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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

Examination : **B.Tech II Semester Supplementary Examinations December-2025**
Course Name : **Engineering Chemistry**
Course Code : **A400009**
Branch : **CE/ ME/ CSC/ CSM/ CSD/ AIM**
Date & Session : **30-12-2025 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 is a secondary battery? Give one example? 1 M
2. Mention any two advantages of electroless plating. 1 M
3. Define Polymer and give two examples. 1 M
4. Give preparation of Thiokol rubber. 1 M
5. Define Calorific value. 1 M
6. Give the composition of LPG. 1 M
7. What are the units used for expressing hardness of water? 1 M
8. Define Hardness of water. 1 M
9. What is Portland cement? 1 M
10. Classify the lubricants. 1 M

PART-B

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

11.A). i) Derive the Nernst equation for an electrochemical cell. 4M
ii) Explain the working principle of Li- Ion battery. 6M

OR

11. B). Discuss various factors influencing the rate of corrosion. 10M

12. A). i) Write the difference between thermoplastic and thermosetting resins. 5M
ii) Explain preparation and applications of PVC. 5M

OR

12. B). i) Explain preparation and applications of Buna-S rubber. 5M
ii) Explain the mechanism of conduction in conducting polymers. 5M

13. A). Describe the ultimate analysis of coal. Mention its significance. 10M

OR

13. B). i) Explain the manufacture of synthetic petrol by Fischer-Tropsch method. 7M
ii) Briefly discuss Octane and Cetane numbers. 3M

14. A). How is water softened by Ion exchange method? Explain in detail with a neat diagram. 10M

OR

14. B). i) Write a short note on Caustic embrittlement. 5M
ii) Describe the internal treatment of boiler water. 5M

15. A). Explain the manufacture of Portland cement. 10M

OR

15. B). i) Explain the Engineering applications of smart materials. 5M
ii) Write a short note on Flash and Fire points. 5M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : **B.Tech II Semester Supplementary Examinations December-2025**
Course Name : **Applied Physics**
Course Code : **A400008**
Branch : **EEE/ ECE/ CSE/ IT**
Date & Session : **30-12-2025 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 out the Physical significance of wave function. 1 M
2. Write the expression for Fermi-Dirac Energy distribution function. 1 M
3. Distinguish between intrinsic and extrinsic semiconductors. 1 M
4. What physical process does solar cell utilize? 1 M
5. What are the applications of LASER? 1 M
6. Outline the advantage of optical fibers over copper cable. 1 M
7. Define Ferroelectrics. 1 M
8. Define magnetic susceptibility. 1 M
9. Name the materials used for Li-ion batteries. 1 M
10. List of any four applications of Nano Materials. 1 M

PART-B

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

11.A). i) Show that the energy of a particle inside an infinite potential box is quantized. 7M
ii) State and explain de Broglie's hypothesis. 3M

OR

11. B). Based on Kronig-Penny model classify solids into conductors, insulators and semiconductors. 10M

12. A). i) State and explain Hall effect. 7M
ii) Discuss the dependence of Fermi energy on Temperature. 3M

OR

12. B). Describe the structure, materials used, working principle, and characteristics of LEDs. 10M

13. A). Explain the construction and working of He-Ne laser. 10M

OR

13. B). Justify out of three optical fibers, which is suitable for optical communication. 10M

14. A). i) Using the Lorentz model, derive the expression for the local electric field acting on an atom inside a dielectric material. 8M
ii) Explain the principle of piezoelectric effect. 2M

OR

14. B). i) Distinguish between soft and hard magnetic materials. 6M
ii) Draw B-H curve and define retentivity and coercivity. 4M

15. A). Discuss the selection criteria and chemical composition of materials used in supercapacitors. How do they differ from conventional capacitors. 10M

OR

15. B). Explain how the nano particles are synthesized using CVD & PVD techniques. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : **B.Tech II Semester Supplementary Examinations January-2026**
Course Name : **C Programming and Data Structures**
Course Code : **A405202**
Branch : **CE/ ME**
Date & Session : **03-01-2026 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 is the variable? 1 M
2. What is Type conversion? 1 M
3. What is the syntax of 1D-Array declaration? 1 M
4. Why do we use break statement? 1 M
5. What is recursion? 1 M
6. Which symbol is used to access the value a pointer is pointing to? 1 M
7. What is the advantage of singly linked list? 1 M
8. What are stack operations? 1 M
9. List the different sorting algorithms. 1 M
10. What is the best and worst case time complexity of binary search? 1 M

PART-B

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

11.A). Explain the following operators: 10M
i) Relational Operators ii) Bitwise Operators iii) Conditional Operator.

OR

11. B). Explain different storage classes in C programming language. 10M

12. A). List and explain loop control statements in C with example programs. 10M

OR

12. B). Develop a C Program to perform matrix multiplication. 10M

13. A). Explain the following string handling functions with example: i) strcpy() ii) strcmp() iii) strcat() iv) strlen() v) strncat() 10M

OR

13. B). Explain in detail about user defined functions with an example program. 10M

14. A). Write an algorithm to insert new node at the beginning and at the end of a Singly Linked List. 10M

OR

14. B). What is a queue? Show array and linked representation of queue. What are the applications of queue? 10M

15. A). Write a program to implement the Liner search and write the difference between liner search and binary search 10M

OR

15. B). Explain the process of the bubble sort algorithm. Explain with an example and discuss its best-case and worst-case time complexity. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : **B.Tech II Semester Supplementary Examinations January-2026**
Course Name : **English for Skill Enhancement**
Course Code : **A400101**
Branch : **EEE/ ECE/ CSE/ IT**
Date & Session : **03-01-2026 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. Give a brief introduction of R. K. Narayan. 1 M
2. Write an example of a synonym and an antonym. 1 M
3. Define skimming. 1 M
4. Who was the chairperson of TELCO when Sudha Murthy join the company? 1 M
5. Write the meanings of this prefix and suffix. 1 M
   i) Bio ii) Phobia
6. Explain Intensive Reading. 1 M
7. Rewrite the sentence avoiding the cliché used 1 M
   The movie was an edge of the seat thriller.
8. What is an abbreviation? Give **two** examples. 1 M
9. Write any **two** technical words (vocabulary)which are used in Technology and Engineering? 1 M
10. Fill in the blanks with correct prepositions. 1 M
    i) He lives _____ 19th tower road.
    ii) The last date to submit the report is ____Monday.

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 the language gained and what has it lost through 'toasting'. 10M

OR

11. B). i) Write a paragraph on 'True friendship'. 5M
    ii) Define these terms with two examples: 5M
    a) Compounding b) Blending c) Acronyms.

12. A). Why does Sudha Murthy have such great respect for JRD Tata? 10M

OR

12. B). Write a letter to your area Municipal Commissioner about the leakage of water in your colony. 10M

13. A). What are the four take aways from 'Lessons from online learning" by F.Haider Alvi and Deborah Hurst. 10M

OR

13. B). Create your own resume with cover letter to XYZ company. 10M

(P.T.O..)

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

OR

14. B). Write an argumentative Essay on "Violence in cinema promotes violence in society". 10M
Hints: Heroes are role models to youth- social responsibility of film makers- show Indian culture _ spread good messages.

15. A). Correct the following sentences: 10M
i) We are only five on our team.
ii) I would rather to work from home than come to the office.
iii) We're used to have a lot of work to do, something the deadline won't be a problem.
iv) My client sent mean email but I haven't replied her yet.
v) May be I'm going to finish this today.

OR

15. B). Recently a cultural programme was arranged in your college with the help of the local artists of the city for raising funds to help an association for the differently-abled children of your city. Write a report for publication in the newsletter of your college. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : **B.Tech II Semester Supplementary Examinations January-2026**
Course Name : **Basic Electrical Engineering**
Course Code : **A402201**
Branch : **CSC/ CSM/ CSD/ AIM**
Date & Session : **03-01-2026 AN** **Duration: 3 hours** **Max. Marks: 60**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

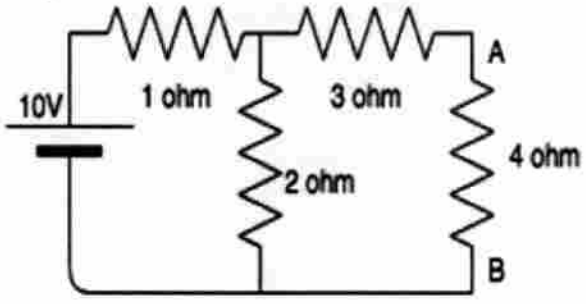
Each question carries ONE mark. **10x1=10M**

1. State Superposition theorem. 1 M
2. Define active and passive elements of electrical network. 1 M
3. Define (i) form factor (ii) peak factor. 1 M
4. What is series resonance? 1 M
5. What is practical transformer? 1 M
6. Explain the difference between step-up, step-down transformers. 1 M
7. What is the purpose of interpoles in a DC machine? 1 M
8. Define synchronous reactance. 1 M
9. Why is a fuse not provided in the neutral wire? 1 M
10. What is the function of SFU in electrical installations? 1 M

PART-B

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

11.A). Determine Thevenin's equivalent circuit across the load resistance R_L=4Ohm. 10M



OR

11. B). Analyze the time domain analysis of RL circuits with related equations. 10M

12. A). Develop an expression for total power for a balanced 3 phase star OR delta connected load in terms of line voltage, line current and power factor. 10M

OR

12. B). Explain the phenomenon of generation of Alternating voltages and currents and derive the expression for it with suitable diagrams. 10M

(P.T.O..)

13. A). Explain the various losses taking place in a transformer & derive the equation for its maximum efficiency. Also define All Day Efficiency. 10M

OR

13. B). A 20 kVA, 2000/200 V, single-phase transformer has following parameters: HV Winding: R1 = 3Ω X11 = 5.3Ω
LV Winding: R2 = 0.05Ω X12 = 0.05Ω
(i) Determine the voltage regulation at 0.8 pf lagging, unity pf and 0.707 pf leading.
(ii) Calculate the secondary terminal voltage at 0.8 pf lagging, unity pf and 0.707 pf leading when delivering full load current with the primary voltage held fixed at 2000 V. 10M

14. A). Explain the working principle of synchronous machine and derive the relation between electrical and mechanical angle. 10M

OR

14. B). Explain construction and working principle of D.C. machine. 10M

15. A). Explain the working of a miniature circuit breaker (MCB) with neat sketches. 10M

OR

15. B). Draw the circuit diagram of ELCB. Explain its working in brief. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : **B.Tech II Semester Supplementary Examinations January-2026**
Course Name : **Ordinary Differential Equations and Vector Calculus**
Course Code : **A400002**
Branch : **Common to all**
Date & Session : **06-01-2026 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 Exact differential equation. 1 M
2. State Law of Natural growth and decay. 1 M
3. Solve $(D^3 - 3D + 2)y = 0$. 1 M
4. Find the Particular integral of $(D^2 + 5D + 6)y = e^x$. 1 M
5. Find $L\{e^{3t}\}$. 1 M
6. Find the Inverse Laplace transform of $\frac{4}{(s+1)(s+2)}$. 1 M
7. Define Divergence of a vector point function. 1 M
8. Define Solenoidal vector. 1 M
9. Define Line integral. 1 M
10. State Stoke's theorem. 1 M

PART-B

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

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

OR

11. B). A body is originally at 80^0C and cools down to 60^0C in 20 minutes. If the temperature of the air is 40^0C, find the temperature of the body after 40 minutes. 10M

12. A). Solve $(D^2 + 1)y = \sin x \sin 2x + e^x x^2$. 10M

OR

12. B). Solve $(D^2 + 1)y = cosecx$ by the method of variation of parameters. 10M

13. A). Find the Laplace transform of $\frac{1-\cos t}{t^2}$. 10M

OR

13. B). Solve the following differential equation using the Laplace transform. 10M
$(D^2 + 2D + 2)y = 5 \sin x, y(0) = y'(0) = 0$.

14. A). Find the directional derivative of $xyz^2 + xz$ at (1,1,1) in a direction of the normal to the surface $3xy^2 + y = z$ at (0,1,1). 10M

OR

14. B). Show that the vector $\overline{A} = (x^2 - yz)\overline{i} + (y^2 - zx)\overline{j} + (z^2 - xy)\overline{k}$ is irrotational and find its scalar potential function. 10M

(P.T.O.)

15. A). Verify Green's theorem for $\int_c [(3x^2 - 8y^2)dx + (4y - 6xy)dy]$, where c is the region bounded by $x = 0, y = 0, x + y = 1$. 10M

OR

15. B). Verify Gauss divergence theorem for $2x^2y\bar{i} - y^2\bar{j} + 4xz^2\bar{k}$ taken over the region of first octant of the cylinder $y^2 + z^2 = 9$ *and* $x = 2$. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination	:	**B.Tech II Semester Supplementary Examinations January-2026**
Course Name	:	**Engineering Graphics**
Course Code	:	**A403202**
Branch	:	**CE/ ME**
Date & Session	:	**08-01-2026 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 is the significance of engineering drawing? 1 M
2. What is a cycloid curve? 1 M
3. What is Orthographic projection? 1 M
4. In orthographic projection, each projection view represents how many dimensions of an object? 1 M
5. Differentiate between Prism and Pyramid. 1 M
6. What is the importance of hidden lines in solid projections? 1 M
7. What is sectional view? 1 M
8. Developments of the lateral surface of a prism consist of the same number of _____ in contact as the number of the sides of base of the prism. 1 M
9. What is an isometric projection? 1 M
10. What is the angle between the axes in an isometric drawing? 1 M

PART-B

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

11.A). Draw an ellipse if the distance of focus from the directrix is 70 mm and the eccentricity is 3/4. 10M

OR

11. B). Draw the curve traced by a point on the circumference of a circle of 40 mm diameter, which rolls on another circle of 160 mm diameter, for one complete revolution. Name the curve. 10M

12. A). Draw the projections of the following points on a common reference line. 10M
(i) P, 35mm behind the VP and 20mm below the HP; (ii) Q, 40mm in front of the VP and 30mm above the HP; (iii) R, 50mm behind the VP and 15mm above the HP; (iv) S, 40mm below the HP and in the VP & (v) T, in the HP and in the VP.

OR

12. B). A line AB, 70 mm long, has its end A 15mm above HP and 20 mm in front of VP. It is inclined at 45° to HP and 30° to VP. Draw its projections. 10M

13. A). Draw the projections of a pentagonal prism, base 25 mm side and axis 50 mm long, resting on one of its rectangular faces on the H.P., with the axis inclined at 45° to the V.P. 10M

OR

13. B). A cone of base 80 mm diameter and height 100 mm lies with one of its generators on HP and the axis appears to be inclined to VP at an angle of 40° in the top view. Draw its top and front views. 10M

(P.T.O..)

14. A). A hexagonal pyramid of base side 25 mm and axis 55 mm rests on its base on the HP with two base edges perpendicular to the VP. It is cut by a plane perpendicular to the VP and inclined at 30° to the HP meeting the axis at 20 mm from the vertex. Draw the front view and sectional top view. 10M

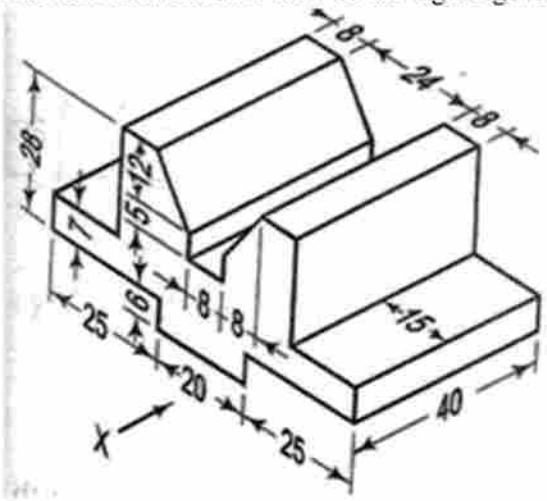
OR

14. B). A pentagonal prism having a base with a 30mm side and 70mm long axis in resting on its bases on HP, such that one of the rectangular faces is parallel to the VP. It is cut by auxiliary inclined plane (AIP) whose V.T is inclined 45^{O} with the reference line and passes through the midpoint of the axis. Draw the development of the lateral surface of truncated prism. 10M

15. A). Draw an isometric view of the frustum of a cone with a 60mm base diameter, 40mm top diameter and 70mm long axis resting on its base on the HP. 10M

OR

15. B). Draw the top view, front view and left side view of the figure given Figure. 10M



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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : **B.Tech II Semester Supplementary Examinations January-2026**
Course Name : **Analog Electronic Circuits**
Course Code : **A404202**
Branch : **EEE**
Date & Session : **08-01-2026 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. Show half wave rectifier circuit with input and output diagrams. 1 M
2. List the applications of BJT. 1 M
3. Define transconductance of FET. 1 M
4. Draw input V-I characteristics of MOSFET. 1 M
5. Classify power amplifiers. 1 M
6. What is differential amplifier? 1 M
7. List the general characteristics of Negative feedback amplifier. 1 M
8. Compare LC and RC oscillators. 1 M
9. Show op-amp differentiator circuit. 1 M
10. How op-amp is used as a comparator? 1 M

PART-B

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

11.A). i) Explain the operation of Full wave rectifier circuit with neat circuit diagram. 5M
ii) Illustrate the differences between CE, CB and CC configurations. 5M

OR

11. B). Explain input and output characteristics of BJT in CB configuration. 10M

12. A). Evaluate the expressions for gain, input and output impedance of FET Small signal CS model. 10M

OR

12. B). Explain the structure and VI characteristics of MOSFET. 10M

13. A). With the help of circuit diagram explain the operation of Class B power amplifier. 10M

OR

13. B). With the help of circuit diagram explain the operation of direct coupled multistage amplifier. 10M

14. A). Analyze Colpitts oscillator for its frequency and condition for oscillations with circuit and operation. 10M

OR

14. B). i) Estimate the Input and output impedance when current shunt feedback of 10% is feedback to an amplifier whose gain without feedback is 20dB, input and output impedances are 2KΩ and 250KΩ. 5M
ii) Explain the effect of voltage series feedback on amplifier. 5M

15. A). Evaluate the gain of an inverting and non- inverting amplifier using Op-amp. 10M

OR

15. B). Define the following: Output offset voltage, input bias current, input offset current, slew rate, gain bandwidth product. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : **B.Tech II Semester Supplementary Examinations January-2026**
Course Name : **Basic Electronic Circuits**
Course Code : **A404201**
Branch : **ECE**
Date & Session : **08-01-2026 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 is Avalanche Breakdown? 1 M
2. Define diffusion capacitance. 1 M
3. Define TUF and Write TUF value for half-wave rectifier. 1 M
4. Define Clipper and draw its output waveform. 1 M
5. Write the transistor terminals in terms of size and doping concentration. 1 M
6. For a given BJT, $\beta = 100$, $I_{CBO} = 0.1\ \mu A$, $I_B = 80\ \mu A$. Determine I_E. 1 M
7. Mention the differences between FET and MOSFET. 1 M
8. An n-channel JFET has $I_{DSS} = 10mA$, $V_{DS} = 5V$ and $V_P = -2V$. Determine the drain current for $V_{GS} = 0V$. 1 M
9. List the applications of zener diode. 1 M
10. Define radiant intensity for LED. 1 M

PART-B

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

11.A). Define transition capacitance and with neat sketch derive the expression for $C_T = \frac{\varepsilon A}{W}$. 10M

OR

11. B). i) Explain the PN Diode operation with the help of characteristics. 5M
ii) Explain with neat sketch how diode acts like a switch. 5M

12. A). With the help of a neat circuit diagram, input and output waveforms, describe the operation of Bridge rectifier and derive all the parameters. 10M

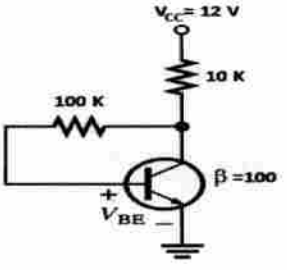
OR

12. B). With neat circuits explain about Clamping circuits. 10M

13. A). Draw the circuit and explain the input and output characteristics of CC transistor configuration. 10M

OR

13. B). i) Explain the need for Biasing. List the different BJT biasing techniques. 5M
ii) Calculate the operating point Q(V_{CE}, I_C) for the given circuit. Asssume V_{BE}=0.7V. 5M



(P.T.O..)

14. A). With a neat construction diagram, explain the principle of operation of a JFET and draw its characteristics. 10M

OR

14. B). With neat structure, explain the principle of operation of Enhancement type MOSFET also draw drain and transfer characteristics. 10M

15. A). Elaborate on the tunneling mechanism of Tunnel diode along with its VI characteristics. 10M

OR

15. B). With the help of relevant schematic diagram, briefly describe the operational principle of UJT with its V-I characteristics. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination : **B.Tech II Semester Supplementary Examinations January-2026**
Course Name : **Data Structures**
Course Code : **A405301**
Branch : **CSE/ IT/ CSC/ CSM/ CSD/ AIM**
Date & Session : **08-01-2026 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 advantages of linked list? 1 M
2. Define circular queue. 1 M
3. Write the applications of dictionary. 1 M
4. Give an example for double hashing. 1 M
5. Define red-black tree. 1 M
6. What is B-tree of order m? 1 M
7. Write the applications of graph data structure. 1 M
8. What is Internal Sorting? Mention some examples of Internal Sorting. 1 M
9. What are the applications of pattern matching? 1 M
10. What is a Trie? 1 M

PART-B

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

11.A). Explain insertion and deletion operations on single linked lists. Write pseudo code for the same operations. 10M

OR

11. B). Convert the infix expression a / b – c + d * e – a * c into postfix expression and trace that postfix expression for given data a = 6, b = 3, c = 1, d = 2, e = 4. 10M

12. A). What is collision? Explain different collision resolution techniques with examples. 10M

OR

12. B). Discuss various representations of Dictionaries. 10M

13. A). Build an AVL tree with the following values: {15, 20, 24, 10, 13, 7, 30, 36, 25, 42, 29} 10M

OR

13. B). Define B-Tree. Explain about deletion and search operation of B-Tree with an example. 10M

14. A). Write an algorithm for merge sort. Trace with suitable example. 10M

OR

14. B). Define a graph. Explain different graph traversal techniques with an example. 10M

15. A). Write Knuth-Morris-Pratt pattern matching algorithm. Explain with an example. 10M

OR

15. B). What is a compressed Trie? Explain how it differs from a standard Trie. Illustrate the construction of a compressed Trie for the strings ["apple", "app", "apricot", "bat"]. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
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Examination	:	**B.Tech II Semester Supplementary Examinations January-2026**
Course Name	:	**Building Materials, Construction and Planning**
Course Code	:	**A401301**
Branch	:	**Civil Engineering**
Date & Session	:	**10-01-2026 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.	Name the uses of stone.	1 M
2.	Tell the composition of brick.	1 M
3.	Name the bougues compounds.	1 M
4.	What is the use of gypsum?	1 M
5.	List the types of roofs.	1 M
6.	What do you meant by DPC?	1 M
7.	Tell about the term brick bats.	1 M
8.	Define Plastering.	1 M
9.	Differentiate structural and terrace plan.	1 M
10.	Define Floor Area Ratio.	1 M

PART-B

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

11.A).	Describe the qualities of good building stone.	10M
	OR	
11. B).	Explain with neat sketch the manufacturing process of Glass.	10M
12. A).	Compare wet and dry process of manufacture of cement with the help of flow diagram.	10M
	OR	
12. B).	Summarize the various types of admixtures with its desired effect and materials.	10M
13. A).	Enumerate the various classification of Lintel and Arches.	10M
	OR	
13. B).	Explain the Water Distribution System in detail.	10M
14. A).	Classify the various bonds in brickwork and stone masonry.	10M
	OR	
14. B).	Describe the various types of formworks based on materials.	10M
15. A).	Explain the basic principles of building planning in respect of residential buildings.	10M
	OR	
15. B).	Discuss the concept of green building in detail.	10M

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H.T No: | | | | | | | | | | | R22

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

Examination : **B.Tech II Semester Supplementary Examinations January-2026**
Course Name : **Engineering Materials**
Course Code : **A403301**
Branch : **Mechanical Engineering**
Date & Session : **10-01-2026 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. Write two examples of metallic materials. 1 M
2. Name two non-metallic materials used in engineering. 1 M
3. What are ferrous metals? 1 M
4. What is the purpose of alloying? 1 M
5. Define a composite material. 1 M
6. What is the advantage of composites over metals? 1 M
7. What is the crystal structure of diamond? 1 M
8. What is the major difference between diamond and graphite? 1 M
9. Define nanomaterial. 1 M
10. Name two methods of nanomaterial synthesis. 1 M

PART-B

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

11.A). Describe the Ashby chart and its relevance in material selection. 10M

OR

11. B). Describe how material properties influence engineering design decisions. 10M

12. A). Classify metals and alloys based on composition and structure. 10M

OR

12. B). Describe various nonmetallic materials and their alloys. 10M

13. A). Describe the role of reinforcements and matrices in composites. 10M

OR

13. B). Explain the structure and characteristics of metal matrix composites (MMC). 10M

14. A). Classify ceramic materials and explain their properties. 10M

OR

14. B). Explain one of the fabrication techniques used for polymeric materials. 10M

15. A). Describe various nano materials and explain any two of those with properties. 10M

OR

15. B). Discuss the applications of nanomaterials in sensors and coatings. 10M

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