z^2$ at the points (4, 1, 2) and (3, 3, -3). 1 M

PART-B

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

11.A). Solve $\cosh x\frac{dy}{dx}+y\sinh x=2\cosh^2 x\ \sinh x.$ 10M

OR

11. B). If the temperature of the air is 30°C and the substance cools from 100°C to 70°C in 15 minutes, find when the temperature will 40°C. 10M

12. A). Solve $\left(D^3+2D^2+D\right)y=x^2e^{2x}+\sin^2 x.$ 10M

OR

12. B). Solve by the method of variation of parameters: $y''+y=\sec x.$ 10M

13. A). Apply Convolution theorem to evaluate $L^{-1}\left[\frac{s}{\left(s^2+9\right)^2}\right].$ 10M

OR

13. B). Solve the following initial value problem by the Laplace transform method: $y''+4y'+3y=e^{-t},\ y(0)=1,\ y'(0)=1.$ 10M

(P.T.O..)

14. A). Find the values of constants a, b, c so that the directional derivative of $p = axy^2 + byz + cz^2x^3$ at (1, 2, -1) has a maximum magnitude 64 in the direction parallel to the z-axis. 10M

OR

14. B). If $f = (x^2 + y^2 + z^2)^{-n}$, find div grad f and determine n if div grad $f = 0$. 10M

15. A). Verity Stoke's theorem for $\mathbf{F} = (y - z + 2)\,\mathbf{i} + (yz + 4)\,\mathbf{j} - xz\,\mathbf{k}$ where S is the surface of the cube $x = 0, y = 0, z = 0, x = 2, y = 2, z = 2$ above the xy-plane. 10M

OR

15. B). Verify Green's theorem for $\int_C \left[\left(3x - 8y^2\right)dx + \left(4y - 6xy\right)dy\right]$ where C is the boundary of the region bounded by $x = 0, y = 0$ and $x + y = 1$. 10M

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

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Engineering Chemistry

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

Date: 18.07.2024 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 standard oxidation potential and standard reduction method.	1 M
2.	Compare primary and secondary batteries (any two).	1 M
3.	What is condensation polymerization. Give an example.	1 M
4.	Define biodegradable polymers.	1 M
5.	What is cetane number of a diesel fuel.	1 M
6.	Mention the composition of LPG.	1 M
7.	Define hardness. What are its units.	1 M
8.	Give the ions causing permanent hardness in water.	1 M
9.	List out any four general properties of glass.	1 M
10.	What is meant by flash point of a lubricant.	1 M

PART-B

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

11.A).	i) Explain electrochemical series and mention its applications.	4M
	ii) Explain the construction and the various reactions involved in discharging and charging in a lead acid storage battery.	6M
	OR	
11. B).	i) Define corrosion and list out the factors affecting corrosion in detail.	5M
	ii) With a neat, labelled diagram explain galvanic and waterline corrosion.	5M
12. A).	i) Give the preparation, properties and applications of polyvinyl chloride.	4M
	ii) What are plastics? Write short notes on compression moulding with a neat label diagram.	6M
	OR	
12. B).	i) Write short notes on fibre reinforced plastics (FRP). What are its applications?	4M
	ii) Explain the mechanism of conduction in trans polyacetylene and also mention its applications.	6M
13. A).	i) Write short notes on ultimate analysis of coal and give its significance.	5M
	ii) Calculate the gross and net calorific value of coal having the following compositions: carbon = 83%, Hydrogen = 8%, Sulphur = 3%, Nitrogen = 2%, Ash = 4%, latent heat of steam = 587 cal/g.	5M

(P.T.O..)

OR

13. B). i) Explain Fischer-Tropsch method for synthesis of petrol. 5M

ii) Explain catalytical cracking of petrol by moving bed catalytic method. 5M

14. A). i) Discuss the softening of water by cold lime soda process. with a neat label diagram. 5M

ii) Calculate the quantity of lime and soda required for softening of 50,000 litres of water containing the following impurities: $Ca(HCO3)2$ =9.2mg/L, $Mg(HCO3)2$ = 7.9 mg/L, $CaSO4$ = 15.3 mg/L, $MgSO4$ = 15.0 mg/L, $MgCl2$ = 3.0 mg/L, NaCl = 4.0 mg/L. 5M

OR

14. B). i) What is the principle involved in reverse osmosis. Mention its advantages. 5M

ii) A sample of hard water contains the following dissolved salts per litre. $CaCl2$ = 111mgs, $CaSO4$ = 1.36mgs, $Ca(HCO3)2$ =16.2mgs, $Mg(HCO3)2$ = 14.6mgs, silica = 40mgs, turbidity = 10mgs. Calculate the temporary, permanent and total hardness of water in ppm, degree Clarke and degree French. 5M

15. A). i) Discuss extreme pressure lubrication and additives to improve the lubricant properties. 5M

ii) Write short notes on smart materials. What are its applications? 5M

OR

15. B). i) Explain setting and hardening of portland cement. 6M

ii) Write short notes on strength of glass and glass articles. 4M

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

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Applied Physics

(Common for EEE, ECE, CSE & IT)

Date: 18.07.2024 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.	Mention any two properties of matter waves.	1 M
2.	Define Fermi energy.	1 M
3.	Mention any two differences between the P-N junction and Zener diode.	1 M
4.	Write any four applications of solar cells.	1 M
5.	Explain the characteristics of LASER compared to ordinary light.	1 M
6.	Explain the principle involved in the optical fiber.	1 M
7.	Explain the terms i. piezoelectricity ii. pyroelectricity	1 M
8.	List any two differences between Hard and Soft magnetic materials	1 M
9.	Write any four applications of energy materials	1 M
10.	What is the significance of the surface-to-volume ratio of nanostructures?	1 M

PART-B

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

11.A).	i) What are matter waves? Describe Davisson and Germer's experiment and explain how it enabled the verification of the wave nature of matter.	8M
	ii) Find the wavelength of an electron if it is accelerating by potential 100V.	2M
	OR	
11. B).	i) Explain the salient features and drawbacks of classical free electron theory.	4M
	ii) Explain the difference between conductors, semiconductors and Insulators with the help of energy level diagrams.	6M
12. A).	Explain the concept of the Hall effect and discuss its importance in measuring the nature of semiconductor and carrier concentration.	10M
	OR	
12. B).	Explain the principle, construction and working of LED with a neat diagram.	10M
13. A).	i) Explain the spontaneous and stimulated emissions.	3M
	ii) Describe the construction of the Ruby laser and discuss its working with the relevant ELD diagram.	7M
	OR	
13. B).	i) Derive the expressions for acceptance angle and numerical aperture.	8M
	ii) Draw the block diagram of the fiber optic communication system.	2M

(P.T.O.)

14. A). Explain various polarization mechanisms in dielectrics. 10M

OR

14. B). i) Draw and explain the B-H curve for a ferromagnetic material based on domain theory. 7M

ii) Discuss any two magnetic sensors and applications. 3M

15. A). Explain the importance of supercapacitors. Discuss the role of different materials and electrolytes for supercapacitors. 10M

OR

15. B). i) Write a short note on the importance of Sol-gel synthesis methods to prepare nanostructures. 7M

ii) Explain the characterization technique by XRD. 3M

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H.T No: | | | | | | | | | | | R22 Course Code: A403202

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Engineering Graphics

(Common for CE & ME)

Date: 20.07.2024 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 conic sections.	1 M
2.	Classify different types of scales.	1 M
3.	Outline the conditions of third angle of projection.	1 M
4.	Point A is 30 mm above HP and 45 mm in front of VP. Draw its front view and top view.	1 M
5.	Classify different types of solids.	1 M
6.	What is solid of revolution?	1 M
7.	What is a cycloid?	1 M
8.	List out different methods of development of surfaces.	1 M
9.	Define Isometric scale.	1 M
10.	What is meant by projectors?	1 M

PART-B

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

11.A).	A fixed point F is 7.5 cm from a fixed straight line. Draw the locus of a point P moving in such a way that its distance from the fixed straight line is 2/3 times its distance from F. Draw and name the curve.	10M
	OR	
11. B).	A circle of 40 mm diameter rolls on a horizontal line. Draw the curve traced out by a point R on the circumference of the circle.	10M
12. A).	A line PQ 75 mm long has its end P in both HP and VP. It is inclined at an angle of 30^O to HP and 45^O to VP. Draw the projections of the line.	10M
	OR	
12. B).	Draw the projections of a regular hexagonal lamina of 25 mm side, resting on HP on one of its sides with its plane perpendicular to HP and inclined at 45^O to VP. Take the nearest corner point 25 mm away from VP.	10M
13. A).	Draw the projection of cylinder, base 30 mm diameter and axis 40 mm long, resting with a point of its base circle on HP such that the axis is making an angle of 30^O with HP and parallel to VP.	10M
	OR	
13. B).	A square prism, side of base 25 mm and axis 50 mm long, rests with one of its edges on HP such that the base containing that edge makes an angle of 30^O to HP and its axis is parallel to VP. Draw its projections.	10M

(P.T.O..)

14. A). A square pyramid of base 30 mm and axis 60 mm long is standing on HP with its base edges equally inclined to VP. It is cut by a section plane perpendicular to VP and inclined at 30^{O} to HP through bisecting the axis. Draw the sectional top view and the true shape of the section, if the upper portion is removed. 10M

OR

14. B). A hexagonal prism, edge of base 20 mm and axis 50 mm long, rests with its base on HP such that one of its rectangular faces is parallel to VP. It is cut by a plane perpendicular to VP, inclined at 45^{O} to HP and passing through the right corner of the top face of the prism. (i) Draw the sectional top view. (ii) Develop the lateral surfaces of the truncated prism. 10M

15. A). A cone of base diameter 50 mm and axis height 65 mm is resting on 50mm side of cube which its another side parallel to VP. Draw its isometric projection. 10M

OR

15. B). Convert the pictorial view of an object shown in figure-1, to multiple views (Front, top and Side view) and mark the dimensions. 10M

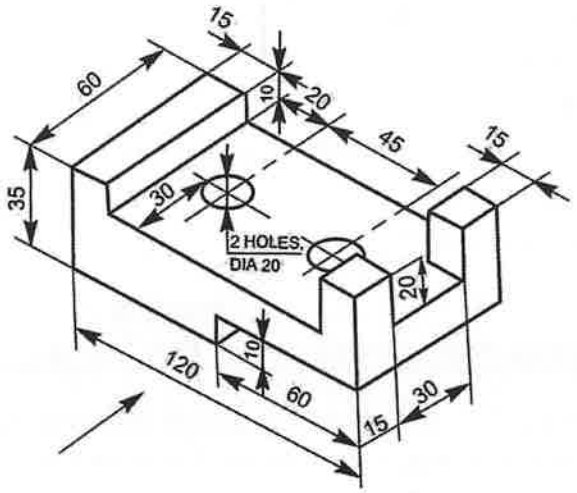

Figure -1 (All the dimensions are in *mm*)

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H.T No: | | | | | | | | | | | R22 | Course Code: A404202

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Analog Electronics Circuits

(Electrical & Electronics Engineering)

Date: 20.07.2024 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.	Draw the V-I characteristics of a pn junction diode.	1 M
2.	Define ripple factor and efficiency of half wave rectifier.	1 M
3.	Compare JFET and MOSFET.	1 M
4.	Draw the small signal equivalent circuit of JFET at high frequency.	1 M
5.	Mention the different configurations of differential amplifiers.	1 M
6.	What are the advantages and disadvantages of class B power amplifier?	1 M
7.	What is the effect of negative feedback on amplifier characteristics?	1 M
8.	State Barkhausen criteria for sustained oscillations of an oscillator.	1 M
9.	Draw the circuit diagram of non- inverting amplifier using op-amp.	1 M
10.	Define output offset voltage of an op-amp.	1 M

PART-B

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

11.A).	i) Explain the operation of pn diode under forward and reverse biasing	5M
	ii) Draw the circuit diagram of full wave rectifier and explain its operation with waveforms.	5M
	OR	
11. B).	i) Draw the circuit diagram of a transistor in voltage divider bias and explain it with necessary equations.	6M
	ii) An NPN transistor if β=50 is used in common emitter circuit with V_{CC}=10V and R_C=2KΩ.The bias is obtained by connecting 100KΩ resistor from collector to base. Find the quiescent point and stability factor.	4M
12. A).	With the help of neat sketch and characteristics curves explain the operation of the N-channel JFET.	10M
	OR	
12. B).	i) Draw the small signal equivalent circuit of CD amplifier. Derive the expressions for voltage gain, input and output impedances.	6M
	ii) In the common source amplifier, consider R_D = 5KΩ, R_G=10MΩ, μ=50 and r_d=35KΩ.Calculate the voltage gain, input, and output impedances.	4M
13. A).	Draw the circuit diagram of dual input balanced output differential amplifier. Derive the expression for common mode and differential gain of the amplifier.	10M

(P.T.O..)

OR

13. B). Draw a neat circuit diagram of transformer coupled class A power amplifier. Explain its working. Also prove that its maximum efficiency is 50%. 10M

14. A). i) Draw the topology of current series feedback amplifier and what is the effect input and output impedances. 5M

ii) Calculate the gain, input impedance and output impedance of voltage series feedback amplifier having A=300, R_i=1.5KΩ, R_o = 50KΩ and β=1/20. 5M

OR

14. B). i) Draw the circuit diagram of RC phase shift oscillator and explain its operation. 5M

ii) Derive the expression for frequency of oscillations of a Wien bridge oscillator. 5M

15. A). i) Define slew rate and derive the expression for it. 6M

ii) Draw the circuit diagram of inverting amplifier and derive the expression for its closed loop gain. 4M

OR

15. B). i) Explain the operation of square wave generator with circuit diagram. 5M

ii) Find R_1 and R_F in the integrator so that the peak gain is 20dB and the gain is 3dB down from its peak when ω=10000 rad/sec. Use a capacitance of 0.01μF. 5M

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H.T No: | | | | | | | | | | | R22 Course Code: A404201

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Basic Electronic Circuits

(Electronics & Communication Engineering)

Date: 20.07.2024 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 transition capacitance of a PN diode.	1 M
2.	Explain and draw piece wise linear characteristics of a PN diode.	1 M
3.	What is the maximum efficiency of a full wave rectifier without filter?	1 M
4.	Define Ripple factor in rectifier circuit.	1 M
5.	Build the relationship between α,β and γ.	1 M
6.	Define operating point of a load line.	1 M
7.	Analyze Why FET is called as a voltage control device.	1 M
8.	List any two comparisons between P-channel and N-channel JFET in its construction.	1 M
9.	List some applications of Zener diode.	1 M
10.	Draw V-I characteristics of varactor diode.	1 M

PART-B

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

11.A).	Draw and explain Forward and Reverse bias V-I characteristics of PN diode.	10M
	OR	
11. B).	i) Define and build the expression for static and dynamic resistances.	5M
	ii) Draw the ideal diode characteristics.	5M
12. A).	i) Explain the operation of two level Diode clipper circuit with neat circuit diagram and draw the transfer characteristics.	5M
	ii) A sinusoidal voltage whose V_m = 26 volts applied to Half wave rectifier. The Diode is ideal and R_L = 1.2KΩ. Find out peak value of load current, RMS value of load current, DC value of load current.	5M
	OR	
12. B).	Draw and explain the circuit diagram of Half-wave rectifier with capacitor filter. Derive the Ripple factor and Efficiency equation.	10M
13. A).	i) Draw the circuit diagram of a transistor in CE configuration and explain the input and output characteristics with the help of different regions.	6M
	ii) Derive the current relationship in Common Emitter configuration.	4M
	OR	
13. B).	i) Explain the operation of Self bias Circuit and derive the expression for stability factor.	6M
	ii) The reverse leakage current of the transistor in CB configuration is 0.1μA,while it is 16μA when the same transistor is connected in CE configuration. Calculate α ,β and γ.	4M

(P.T.O.)

14. A). i) Explain how MOSFET acts as capacitor. 5M

ii) Explain the operation of P channel JFET with neat diagrams. 5M

OR

14. B). Explain the constructional features of a N-channel depletion mode and Enhancement mode MOSFET and explain its basic operation with neat diagrams. 10M

15. A). Explain the operation of UJT with neat diagram and draw its characteristics. 10M

OR

15. B). Explain the operation of Tunnel diode with neat diagram and draw its characteristics. 10M

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H.T No: | | | | | | | | | | | **R22** | **Course Code: A405301**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Data Structures

(Common for CSE, CSC, CSM & CSD)

Date: 20.07.2024 FN **Time: 3 hours** **Max.Marks: 60**

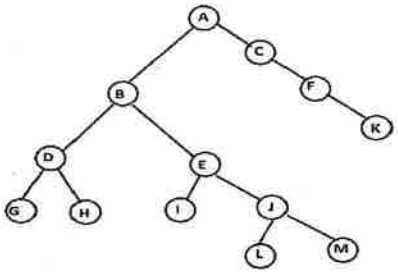
(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

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

1. Classify the different types of queues. 1 M
2. Evaluate the following "infix" expression is with the help of Stack: 1 M
   5 * (6 + 2) - 12 / 4
3. What are the advantage and disadvantage of separate chaining and linearprobing? 1 M
4. Define extendible hashing. 1 M
5. Discuss with respect to following tree: 1 M
   a) List the siblings for node E.
   b) Compute the height



6. List out the various operations that can be performed on B-trees. 1 M
7. Write the worst, average and best case time complexities of Quick sort. 1 M
8. What is a graph and its types? 1 M
9. What is tries? 1 M
10. List Pattern Matching algorithms. 1 M

PART-B

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

11.A). Analyze and write a routine to check whether the queue is full or empty. For railway reservation the queue data structure is preferred –Justify. 10M

OR

11. B). Write the applications and develop an algorithm to explain enqueue() and dequeue() operations on queues. 10M

12. A). i) Define Dictionary? Explain Skip-list representation of Dictionary data structure. 5M
   ii) Develop an algorithm to explain Double Hashing. 5M

OR

12. B). List the different types of hashing techniques? Explain Linear and Quadratic Probing techniques in detail with an Example. 10M

(P.T.O..)

13. A). How does the AVL tree differ from binary search tree? Simulate the result of inserting 3,1,4,6,2,8,9 into an initially empty AVL Tree. 10M

OR

13. B). Analyze the properties of Red-Block Trees. Illustrate the steps in the construction of Red-Block Trees with the following key values: 14, 54 12, 33, 67, 8, 7, 80, 5, 23, 52 10M

14. A). Analyze the properties of heap, illustrate the steps in the construction of a heap with following key values. 15,55,32,43,87,18,12,90,25,33,62 10M

OR

14. B). Explain with algorithm, How DFS be performed on a undirected graph. Show the algorithm for finding connected components of an undirected graph using DFS, and derive the time complexity of the algorithm. 10M

15. A). Explain Standard Tries, Compressed Tries and Suffix tries with example. 10M

OR

15. B). Compare Brute force, Boyer -Moore algorithm and Knuth- Morris-Pratt algorithm. 10M

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

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: C Programming and Data Structures

(Common for CE & ME)

Date: 23.07.2024 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 Program.	1 M
2.	Differentiate variable and constant.	1 M
3.	Write down the syntax of continue statement.	1 M
4.	Write a program to check whether given number is even or odd.	1 M
5.	Define array.	1 M
6.	List any two predefined functions of strings.	1 M
7.	Define data structure.	1 M
8.	Mention the principle followed in stack and queue.	1 M
9.	Differentiate between searching and sorting.	1 M
10.	What is the underlying principle of insertion sort?	1 M

PART-B

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

11.A).	List the different types of operators in C. Explain any four types of operators with relevant examples.	10M
	OR	
11. B).	Explain any four c-tokens with examples.	10M
12. A).	Differentiate while and do-while using syntax. Write a program to check whether the given number is palindrome or not.	10M
	OR	
12. B).	Explain the syntax of One-Dimensional Array. Write a program to find the sum of two arrays.	10M
13. A).	What are the string handling functions and explain any four?	10M
	OR	
13. B).	Define pointer. Analyze the concept of pointers with arrays using appropriate examples.	10M
14. A).	What is single linked list? Interpret the advantage of single linked list over arrays.	10M
	OR	
14. B).	What is Queue? Implement the concept of Queue's insertion and deletion operations using single linked list.	10M
15. A).	Solve the following array elements using the logic of binary search: 10 20 30 40 50 60 70 80	10M
	OR	
15. B).	Apply bubble sort algorithm to sort the below elements: 21 43 18 97 35 67 50	10M

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

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: English for Skill Enhancement

(Common for EEE, ECE & CSE)

Date: 23.07.2024 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. ***Punctuate*** the given sentence. 1 M
   - I want to tell you about my dream Hasini told her best friend.
2. Write ***antonym*** by using prefixes to the following word. 1 M
   - Proper
3. Choose the appropriate ***homophones*** given in the brackets 1 M
   - Everyone walk down this _____ please.(aisle/isle)
4. Complete the sentences with suitable ***tense form*** of the given verb. 1 M
   - Your friends _____ (wait) for you for an hour.
5. Differentiate the following ***confusing*** **words** and use them in your sentences. 1 M
   - Principal - Principle
6. Explain the following ***foreign expression*** and its usage: 1 M
   - Curriculum Vitae
7. Give the full form of **SMS** 1 M
8. Eliminate the **redundant word** and rewrite the correct sentence. 1 M
   - Deepa got a free gift from her aunt.
9. Choose the correct ***pronoun*** in the given sentence. 1 M
   - Let Mohan and ____ (me/I) stay here
10. What is Intensive Reading? 1 M

PART-B

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

11.A). Explain the term "Bharat brand English" used by R.K. Narayan in 'Toasted English'. 10M

OR

11. B). i) List out the essential features of a Good Paragraph. 5M
ii) Write a paragraph on "Environmental Advantages of Solar Energy" 5M

12. A). What was Sudha Murthy's first experience of gender discrimination and her reaction on it? 10M

OR

12. B). i) Define 'Reading Skill' and its benefits? 5M
ii) Write a detail note on sub- skills of Reading: Skimming and Scanning. 5M

13. A). List out the four takeaways related to online learning that should be retained post-pandemic according to F. Haider Alvi. 10M

(P.T.O..)

OR

13. B). Draft a cover letter and resume to the HR department of Amazon Company for the position of a software engineer with the qualification-- bachelor's/master's degree with the background in information systems, marketing and good Communication skills to work on company internet sites. 10M

14. A). A.P.J.Abdul Kalam believed that 'students of art and literature are important contributors in transforming India into a developed Nation'-- Discuss. 10M

OR

14. B). What are the five steps of SQ3R techniques of reading? Why is it an effective method in Reading? 10M

15. A). Your college has adopted a village as a Social Responsibility. Students are being taken to teach the children of that village on a regular basis. Draft a feasibility report for your college magazine on the various other programs organized by your college management in that village for its development. 10M

OR

15. B). **Correct and rewrite the following sentences:** 10M

i) One must respect his parents.
ii) The two friends must help one another.
iii) Rohan and myself studied in the same school.
iv) Each and every one have to finish their task.
v) I, you and he will go to a movie tomorrow.
vi) Neither he nor his friends is relieved.
vii) The climate of India is better than Africa.
viii) The African Countries are poor, isn't it?
ix) The patient died before the doctor arrived.
x) You should avail the offer.

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

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Basic Electrical Engineering

(Common for CSC, CSM & CSD)

Date: 23.07.2024 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 Kirchoff's Voltage law.	1 M
2.	What are the applications of Thevenin's theorem?	1 M
3.	State the relationship between line voltage & phase voltage and line current & phase current of a 3phase delta connected system?	1 M
4.	What is a Resonant frequency?	1 M
5.	Write the emf equation of a transformer and define each term.	1 M
6.	Why are transformers rated in only kVA?	1 M
7.	What is an electric motor?	1 M
8.	Give the types of DC generator.	1 M
9.	What is the necessity of Electrical Earthing?	1 M
10.	Convert 10HP into watts.	1 M

PART-B

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

11.A).	Derive the transient response of an RL circuit with DC excitation.	10M
	OR	
11. B).	Two resistors R1 and R2 are connected in Parallel and a Voltage of 200V DC is applied to the terminals. The total current drawn is 20A, R1=30 Ω. Find R2 and power dissipated in each resistor.	10M
12. A).	Derive the relationship of line voltage & phase voltage and line current & phase current in 3-phase delta connected load.	10M
	OR	
12. B).	Derive Average and RMS value of Sinusoidal wave form.	10M
13. A).	Explain about Construction and working of auto transformer.	10M
	OR	
13. B).	Explain different types of 3-phase transformer connections with neat diagram.	10M
14. A).	Explain the Construction and working principle of DC motor with neat diagram?	10M
	OR	
14. B).	Draw and explain the Speed –Torque characteristics of Induction Motor with neat diagram.	10M
15. A).	Explain the types of Wires and cables in detail.	10M
	OR	
15. B).	Explain Construction and working principle of MCCB with neat diagram.	10M

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H.T No: | | | | | | | | | | | R22 | Course Code: A401301

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Building Materials, Construction and Planning

(Civil Engineering)

Date: 25.07.2024 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.	What do you mean by quarrying?	1 M
2.	Distinguish Natural and artificial seasoning.	1 M
3.	Explain why gypsum is added during the manufacturing of cement.	1 M
4.	What is the soundness of cement?	1 M
5.	What is a damp proof course?	1 M
6.	Explain the different types of floors.	1 M
7.	Define pointing.	1 M
8.	Define workability of concrete.	1 M
9.	Illustrate two practical applications of scaffolding in construction.	1 M
10.	What is floor area ratio (FAR)?	1 M

PART-B

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

11.A).	i) Define the term wood and explain the reinforced glass fibre bricks.	5M
	ii) Explain about characteristics of good bricks	5M
	OR	
11. B).	Write about the classification and quarrying methods.	10M
12. A).	i) List out and explain the chemical admixtures.	5M
	ii) Briefly explain about the hydration of cement	5M
	OR	
12. B).	List out the laboratory tests on cement and explain Initial and final setting time tests.	10M
13. A).	i) Draw the plan and elevation of fully panel window.	5M
	ii) State briefly the requirement of good staircase	5M
	OR	
13. B).	i) What do you mean by air conditioning? Explain about any one method.	5M
	ii) Discuss about combined footings with neat sketches.	5M
14. A).	i) Explain about properties and advantages of Aluminum composite panel.	5M
	ii) Define shoring and explain about any one method of shoring.	5M
	OR	
14. B).	i) List out types of bonds in brick masonry and explain any bond with a neat sketch.	5M
	ii) Explain underpinning and discuss about its uses.	5M

(P.T.O..)

15. A). i) Explain briefly the practical considerations in building planning. 5M

ii) Explain the classification of buildings with material specifications. 5M

OR

15. B). i) Explain the Building Bye-laws. 5M

ii) What are the classifications of building based on type of construction? 5M

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H.T No: | | | | | | | | | | | R22 | Course Code: A403301

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech II Semester Regular/Supplementary Examinations July/August-2024

Course Name: Engineering Materials

(Mechanical Engineering)

Date: 25.07.2024 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 elastic and plastic deformation. 1 M
2. List various Mechanical properties of metal. 1 M
3. Classify steel based on Carbon contest. 1 M
4. Mention any two industrial applications of Nickel. 1 M
5. Classify composite materials. 1 M
6. Write differences between hand layup and spay layup. 1 M
7. List important sources of plastics. 1 M
8. What are the applications of ceramics? 1 M
9. What are the function requirements of nanoparticles? 1 M
10. Give examples of any two biomaterials. 1 M

PART-B

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

11.A). Draw and explain stress strain diagram for ductile and brittle materials. State few examples. 10M

OR

11. B). i) Significance of Ashby's chart.
ii) Discuss any three ASTM standards for testing. 4M 6M

12. A). Write composition properties and applications of grey cast iron and white cast iron. 10M

OR

12. B). Classify nonferrous alloys. Discuss any two nonferrous alloys with composition properties and applications. 10M

13. A). Define composites. Discuss the functional requirements of matrix and significance in composite materials. 10M

OR

13. B). Discuss the characteristics of composite materials in detail. 10M

14. A). Explain the processing methods of Polymers and applications. 10M

OR

14. B). Explain any two ceramic fabrication techniques. 10M

15. A). Discuss the characteristics and potential applications of metal nanoparticles. 10M

OR

15. B). Explain the significance of semiconductor Nanomaterials as compared with bulk form. 10M

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