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R22



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

Examination : B.Tech II Sem Supplementary Examinations Jan-2025
Course Name : Engineering Chemistry
Course Code : A400009
Branch : CIVIL/ME/CSC/CSM/CSD/AIM
Date & Session : 24-01-2025 AN **Duration: 3 hours** **Max. Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries ONE mark.

10x1=10M

1. Define Nernst Equation. 1 M
2. What is Galvanic corrosion? 1 M
3. Define Thermosetting Plastics 1 M
4. What are the monomers of Thiokol Rubber? 1 M
5. Define Calorific Value. 1 M
6. Define Octane number. 1 M
7. What is Permanent Hardness of water? 1 M
8. What is Reverse Osmosis? 1 M
9. Outline two Engineering applications of Smart materials. 1 M
10. Write any two Characteristics of a good Lubricant? 1 M

PART-B

Answer any FIVE questions. One question from each unit either A or B (Compulsory)

Each question carries TEN Marks.

5x10=50M

11. A. Discuss the reactions involved in the Pb-Acid storage battery with a neat diagram. 10M
- OR**
11. B. What is Electrochemical corrosion? Explain the mechanism involved in Electrochemical Corrosion. 10M
12. A. Explain the Addition Polymerization with suitable examples and its engineering applications. 10M
- OR**
12. B. Define Biodegradable Polymer. Explain the preparation of Poly Lactic acid 10M
13. A. Discuss the Proximate analysis of coal and its significance. 10M
- OR**
13. B. Explain the process of Refining of Petroleum. 10M

(P.T.O.)

14. A. Explain the process involved in Ion-Exchange method with a neat diagram. 10M

OR

14. B. Estimate hardness of water by EDTA complexometric method. 10M

15. A. What is Portland Cement and its composition? Explain the Setting and Hardening of Portland cement. 10M

OR

15. B. Explain the Mechanism of Lubrication. 10M

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**CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : B.Tech II Sem Supplementary Examinations Jan-2025
Course Name : Applied Physics
Course Code : A400008
Branch : EEE/ECE/CSE/IT
Date & Session : 24-01-2025 AN **Duration: 3 hours** **Max. Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions
Each question carries ONE mark. **10x1=10M**

1. Define photoelectric effect. 1 M
2. State Bloch theorem. 1 M
3. What is Hall effect? 1 M
4. Draw the schematic diagram of PIN diode. 1 M
5. List any two applications of lasers. 1 M
6. Distinguish step-index and graded index fibers. 1 M
7. List any two applications of pyro-electric materials. 1 M
8. What are bubble memory devices? 1 M
9. What is a supercapacitor? 1 M
10. Give an example for top-down fabrication of nanomaterials? 1 M

PART-B

Answer any FIVE questions. One question from each unit either A or B (Compulsory)
Each question carries TEN Marks. **5x10=50M**

11. A. i) Show that energy of a particle in an infinite potential well is quantized. (6M) 10M
ii) Calculate the ground state energy of an electron confined in one-dimensional potential box of size 4×10^{-10} meter. (4M)

OR

11. B. Explain formation of energy bands in a solid. And, explain classification of solids based on band theory with examples. 10M
12. A. Describe construction, operation and V-I characteristics of PN-junction diode with relevant diagrams. 10M

OR

12. B. Describe construction, operation and V-I characteristics of light emitting diode with relevant diagrams. 10M

(P.T.O.)

13. A. What are Einstein's coefficients? Obtain relation between them. 10M

OR

13. B. i) Derive an expression for acceptance angle and numerical aperture of an optical fiber. 6M

ii) Calculate acceptance angle of an optical fiber in air, if refractive indices of core and cladding are 1.592 and 1.496 respectively. 4M

14. A. Show that the local field of a dielectric medium, $E_{\text{local}} = E + \frac{P}{3\epsilon_0}$ 10M

OR

14. B. i) Explain the phenomenon of magnetostriction in materials. 6M

ii) List any four applications of magnetostriction in daily life. 4M

15. A. Explain construction and operation of a solid fuel cell with a neat schematic diagram. 10M

OR

15. B. i) Explain characterization of nanomaterials by scanning electron microscopy with a neat sketch. 8M

ii) Outline any four applications of nanomaterials. 2M

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**CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : B.Tech II Sem Supplementary Examinations January-2025
Course Name : C Programming and Data Structures
Course Code : A405202
Branch : CE/ME
Date & Session : 28-01-2025 AN **Duration:** 3 hours **Max. Marks:** 60

(Note: Assume suitable data if necessary)

PART-A

**Answer all TEN questions
Each question carries ONE mark.**

10x1=10M

1. List the rules to declare identifiers in C Language. 1 M
2. What is constant? Write different types of constants. 1 M
3. Differentiate while loop and do-while loop. 1 M
4. How to initialize two dimensional array? 1 M
5. Define pointer. 1 M
6. What is self-referential structure? 1 M
7. What is the condition to check stack is full in array implementation? 1 M
8. Define abstract data type. 1 M
9. What is the prerequisite for binary search? 1 M
10. What are the time complexities of Selection sort? 1 M

PART-B

Answer any FIVE questions. One question from each unit either A or B (Compulsory)

Each question carries TEN Marks.

5x10=50M

11. A. Explain about arithmetic operators, Logical operators and bitwise operators in C Language. 10M
- OR**
11. B. Explain about different data types available in C. 10M
12. A. Explain about control statements in C Language. 10M
- OR**
12. B. Write a C Program to implement 2D-array matrix multiplication? 10M
13. A. Explain about different built-in string handling function in C. 10M
- OR**
13. B. What is Function? Explain parameter passing techniques with example programme. 10M

(P.T.O.)

14. A. Write a C Program to implement stack ADT using linked list? 10M

OR

14. B. What is Queue? Explain Queue operations with neat diagram. 10M

15. A. Apply bubble sort on the following elements: 20,10,5,15,25,35,55,45. 10M

OR

15. B. Differentiate linear search and binary search. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

Examination : B.Tech II Sem Supplementary Examinations January-2025
Course Name : English for Skill Enhancement
Course Code : A400101
Branch : EEE/ECE/CSE/IT
Date & Session : 28-01-2025 AN Duration: 3 hours Max. Marks: 60

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions
Each question carries ONE mark.

10x1=10M

1. **Punctuate** the given sentence. 1 M
 - I enjoyed your performance John told Eileen after the show
2. Write **antonym** by using prefixes to the following word. 1 M
 - Possible
3. Choose the appropriate **homophones** given in the brackets 1 M
 - I was stung by a _____ (be/bee).
4. Complete the sentences with **suitable tense forms** of the given verb. 1 M
 - Rohan _____ (work) on the computer for too long.
5. Differentiate the following **confusing words** and use them in your sentences. 1 M
 - Stationary – Stationery
6. Explain the following **foreign expression** and its usage: 1 M
 - Curriculum Vitae
7. Give the full form of **BBC** 1 M
8. Eliminate the **redundant word** and rewrite the correct sentence: 1 M
 - The unexpected surprise made him jump.
9. Choose the correct **pronoun** in the given sentence. 1 M
 - You and ____ (me, I) are on the same team.
10. What is Intensive Reading? 1 M

PART-B

Answer any FIVE questions. One question from each unit either A or B (Compulsory)
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

(P.T.O.)

11. B. i) List out the essential features of a Good Paragraph. 5M
ii) Write a paragraph on “Consequences of Deforestation on the Environment”. 5M
12. A. “JRD Tata is the Role Model to Sudha Murthy”, Justify the statement given with reference to “Appro JRD”? 10M

OR

12. B. i) Bring out any three most important writing styles? 5M
ii) Compose a paragraph on the picture given below: 5M



13. A. Compare and contrast Synchronous and Asynchronous Learning according to F. Haider Alvi. 10M

OR

13. B. You had purchased a *Smart Watch* from an e-commerce website. However, you received a damaged one. The screen had a crack and the battery was missing. Draft a complaint letter to the website authorities asking for a replacement or a refund. 10M
14. A. “Art and Literature elevates the beautiful spirit of life for everyone” – Discuss with reference to the A.P.J. Abdul Kalam’s view. 10M

OR

14. B. Construct an essay on “**Effect of AI (Artificial Intelligence) Technology on Human Life**”. 10M
15. A. Draft a feasibility Report to your M.D. regarding the inspection you have done in the various departments of your IT organization and the changes you suggest to improve the productivity. 10M

OR

(P.T.O.)

15. B. **Correct and Rewrite the following sentences:**

- i) He has given advices.
- ii) One must respect his parents.
- iii) Suresh is my older brother.
- iv) Neither he nor his friends is relieved.
- v) It is raining, is it?
- vi) This is the most unique building that I have seen.
- vii) If it will rain, I shall not attend the meeting
- viii) One of your friend have stolen my pen
- ix) Though he is poor, but he is honest
- x) Each student must bring their books.

10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

Examination : B.Tech II Sem Supplementary Examinations January-2025

Course Name : Basic Electrical Engineering

Course Code : A402201

Branch : CSC/CSM/CSD/AIM

Date & Session : 28-01-2025 AN

Duration: 3 hours

Max. Marks: 60

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries ONE mark.

10x1=10M

1. State Ohm's law. 1 M
2. State Thevenin's theorem. 1 M
3. Write the relationship between voltage and currents in 3 phase delta connection? 1 M
4. Define time period of sinusoidal waveform. 1 M
5. Define the voltage regulation of a transformer. 1 M
6. What are the different types of losses occurred in transformer? 1 M
7. Define slip speed of an induction motor. 1 M
8. Write the basic operating principle of induction motor. 1 M
9. What is earthing? 1 M
10. What are the different types of wires? 1 M

PART-B

Answer any FIVE questions. One question from each unit either A or B (Compulsory)

Each question carries TEN Marks.

5x10=50M

11. A. Explain the types of sources and types of circuit elements in detail. 10M

OR

11. B. State and explain the Superposition theorem. Using Superposition theorem, determine the current through 12Ω resistor shown in following Fig.1.

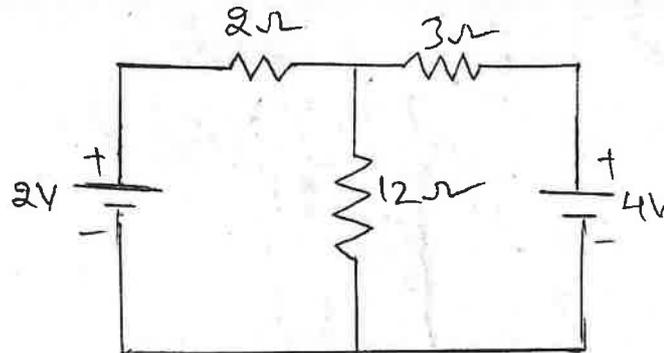


Fig.1

10M

(P.T.O.)

12. A. (i) Explain the following terms of AC circuit: 5M
(a) rms value (b) average value (c) peak value (d) formfactor (e) peak factor.
(ii) Derive the relationship between phase voltage and line Voltage, phase current and line current for balanced three phase delta connected system. 5M

OR

12. B. (i) Explain resonance in series R-L-C circuit connected across sinusoidal voltage source. 5M
(ii) Show that the resonant frequency ω_0 of an RLC series resonant circuit is the geometric mean of ω_1 and ω_2 , the lower and upper half power frequencies respectively. 5M

13. A. Draw the equivalent circuit of a practical transformer and hence develop the phasor diagram for a resistive load considering all the elements of the equivalent circuit. 10M

OR

13. B. (i) Explain the losses in a transformer and derive the expression for maximum efficiency. 7M
(ii) A 220/440 V single phase transformer has 1000 turns on primary. The maximum flux density in the core is 1.2 Wb/m^2 . Calculate the number of turns on secondary, area of cross section and maximum flux in the core. 3M

14. A. Explain the construction and principle of operation of 3-phase induction motor with neat diagram. 10M

OR

14. B. (i) Explain the torque-speed characteristics of 3-phase Induction motor with neat diagram. 7M
(ii) A 12-pole, 3-phase, 50 Hz induction motor runs at 475 rev/min. Calculate (a) the slip speed, (b) the percentage slip and (c) the frequency of the rotor currents. 3M

15. A. Explain the different types of batteries and their characteristics in detail. 10M

OR

15. B. Explain the functions of SFU, MCB, MCCB and ELCB in detail. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : B.Tech II Sem Supplementary Examinations Jan-2025
 Course Name : Ordinary Differential Equations and Vector Calculus
 Course Code : A400002
 Branch : CE/ EEE/ ME/ ECE/ CSE/ IT/ CSC/ CSM/ CSD & AIM
 Date & Session : 30-01-2025 AN Duration: 3 hours Max. Marks: 60

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries ONE mark.

10x1=10M

1. Find the orthogonal trajectories for the family of parabolas $y^2 = 4ax$. 1 M
2. The rate at which bacteria multiply is proportional to the instantaneous number present. If the original number doubles in 2 hours, in how many hours will it triple? 1 M
3. Solve $4y''' + 4y'' + y' = 0$. 1 M
4. Find the P. I. of $(D^2 + 4)y = \cos 2x$. 1 M
5. Calculate the Laplace transform of $e^{2t} \sin^2 t$ 1 M
6. Find the inverse Laplace transform of $\frac{3s}{s^2 + 2s - 8}$. 1 M
7. Compute $\nabla \phi$ if $\phi = \log(x^2 + y^2 + z^2)$. 1 M
8. If A and B are irrotational, prove that $A \times B$ is solenoidal. 1 M
9. Evaluate curl F at the point (1, 2, 3) where $F = x^2yz \mathbf{i} + xy^2z \mathbf{j} + xyz^2 \mathbf{k}$. 1 M
10. Show that $\text{grad}(1/r) = -\frac{\vec{r}}{r^3}$ 1 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Solve $\sec^2 y \frac{dy}{dx} + x \tan y = x^3$. 10M

OR

- 11.B). The Temperature of the body drops from 1000°C to 750°C in ten minutes. When the surroundings air is at 200°C temperature. What will be its temperature after half an hour. When will the temperature be 250°C ? 10M

- 12.A). Solve $(D^2 + 4D + 3)y = xe^{3x} + e^{-x} \sin x$. 10M

OR

- 12.B). Solve by the method of variation of parameters: $y'' - 2y' + 2y = e^x \tan x$. 10M

- 13.A). Find the inverse Laplace transform of $s \log\left(\frac{s-1}{s+1}\right)$. 10M

OR

- 13.B). Solve the following initial value problem by the Laplace transform method: $y'' + 25y = 10 \cos 5t$, $y(0) = 2$, $y'(0) = 0$. 10M

(P.T.O..)

14. A). Find the directional derivative of $p = x^4 + y^4 + z^4$ at the point A (1, -2, 1) in the direction AB where B is (2, 6, -1). Also find the maximum directional derivative of at (1, -2, 1). 10M

OR

14. B). Find the value of a if the vector $(ax^2y + yz) \mathbf{i} + (xy^2 - xz^2) \mathbf{j} + (2xyz - 2x^2y^2) \mathbf{k}$ has zero divergence. Find the curl of the above vector which has zero divergence. 10M

15. A). Verify Green's theorem for $\int_C [(xy + y^2)dx + x^2dy]$ where c is boundary of the region bounded by $y = x, y = x^2$. 10M

OR

15. B). Verify Gauss divergence theorem for the function $F = y \mathbf{i} + x \mathbf{j} + z^2 \mathbf{k}$ over the cylindrical region bounded by $x^2 + y^2 = 9, z = 0$ and $z = 2$. 10M

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**CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)**

Examination : B.Tech II Sem Supplementary Examinations January-2025
Course Name : Engineering Graphics
Course Code : A403202
Branch : CE/ ME
Date & Session : 01-02-2025 AN **Duration: 3 hours** **Max. Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions
Each question carries ONE mark. **10x1=10M**

1. What are the conic sections? 1 M
2. Define Eccentricity. 1 M
3. What is meant by an orthographic projection? 1 M
4. Compare between first angle and third angle projection. 1 M
5. What is a solid? 1 M
6. What is the minimum number of views required to represent solid in orthographic projection? 1 M
7. What is meant by section of solids? 1 M
8. List the applications of Development of surfaces. 1 M
9. Define Isometric Scale. 1 M
10. Distinguish between isometric view and isometric projection. 1 M

PART-B

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

- 11.A). Construct an ellipse when the distance between the focus and directrix is 50 mm and eccentricity is $\frac{2}{3}$. Also draw the tangent and normal to any point on the curve. 10M
- OR**
11. B). Construct a hyperbola when the distance between the focus and directrix is 75 mm and eccentricity is $\frac{3}{2}$. Also draw the tangent and normal to any point on the curve. 10M
12. A). A line AB 65mm long has its end A, 10mm above HP and 25mm in front of VP. It is inclined at 45° to HP and 25° to VP. Draw its projections. 10M
- OR**
12. B). A regular hexagon of side 40mm is resting on one of its corners on HP and the surface inclined 45° to HP. Draw the projections when the diagonal through the corner resting on HP makes an angle of 60° with VP. 10M
13. A). A hexagonal prism of base side 30mm, axis 50mm is resting on HP on one of its bases its base inclined at 35° to HP and to the base on which it rests makes angle of 40° VP. Draw the projections of the prism. 10M
- OR**
13. B). A pentagonal pyramid of base side 30mm, axis height 60mm is resting on HP on one of its base corners with its axis inclined at 50° to HP and parallel to VP. Draw the projections of the pyramid. 10M

(P.T.O.)

14. A). A cylinder of base diameter 50mm and height 65mm rests on its base on HP. It is cut by a plane perpendicular to VP and inclined at 30° to HP and meets the axis at a distance 30mm from the base. Draw the front view, sectional top view and true shape of the section. 10M

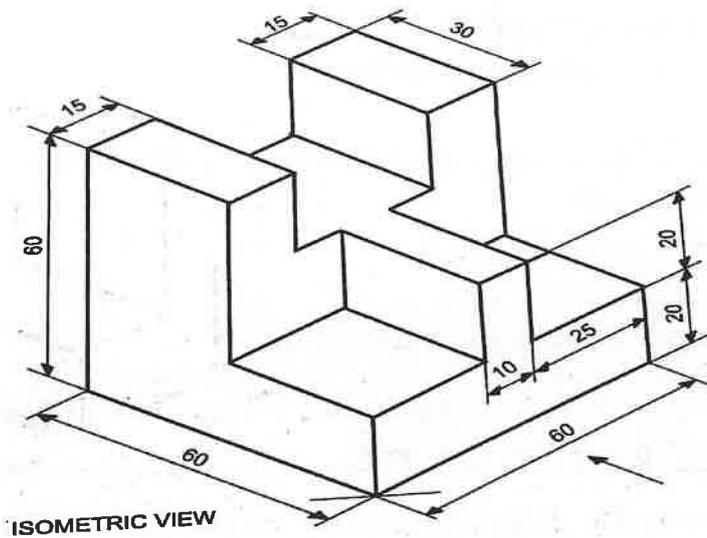
OR

14. B). A pentagonal pyramid has a base side of 30mm and axis height of 70mm. It rests with its base on HP such that one of the base edges perpendicular to VP. The pyramid is cut by a plane which bisects the axis and is inclined at 30° to HP. Develop a remaining portion of the pyramid. 10M

15. A). A hexagonal pyramid of base side 50mm, top side 30mm and height 70mm rests on its base on HP and base side parallel to VP. Draw the isometric projection of the truncated pyramid. 10M

OR

15. B). Draw to scale 1:1 the front view, top view and side view of the given machine block. 10M



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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : B.Tech II Sem Supplementary Examinations January-2025
Course Name : Basic Electronic Circuits
Course Code : A404201
Branch : ECE
Date & Session : 01-02-2025 AN **Duration: 3 hours** **Max. Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions
Each question carries ONE mark. **10x1=10M**

1. Define static and dynamic resistance of a diode. 1 M
2. Draw V-I Characteristics of a Diode. 1 M
3. Define Form Factor of a Rectifier. 1 M
4. Build any two level diode clipper circuit. 1 M
5. List any two comparisons between CB,CE and CC configurations . 1 M
6. What are the factors to be considered to design a biasing circuit? 1 M
7. Define Pinch-off voltage. 1 M
8. Draw transfer characteristics of JFET. 1 M
9. Draw V-I characteristics of Schottky diode. 1 M
10. List some applications of UJT. 1 M

PART-B

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

- 11.A). Define and develop the expression for Diffusion and transition capacitance. 10M
- OR**
11. B). Explain Diode switching times. 10M
12. A). State and Prove Clamping Circuit theorem. 10M
- OR**
12. B). Draw and explain the circuit diagram of Full-wave rectifier with capacitor filter. Derive the Ripple factor and Efficiency equation. 10M
13. A). i) Draw the circuit diagram of a transistor in CB configuration and explain the input and output characteristics with the help of different regions. 5M
- ii) Derive the relation between α , β and γ . 5M
- OR**
13. B). i) Explain the working of npn transistor with neat diagram and current components. 5M
- ii) Explain the operation of Fixed bias Circuit. 5M
14. A). i) List the comparison between BJT and FET. 5M
- ii) Explain how FET acts as voltage variable resistor. 5M
- OR**
14. B). Explain the constructional features of a P-channel depletion mode and Enhancement mode MOSFET and explain its basic operation with neat diagrams. 10M

(P.T.O..)

15. A). i) Explain the operation of Zener diode with neat diagrams. 5M
ii) Explain how zener diode acts as voltage regulator. 5M

OR

15. B). i) Explain the operation of Photo diode and draw its characteristics. 5M
ii) Explain the operation of LED and draw its characteristics. 5M

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**CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : B.Tech II Sem Supplementary Examinations January-2025
Course Name : Data Structures
Course Code : A405301
Branch : CSE/ IT/ CSC/ CSM/ CSD/ AIM
Date & Session : 01-02-2025 AN **Duration: 3 hours** **Max. Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries ONE mark.

10x1=10M

1. Define Abstract data types. 1 M
2. What is the best-case time complexity of deleting a node in a Singly Linked list? 1 M
3. List the drawbacks of open addressing. 1 M
4. What is skip list? 1 M
5. What does the color notate in red-black tree? 1 M
6. Differentiate Binary search tree and B Tree. 1 M
7. Define quick sort. 1 M
8. Give example for adjacency list of a graph. 1 M
9. Define trie. 1 M
10. What are the merits and demerits of brute force method for pattern matching? 1 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the various stack operations and illustrate the procedure Infix to Postfix with the following arithmetic expression: $A+(B*C-(D/E-F)*G)*H$. 10M
- OR**
11. B). Construct circular linked list and illustrate it with appropriate example. Write procedures for insertion and deletion operations on circular linked list. 10M
12. A). What do you mean by collision and how can you handle it by using linear probing. 10M
- OR**
12. B). Define Dictionary? Explain representations, insertion and deletion operations on dictionaries. 10M
13. A). Explain insertion and deletion operations in B+ tree with suitable examples. 10M
- OR**
13. B). i) Illustrate search operation on binary search tree. 5M
ii) Discuss the importance of height balanced trees for searching. 5M
14. A). Make a comparison of breadth first search and depth first search for a graph. 10M
- OR**
14. B). Write an algorithm for merge sort and explain with a suitable example. 10M
15. A). Describe the Knuth-Morris-Pratt algorithm for pattern matching. 10M
- OR**
15. B). Explain various types of tries with suitable examples. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

Examination : B.Tech II Sem Supplementary Examinations Jan/Feb-2025
Course Name : Building Materials, Construction and Planning
Course Code : A401301
Branch : Civil Engineering
Date & Session : 04-02-2025 AN **Duration: 3 hours** **Max. Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions
Each question carries ONE mark.

10x1=10M

1. What do you mean by quarrying? 1 M
2. What is the composition of brick earth? 1 M
3. What is the chemical composition of OPC? 1 M
4. What is an admixture? 1 M
5. What are the uses of an arch? 1 M
6. What are the essentials of air conditioning? 1 M
7. List the different types of bonds in brick masonry. 1 M
8. What is a formwork? 1 M
9. Define a green building. 1 M
10. Why orientation of a building is important? 1 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the geological classification of building stones. 10M
- OR**
11. B). Explain the term seasoning of timber and explain various of methods of seasoning. 10M
12. A). Explain any three lab tests performed on cement in detail. 10M
- OR**
12. B). Explain the manufacturing process of cement using dry process with a flow diagram. 10M
13. A). Write a short note on RCC, Wooden and Spiral Stairs. 10M
- OR**
13. B). Explain different types of roofs in detail. 10M
14. A). Explain different types of brick bonds with neat sketches. 10M
- OR**
14. B). Explain in detail on Shoring and Underpinning. 10M
15. A). Appraise the various practical points to be considered while planning a building? 10M
- OR**
15. B). Classify different types of buildings in detail. 10M

H.T No:

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**CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)**

Examination : B.Tech II Sem Supplementary Examinations Jan/Feb-2025
Course Name : Engineering Materials
Course Code : A403301
Branch : Mechanical Engineering
Date & Session : 04-02-2025 AN **Duration:** 3 hours **Max. Marks:** 60

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries ONE mark.

10x1=10M

1. State the significance of Ashby's chart. 1 M
2. Differentiate ductile and brittle materials. 1 M
3. Write the properties of Zinc. 1 M
4. Describe various ferrous alloys. 1 M
5. Define composite materials. 1 M
6. What is prepreg? 1 M
7. Classify ceramic materials. 1 M
8. What is nano material? Give any two examples. 1 M
9. What are the applications of biomaterials? 1 M
10. Differentiate diamond and graphite. 1 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). What is mechanical testing? What are the properties measured from tensile testing and write their engineering significance? 10M
- OR**
11. B). Give detailed classifications of Engineering Materials. 10M
12. A). List out various Aluminum alloys. State their composition properties and applications. 10M
- OR**
12. B). State the effect of following alloy elements on steel with neat sketch. 10M
i) Nickel ii) Chromium iii) Tungsten iv) Molybdenum
13. A). Explain in detail the manufacturing methods. 10M
i) Resin injection ii) Filament winding.
- OR**
13. B). Classify composite materials based on Materials and state characteristics and advantages. 10M
14. A). Differentiate thermosetting and thermoplastic with suitable examples. 10M
- OR**
14. B). Explain two ceramic fabrication techniques. 10M
15. A). Discuss the importance of semiconductor Nanomaterials. When compared with bulk form? 10M
- OR**
15. B). Discuss metal nano particles and ceramic Nano materials. 10M
