

PRN NO

QP. CODE

25W070

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 (An Autonomous Institute)
 End Semester Exam

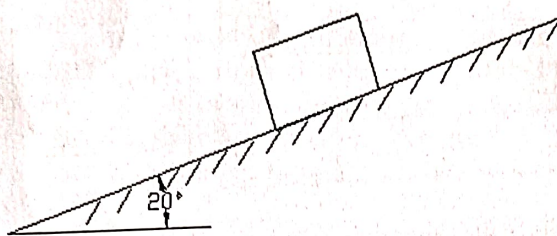
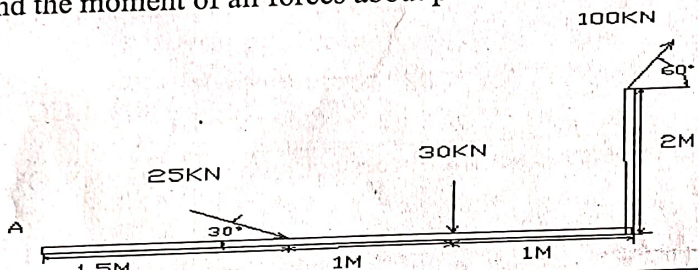
Class-Program	FY All
Course Code	01FYESL107
Course Title	Applied Mechanics

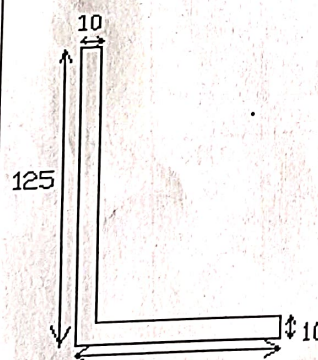
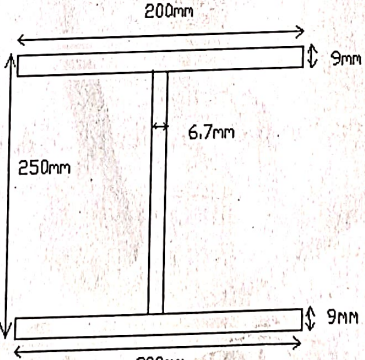
Day & Date	Saturday 17-01-2026
Time	10:30 AM to 01:00 PM
Max. Marks	70

Instructions:

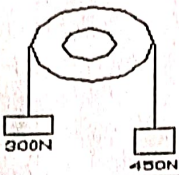
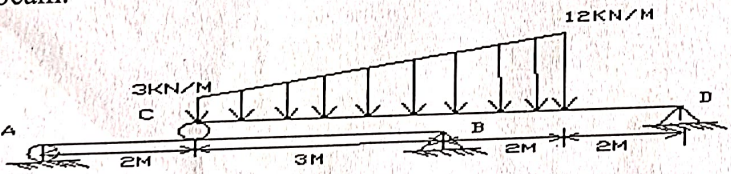
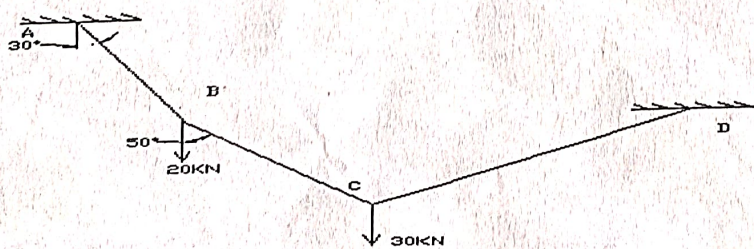
- All questions are compulsory; assume suitable data if necessary and mention it clearly.
- Mobile phones and programmable calculators are strictly prohibited.
- Writing anything on question paper (except PRN), exchange/sharing of stationery, calculator etc. are not allowed.

Q.1		Mark s	CO	BL
	All MCQ's are Compulsory			
a	A single force that has the same effect as several forces acting on a body is called the: a) Component b) Resultant (or Equivalent Force) c) Couple d) Moment	01	CO1	Remember
b	Lami's Theorem applies to: a) Any set of forces. b) Two concurrent forces. c) Three concurrent forces. d) Parallel forces.	01	CO2	Remember
c	What is the formula of theorem of parallel axis? a) $I_{AD} = I_G + Ah$ b) $I_{AB} = Ah^2 + I_G$ c) $I_{AB} = I_G - Ah^2$ d) $I_{AB} = I_G + I_{xx}$	01	CO3	Remember
d	Which principle reduces a problem of kinetics to an equivalent problem of statics? a) Work-energy principle b) Impulse-momentum principle c) D'Alembert's principle d) Conservation of energy	01	CO4	Remember
e	A collision in which the direction of motion of one or both of the particles is at an angle to the line of impact (the common normal at the point of contact) is known as: a. Direct central impact b. Head-on collision c. Oblique impact d. Perfectly plastic impact	01	CO5	Remember

Q.2	(a) is compulsory. Attempt any one from (b) or (c)			
a	1. Define force. State the effects which a force may produce when it acts on the body. 2. Define force system. State the classification of force system.	03	CO1	Remember
b	A block weighing 10 KN resting on an inclined plane as shown in figure. Determine its components normal and parallel to the inclined plane. Angle of inclination is 20° .	03	CO1	Remember
		07	CO1	Apply
c	Find the moment of all forces about point A.	07	CO1	Apply
				

Q.3	(a) is compulsory. Attempt any one from (b) or (c)			
a	1. State & explain Parallel axis theorem with neat sketch. 2. Define Polar Moment of Inertia and Radius of gyration.	03	CO3	Understand
b	Determine the moment of inertia of the L-section shown in figure about its centroidal axes.	03	CO3	Remember
c	Determine the moment of inertia of symmetric I-section shown in figure about its centroidal axes X-X and Y-Y.	07	CO3	Apply
				
				

Q.4	(a) is compulsory. Attempt any one from (b) or (c)			
a	1. Define Kinetics and Kinematics. 2. State Work Energy Principle with neat sketch & its equation.	03	CO4	Understand
		03		Understand

b	Two bodies weighing 300 N and 450 N are hung to the ends of the rope passing over an ideal pulley as shown in figure. With what acceleration the heavier body comes down? What is the tension in the string?	07	CO4	Apply
				
c	In a police investigation of tyre marks, it was concluded that a car in motion along a straight level road skidded for a total of 60 meters after the breaks were applied. If the coefficient of friction between the tyres and the pavement is estimated as 0.5, what was the probable speed of the car just before the breaks were applied?	07	CO4	Apply
Q.5	(a) is compulsory. Attempt any one from (b) or (c)			
a	1. State & explain Law of conservation of momentum? 2. Define coefficient of restitution & State formula of it.	03 03	CO5	Understand Remember
b	A golf ball is dropped from a height of 10 m on a fixed steel plate. The coefficient of restitution is 0.894. Find the height to which the ball rebounds on the first, second and third bounces.	07	CO5	Apply
c	A 80 N body moving to the right at a speed of 3 m/s strikes a 10 N body that is moving to the left at a speed of 10 m/s. The final velocity of the 10 N body is 4 m/s to the right. Calculate the coefficient of restitution and the final velocity of the 80 N body.	07	CO5	Apply
Q.6	(a) is compulsory. Attempt any one from (b) or (c)			
a	1. State Lami's theorem. Write the expression for Lami's theorem with neat sketch 2. Define a. Free body diagram b. Equilibrium	03 03	CO2	Understand Remember
b	Determine the reactions at A, B, C and D of the compound beam.	07	CO2	Apply
				
c	A wire rope is fixed at two points A and D as shown in figure. Weights 20 kN and 30 kN are attached to it at B and C respectively. The weights rest with portions AB and BC inclined at 30° and 50° respectively, to the vertical as shown in figure. Find the tension in the segments AB, BC, CD of the wire. Determine the inclination of segment CD to the vertical.	07	CO2	Apply
				

PRN NO

QP. CODE

25W065

5011

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 (An Autonomous Institute)
 End Semester Exam

Class-Program	F.Y.B.Tech-ALL	Day & Date	Wednesday 21-01-2022
Course Code	01FYESL105	Time	10:30 AM to 01:00 PM
Course Title	Basic Electronics Engineering	Max. Marks	70

Instructions:

- All questions are compulsory; assume suitable data if necessary and mention it clearly.
- Mobile phones and programmable calculators are strictly prohibited.
- Writing anything on question paper (except PRN), exchange/sharing of stationery, calculator etc. are not allowed.

Q.No		Marks	CO	BL	
All MCQ's are Compulsory					
1	a	A PN junction diode conducts current when it is Nonlinear elements A. Reverse biased B. Forward biased C. Zero biased D. Overheated	01	1	Apply
	b	Convert the binary number $(1010)_2$ to decimal A. 8 B. 9 C. 10 D. 12	01	2	Apply
	c	Find the output of an AND gate if inputs are $A = 1$ and $B = 0$ A. 0 B. 1 C. A D. B	01	3	Apply
	d	Which combinational circuit is best suited for comparing two binary numbers A. Multiplexer B. Encoder C. Comparator D. Adder	01	4	Evaluate
	e	Which flip-flop is most suitable for data storage in registers? A. SR flip-flop B. JK flip-flop C. D flip-flop D. T flip-flop	01	4	Evaluate
	f	Which memory is best suited for storing firmware in embedded systems? A. SRAM B. DRAM C. ROM D. Cache memory	01	5	Evaluate
Solve Any Two					
2	a	Explain the V-I characteristics of a PN junction diode under forward bias and reverse bias conditions	08	1	Understand
	b	Define following number systems with example. 1. Binary number system 2. Octal number system	08	2	Remember
	c	Draw the symbols and construct the truth tables for AND, OR, and XOR gates with their Boolean expressions.	08	3	Create
Solve Any Two					
3	a	Explain the working of a Full-Wave Rectifier using centre-tapped transformer	08	1	Understand
	b	Explain the conversion of number systems with examples. 1) Binary to Hexadecimal 2) Binary to Decimal	08	2	Understand
	c	State and prove De Morgan's theorems using Boolean algebra and truth tables. 1. First theorem: $(A + B)' = A'B'$ 2. Second theorem: $(AB)' = A' + B'$	08	3	Remember

4	a	Construct the truth tables, Boolean expressions, and circuit diagrams for Half Adder and Half Subtractor	08	4	Apply
	b	Compare between : 1. latches and flip flops 2. synchronous / asynchronous circuits	08	4	Analyze
	c	Define and explain: 1. Noise margin Propagation delay 2. Fan-in Fan-out.	08	5	Remember
5	Solve Any Two				
	a	Design: 1. 8:1 MUX using two 4:1 MUX. 2. Implement Full Adder using MUX.	08	4	Create
	b	Explain concept of level triggering, edge triggering in digital electronics.	08	4	Understand
	c	Implement Boolean functions using MUX. 1. $Y = \sum m(2,0,15,14,11,3,7)$ 2. $f(A,B,C) = \pi M(0,1,3,5)$	08	3	Apply

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25072

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 (An Autonomous Institute)
 End Semester Exam

Class-Program	FY All branches
Course Code	01FYESL106
Course Title	Computer Aided Engineering Drawing

Day & Date	Monday 19-01-2020
Time	10:30 AM to 01:30 PM
Max. Marks	70

Instructions:

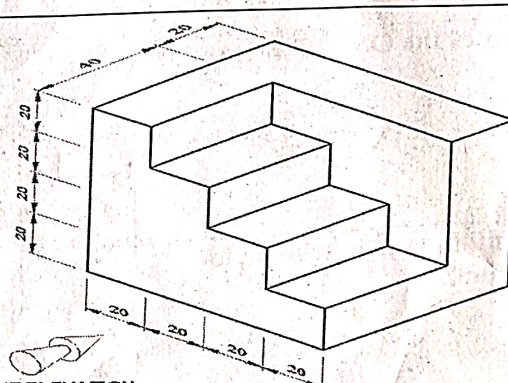
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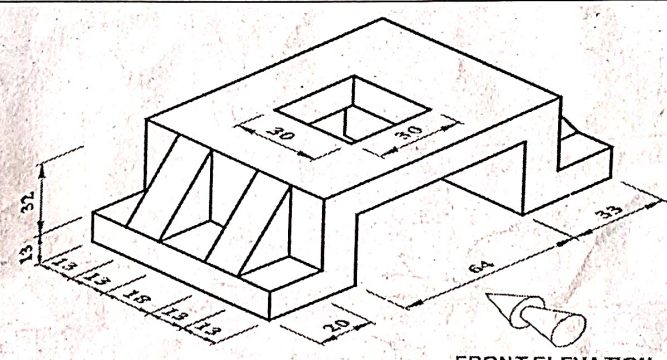
Q.no.		Marks	CO	BL	
All MCQ's are Compulsory					
1	a	In which system of dimensioning the figures can read from the bottom only? a) Aligned system b) Unidirectional system c) Nonaligned multidirectional system d) Parallel system	01	CO1	Remember
	b Key automatically activates the OSNAP feature of AutoCAD. a. F1 b. F2 c. F3 d. F4	01	CO2	Remember
	c	A plane is held parallel to horizontal plane in which view we can watch drawing on that plane? a) Top view b) Front view c) Back view d) Side view	01	CO3	Remember
	d	What is additional 3rd view on orthographic projection in general for simple objects? a) Front view b) Top view c) Side view d) View at 45 degrees perpendicular to horizontal plane	01	CO4	Remember
	e	What is the scale ratio of full size scales? a) 1:2 b) 1:3 c) 1:10 d) 1:1	01	CO5	Remember
	f	Origin of the AutoCAD drawing space is a) 0,0 b) 1,0 c) 0,1 d) 1,1	01	CO2	Remember

baacda

Solve Any Two					
2			08	CO1	Remember
	a	Explain- Dimensioning System with its types	08	CO2	Remember
	b	Write a note on page set for AutoCAD 2D drawing.			
	c	A square lamina of 50 mm side rests on one of the corners on the HP. The diagonal through that corner makes 30° to VP. The two sides containing this corner make equal inclinations with the HP. The surface of the lamina makes 45° to the HP. Draw the TV and FV of lamina.	08	CO3	Apply

Solve Any Two					
3	a	Enlist and explain in detail about various Engineering drawing instruments used.	08	CO1	Understand
	b	A regular pentagon ABCDE of side 30 mm has one of its edges parallel to VP and inclined at 30° to the HP. The pentagon is inclined at 45° to the VP. Draw the projections.	08	CO3	Apply
	c	Write the path for following draw commands: 1. Circle 2. Polygon 3. Construction line 4. Hatch 5. Text 6. Polyline	08	CO2	Remember

Solve Any Two					
4	a	 <p>Draw front, side and top view of given object: All dimensions are in Centimetre. Use scale 1:100</p>	08	CO4	Create
	b	Draw simple layout of residential building.	08	CO5	Remember
	c	Differentiate between first angle and third angle method	08	CO3	Remember

Solve Any Two					
5	a	 <p>Draw front, side and top view of given object: All dimensions are in Centimetre. Use scale 1:100</p>	08	CO4	Create
	b	Draw simple electronic circuit design	08	CO5	Understand
	c	Explain the page set carried out for AutoCAD 2D drawing	08	CO2	Remember

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25W067

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 (An Autonomous Institute)
 End Semester Exam

Class-Program	FYBTech
Course Code	FYESL104
Course Title	Basic Electrical Engineering

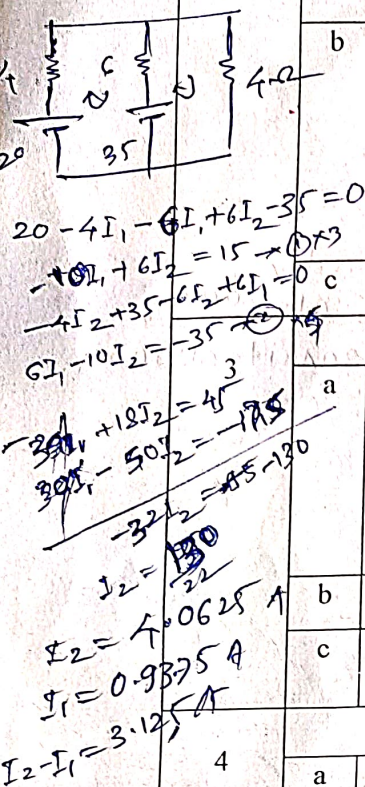
Day & Date	Friday 16-01-2026
Time	10:30 AM to 01:00 PM
Max. Marks	70

Instructions:

- All questions are compulsory; assume suitable data if necessary and mention it clearly.
- Mobile phones and programmable calculators are strictly prohibited.
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Q.no.		Marks	CO	BL
All MCQ's are Compulsory				
1	a	01	K1	1.2.1
	b	01	K1	1.2.1
	c	01	K1	1.2.1
	d	01	K1	1.2.1
	e	01	K1	1.2.1
	f	01	K1	1.2.1

a
b
d
c
a
a



Solve Any Two					
2	a	State and explain Kirchoff's Laws with suitable example?	08	K1	1.2.1
	b	Two batteries A & B are connected in parallel across a load resistance of 4 ohm. The emf & internal resistance of battery A & B are 20 volts, 4 ohm and 35 volts, 6 ohm respectively, using mesh or node analysis, Find (i) current in battery A, $I_1 = 0.9375 A$ (ii) current in battery B, $I_2 = 3.125 A$ (iii) current in load resistance, $4.0625 A$	08	K3	2.1.2
	c	State and explain Ohms law for magnetic circuit.	08	K1	1.2.1
Solve Any Two					
	a	A resistance of 10Ω is connected in series with inductance of $0.008H$ across $230 V$ $50 Hz$ ac supply. Find (i) Impedance $Z = \sqrt{R^2 + X_L^2} = \sqrt{(10)^2 + (2.512)^2} = 10.31 \Omega$ (ii) Current $I = E/Z = 230/10.31 = 22.30 A$ (iii) Power factor $\cos\phi = R/Z = 10/10.31 = 0.969$ (iv) power $P = EI \cos\phi = 230 \times 22.30 \times 0.969 = 4970 W$	08	K3	2.1.2
	b	Derive the expression for RMS value by analytical method.	08	K4	2.1.1
	c	Derive the expression of current and power for pure inductive circuit	08	K4	2.1.1
Solve Any Two					
4	a	Define and Explain: Balanced 3 phase ac supply, phase sequence, 3 phase balanced Load.	08	K1	1.2.1
	b	Prove that line Current = $\sqrt{3}$ Phase current in star Connected circuit?	08	K4	
	c	List the Advantages of 3 phase power generation, transmission, distribution and 3 phase Machines	08	K1	1.2.1
Solve Any Two					
5	a	Derive the EMF equation of transformer. Also find expression relating voltage ratio, current ratio and turns ratio	08	K4	2.1.1
	b	A 30 KVA, 3000/800 Volts, 50 Hz Single phase transformer has 100 turns on secondary winding. Calculate i) Primary & secondary currents on full load ii) The number of primary turns iii) The maximum value of flux.	08	K3	2.1.2
	c	State and Explain Power Losses occurred in Transformer?	08	K1	1.2.1

$N_1 = 375 \text{ turns}$
 $E_1 = 444 \phi_m f N_1$
 $3000 = 444 \times \phi_m \times 50 \times 375$
 $\therefore \phi_m = 0.0360 \text{ wb}$

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 (An Autonomous Institute)
 End Semester Exam

Class-Program	FY B Tech
Course Code	01FYBSL101
Course Title	Applied Mathematics I

Day & Date	Thursday, 08-01-2024
Time	10:30 am to 1:00 pm
Max. Marks	70

Instructions:

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Q.no.		Marks	CO	BL	
All MCQ's are Compulsory					
1	a	The sum of the eigen values of the matrix given below is $A = \begin{bmatrix} 9 & -1 & 9 \\ 3 & 1 & 3 \\ -7 & 1 & -7 \end{bmatrix}$ A) -1 B) 3 C) -8 D) none of these	01	CO2	3
	b	The determinant value of the matrix given below is $A = \begin{bmatrix} 9 & -1 & 9 \\ 0 & -1 & 3 \\ 0 & 0 & 7 \end{bmatrix}$ A) -63 B) -36 C) 15 D) none of these	01	CO2	3
	c	If a matrix is in reduced row echelon form, then it is also in row echelon form A) true B) false C) may be D) none of these	01	CO1	3
	d	An equation $x^3 + 4x + 5 = 0$ is defined with initial guess of $x_0 = 1$. then approximate value of x_1 using Newton Raphson method is A) 0.4285 B) -1.1429 C) -0.4285 D) none of these	01	CO5	3
	e	An equation $x^3 - 2x - 5 = 0$ is defined with initial guess of 2 and 3. the approximate value of x_2 using secant method is A) 2.0813 B) 2.0588 C) 2 D) none of these	01	CO5	3
	f	The value of $4[\cos(\pi/3) + i \sin(\pi/3)]$ in cartesian form is A) $2+2\sqrt{3}i$ B) $2-2\sqrt{3}i$ C) $-2+2\sqrt{3}i$ D) none of these	01	CO3	3
Solve Any Two					
2	a	Find the rank of matrix by normal form $A = \begin{bmatrix} 1 & -1 & 2 & -3 \\ 4 & 1 & 0 & 2 \\ 0 & 3 & 1 & 4 \\ 0 & 1 & 0 & 2 \end{bmatrix}$	08	CO1	3
	b	Find eigen values and eigen vector for all eigen values of the matrix $A = \begin{bmatrix} 4 & 6 & 6 \\ 1 & 3 & 2 \\ -1 & -5 & -2 \end{bmatrix}$	08	CO2	3
	c	Simplify $\frac{(\cos 3\theta + i \sin 3\theta)^5 (\cos \theta - i \sin \theta)^3}{(\cos 5\theta + i \sin 5\theta)^7 (\cos 2\theta - i \sin 2\theta)^5}$ and find the value at $\theta = \pi/33$.	08	CO3	3

3	Solve Any Two				
	a	Test for consistency and if possible, solve the equations $x+2y-z=3, 3x-y+2z=1, 2x-2y+3z=2, x-y+z=-1$	08	CO1	3
	b	Verify Cayley Hamilton's Theorem and find A^{-1} for the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & -1 & 4 \\ 3 & 1 & -1 \end{bmatrix}$	08	CO2	3
	c	Find all the values of $(1-i\sqrt{3})^{1/4}$ by Demoiivres Theorem and also find the product of all values.	08	CO3	3
4	Solve Any Two				
	a	Find one root of the equation $xe^x = \cos x$ by Secant method.	08	CO5	3
	b	Arrange in powers of x by using Taylor's series $7+(x+2)+3(x+2)^3+(x+2)^4$ Also find $f(2.1)$	08	CO4	3
	c	If $u = x^2 \log \left(\frac{\sqrt[3]{y} - \sqrt[3]{x}}{\sqrt[3]{y} + \sqrt[3]{x}} \right)$ find $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y}$ and $x^2 \frac{\partial^2 u}{\partial x^2} + 2xy \frac{\partial^2 u}{\partial x \partial y} + y^2 \frac{\partial^2 u}{\partial y^2}$	08	CO6	3
5	Solve Any Two				
	a	Find one root of the equation by Bisection method $x^3 - 5x + 1 = 0$. Find answer up to six iteration.	08	CO5	3
	b	Evaluate $\lim_{x \rightarrow 0} \frac{e^x \sin x - x - x^2}{x^3}$	08	CO4	3
	c	If $z = \frac{(x^2+y^2)}{(x+y)}$, prove that $\left(\frac{\partial z}{\partial x} - \frac{\partial z}{\partial y} \right)^2 = 4 \left(1 - \frac{\partial z}{\partial x} - \frac{\partial z}{\partial y} \right)$	08	CO6	3

PRN NO

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25W051

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
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 End Semester Exam

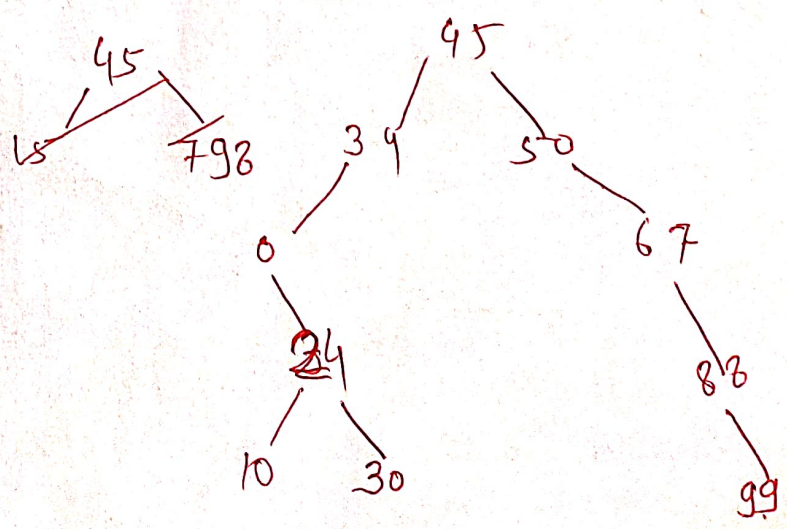
Class-Program	FY BTech	Day & Date	Friday, 09-01-2026
Course Code	01FYPCL122	Time	10:30 am to 1:00 pm
Course Title	Data Structure and Programming	Max. Marks	70

Instructions:

- All questions are compulsory; assume suitable data if necessary and mention it clearly.
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Q.no.		Marks	CO	BL	
All MCQ's are Compulsory					
1	a	Which of the following is NOT a type of data structure? a) Array b) Linked List d) Assembly Language	01	1	K2
	b	Which of the following is an application of linked lists? a) Polynomial representation b) Direct index access c) Matrix multiplication d) Sorting arrays	01	2	K3
	c	Which operation is NOT supported by the Stack ADT? a) Push b) Pop c) Peek d) Enqueue	01	3	K3
	d	What is the worst-case time complexity of Bubble Sort? a) $O(n)$ b) $O(n^2)$ c) $O(n \log n)$ d) $O(\log n)$	01	4	K3
	e	In a binary search tree, the left child of a node contains: a) Value greater than the node b) Value less than the node c) Any value d) Only even values	01	5	K3
	f	Which collision resolution technique is used in hashing? a) Chaining b) Open Addressing c) Both a and b d) None of the above	01	6	K3

Solve Any Two					
2	a	Classify Data structure in detail.	08	1	2
	b	List explain types of linked list with suitable figures.	08	2	2
	c	Develop an algorithm to perform different operations on stack with pseudo code.	08	3	4
Solve Any Two					
3	a	Write a C Program to Add and subtract two 1 dimensional arrays.	08	1	4
	b	Apply different suitable algorithms to perform insertion, deletion operations on Singly Liked list.	08	2	3
	c	Write a C Program to perform all operations of Queue using array.	08	3	4
Solve Any Two					
4	a	Apply the Bubble Sort algorithm steps on a data structure and sort it in ascending order (consider suitable example)	08	4	3
	b	List out and describe Tree terminologies with suitable figure.	08	5	2
	c	Illustrate the occurrence of collision with example.	08	6	3
Solve Any Two					
5	a	Apply suitable searching algorithm on below data structure and find out given keys. Justify with algorithm 45, 15, 798, 67,95, 79, 56, 88, 20 i) Key 20 ii) Key 99	08	4	3
	b	Construct a Binary Search Tree of following nodes 45, 50, 67, 34, 0, 24, 88, 30, 99,10	08	5	4
	c	Describe Hashing and its components. List out Hashing methods and explain in short.	08	6	2



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250059

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 (An Autonomous Institute)
 End Semester Exam

Class-Program	FYBTech	Day & Date	Tuesday, 13-01-2026
Course Code	01FYBSL103	Time	10:30 AM to 1:00 PM
Course Title	Engineering Chemistry	Max. Marks	70

Instructions:

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Q.No.		Marks	CO	BL
1	All MCQ's are Compulsory			
a	RO method is also called as... A) Neutralization B) Solidification C) Oxidation D) Desalination	01	1	2
b	Calorific Value of gaseous fuel is A) Highest B) Medium C) Lowest D) None of these	01	2	2
c	Duralumin contains.....% of Cu A) 4% B) 5% C) 10% D) 0%	01	1	1
d	Bakelite is formed from A) urea & formaldehyde B) Styrene & butadiene C) phenol & formaldehyde D) polyethylene	01	1	1
e	Electrolyte used during electroplating is A) Salt solution B) Salt solution of coating metal C) Water D) Acid	01	1	2
f	GLC consists of ... A) Mobile Phase B) Stationary Phase C) Both A & B D) None of these	01	3	2
2	Solve Any Two			
a	Give composition, properties and uses of glass reinforced plastics (GRP).	08	2	1
b	Discuss advantages and disadvantages of instrumental methods.	08	3	1
c	Explain the reverse osmosis technique for water treatment.	08	1	2

0-20 Nil
 21-27 A1
 49-70 A1
 28-48 5/1

Q.No.		Marks	CO	BL												
3	Solve Any Two															
	a	Derive an expression for Beer Lambert's law.	08	3	2											
	b	Define an alloy. Explain purposes of making alloys.	08	2	1											
	c	A sample of water on analysis was found to contain the following impurities; <table style="margin-left: 40px; border: none;"> <tr> <td></td> <td style="text-align: center;">Wt. mg/lit</td> <td style="text-align: center;">Mol. wt.</td> </tr> <tr> <td>Ca(HCO₃)₂</td> <td style="text-align: center;">19</td> <td style="text-align: center;">162</td> </tr> <tr> <td>Mg(HCO₃)₂</td> <td style="text-align: center;">17</td> <td style="text-align: center;">146</td> </tr> <tr> <td>MgSO₄</td> <td style="text-align: center;">20</td> <td style="text-align: center;">120</td> </tr> </table> Calculate carbonate, non carbonate and total hardness of water in ppm		Wt. mg/lit	Mol. wt.	Ca(HCO ₃) ₂	19	162	Mg(HCO ₃) ₂	17	146	MgSO ₄	20	120	08	3
	Wt. mg/lit	Mol. wt.														
Ca(HCO ₃) ₂	19	162														
Mg(HCO ₃) ₂	17	146														
MgSO ₄	20	120														
4	Solve Any Two															
	a	Define electrochemical corrosion. Illustrate hydrogen evolution mechanism with example	08	2	1,2											
	b	With neat labelled diagram, explain the construction and working of Bomb calorimeter	08	1,3	2											
	c	Define polymerisation. Discuss condensation polymerisation with example.	08	1	1,2											
5	Solve Any Two															
	a	Discuss the factors influencing the rate of corrosion.	08	2	2											
	b	In Boys Calorimeter experiment following observations were made i) Volume of fuel sample burnt = 0.09 m ³ ii) Wt. of circulated through copper tube = 30.5 kg. iii) Wt. of steam condensed = 0.035 kg iv) Rise in temperature = 10 °C v) Latent heat of condensation of steam = 587 K Cal/kg vi) Specific heat of water = 4.18 KJ/Kg °C Calculate the gross and net calorific value of the fuel.	08	3	2											
	c	Give structure, properties and uses of Urea Formaldehyde resin.	08	1	1											

PRN NO

QP. CODE

25W054

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 (An Autonomous Institute)
 End Semester Exam

Class-Program	First Year B. Tech- Semester – I
Course Code	01FY E SL108
Course Title	Fundamentals of Programming Language

Day & Date	Saturday, 10-01-2026
Time	10:30 am to 1:00 pm
Max. Marks	70

Instructions:

- All questions are compulsory; assume suitable data if necessary and mention it clearly.
- Mobile phones and programmable calculators are strictly prohibited.
- Writing anything on question paper (except PRN), exchange/sharing of stationery, calculator etc. are not allowed.

Q.no.		Marks	CO	BL
	All MCQ's are Compulsory			
1	a	01	CO1	L1
	Which of the following is a correct C program structure? <input checked="" type="checkbox"/> a) Documentation → Global → main() → Subprograms b) main() → Global → Subprograms c) Subprograms → main() d) Global → Documentation → main()			
	b	01	CO2	L1
	Which loop executes at least once even if the condition is false? a) for b) while <input checked="" type="checkbox"/> c) do-while d) switch			
	c	01	CO3	L1
	String in C is terminated by a) '\n' <input checked="" type="checkbox"/> b) '\0' c) EOF d) space			
	d	01	CO4	L1
	Which operator gives the address of a variable? a) * <input checked="" type="checkbox"/> b) & c) -> d) %			
	e	01	CO5	L1
	Structure members are accessed using a): b) -> <input checked="" type="checkbox"/> c) . d) *			
	f	01	CO6	L1
	A function with no arguments and no return value is declared as a) int fun(void) b) void fun(int a) c) <input checked="" type="checkbox"/> void fun(void) d) int fun(int a)			

2	Solve Any Two				
	a	Describe different types of operators in c language	08	CO1	L2
	b	Write a C program to display months using switch case statement	08	CO2	L3
	c	What is Array? Explain declaration, accessing and initialization in detail with example.	08	CO3	L2
3	Solve Any Two				
	a	Explain basic structure of C program	08	CO1	L2
	b	Describe the following term with example 1) For loop 2) if else-if ladder	08	CO2	L2
	c	Write a C program to accept elements in 2D array 4*3 from user & display the same	08	CO3	L3
4	Solve Any Two				
	a	What is pointer? Explain pointer declaration in detail with example	08	CO4	L2
	b	Explain the difference between array and structure	08	CO5	L4
	c	Write a C program to calculate the area of a circle using a function	08	CO6	L3
5	Solve Any Two				
	a	Explain pointer notations in detail	08	CO4	L2
	b	Write C program to store information of a student like roll no, name, marks and display using Structure	08	CO5	L3
	c	Explain different elements of user defined functions with example	08	CO6	L2

9.1
a. a
b. c
c. b
d. b
e. c
f. c

- 2a) → 1) arithmetic
2) Relational
3) logical
4) Assignment
5) Increment & Decrement
6) Bitwise
7) conditional op -
8) special operator

```
int main
{
int month;
printf("Enter month no. (1-12)");
scanf("%d", &month);
switch(month)
{
case 1:
printf("Jan");
break;
```

- 3a) Documentation
2) link section
3) Definition
4) global declaration
5) main()
6) sub program

```
case 12
break;
0-20 - Nil default;
21-27 - All
49-70 - All
28-48 - 1
printf("Invalid month");
return 0;
```

eg - 2

PRN NO

25UIT019

QP. CODE

25W062

Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur
 (An Autonomous Institute)
 End Semester Exam

Class-Program	F.Y.B.Tech.
Course Code	01FYBSL102
Course Title	Engineering Physics

Day & Date	Wednesday 14-01-2016
Time	10.30 am to 1.00 pm
Max. Marks	70

Instructions:

- All questions are compulsory; assume suitable data if necessary and mention it clearly.
- Mobile phones and programmable calculators are strictly prohibited.
- Writing anything on question paper (except PRN), exchange/sharing of stationery, calculator etc. are not allowed.

Physical constants: -

- i) Avogadro's Number, $N=6.02 \times 10^{26}$ / kg.atom
 iii) Electronic charge, $e = 1.6 \times 10^{-19}$ C
 v) Planck's constant, $h=6.63 \times 10^{-34}$ J.s

- ii) Mass of electron = 9.1×10^{-31} kg
 iv) Speed of light, $C=3 \times 10^8$ m/s

Q.no.		Marks	CO	BL
1	Choose correct alternative from the following questions			
	a The velocity of the ordinary ray in a uniaxial crystal is i) Same in all directions ii) Different in all directions iii) Maximum along optic axis iv) Minimum along optic axis	1	1	K ¹
	b What is the full form of LASER? i) Light Absorbtion and Stimulated Emission of Radiations ii) Light Absorbing Solar Energy Resource iii) Light Amplification by Stimulated Emission of Radiations iv) Light Amplification of Singular Emission of Radiations	1	1	K ¹
	c According to Sabine's formula, reverberation time is directly proportional to the i) effective absorbing surface area ii) volume iii) both (i) and (ii) iv) none of these	1	1	K ¹
	d The number of atoms per unit cell of BCC structure is: i) one ii) two iii) three iv) four	1	1	K ¹
	e The colour of the nano gold particles is _____ i) Yellow ii) Orange iii) Red iv) Variable with size	1	1	K ¹
	f Wave is associated with a matter particle when i) it is stationary ii) it is in motion with the velocity of light only iii) it is in motion with any velocity iv) None of the above	1	1	K ¹
2	Solve Any Two			
	a Define resolving power of grating & obtain an expression for it.	8	2	K ²
	b i) Explain the conditions of light amplification and hence explain the term population inversion. ii) Explain various pumping techniques used in laser.	4	2	K ²
	c Explain the term reverberation. State basic requirements of acoustically good hall.	4	2	K ²
		8	2	K ²

Q.no.		Marks	CO	BL	
3	Solve Any Two				
	a	i) Define: Optic axis, principal plane, principal section, Anisotropic medium ii) Explain the double refraction phenomenon in calcite	4	2	K ²
	b	i) State and explain characteristics of laser ii) With neat diagram explain how hologram is recorded	4	2	K ²
	c	i) How many orders will be observed by a grating having 15000 lines per inch if it is illuminated by a light of wavelength 6328 Å? ii) A hall of volume 1586 m ³ is found to have a reverberation time of 2 sec. If the area of sound absorbing surface is 650 m ² , calculate the average absorption coefficient	4	3	K ³
4	Solve Any Two				
	a	Define atomic radius and find its values for SC, BCC and FCC lattice	8	2	K ²
	b	What is top down and bottom up approach of synthesis of nano material? Discuss ball milling method.	8	2	K ²
	c	i) State any four properties of matter waves ii) State and explain Compton effect	8	2	K ²
5	Solve Any Two				
	a	What is nanomaterial? Explain various applications of nanomaterial.	8	2	K ²
	b	What are Miller indices? With suitable diagram explain the rules for finding Miller indices of a crystal plane. Mention some important features of miller indices.	8	2	K ²
	c	i) X-rays of wavelength 0.3 Å are incident on a crystal with interplaner spacing 0.5 Å. Find the angle at which second order Bragg's diffraction maxima is observed. ii) Compute the de Broglie wavelength associated with a proton moving with 5% of the velocity of light. Given: mass of proton is 1836 times the mass of an electron.	4	3	K ³