	Pimpri Chinchwad Education Trust's **Pimpri Chinchwad University** **Sate Maval, Pune**	**Record No.: ACAD/R/20** **Revision: 00** **Date: 03.10.25**
Class Test Examination-I		

(22) 'L'

First Year B. Tech. (ALL)
Linear Algebra & Differential Calculus (UBTFY101)
ODD Semester (2025-26)

Total No. of Questions-02 *Total No. of Printed Pages-02*

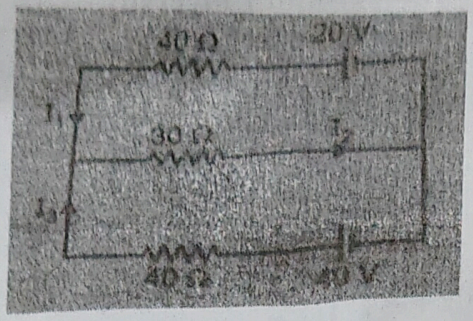
[Time: 1 Hr. 00 min.] *[Max. Marks: 20]*

PRN										

Instructions:

IMP: Verify that you have received a question paper with correct course, code, branch etc.
i. All questions are compulsory.
ii. Assume suitable data wherever necessary.
iii. Neat labeled diagrams must be drawn wherever necessary.
iv. Figure to right indicates full marks.
v. Use of a non-programmable calculator is allowed.

		Marks	CLO No.
Q.1	**Attempt two of the following.**	**[10]**	**CLO1**
A	Investigate For what values of a & b, the system $2x - y + 3z = 2,\ x + y + 2z = 2,\ 2x - y + az = b$ has 1. No solution 2. Unique solution 3. Infinite number of solutions	**[5]**	**CLO1**
B	Examine for the linear dependence or independence for the given vectors and if dependent, find the relation between them $X_1 = (1, 2, -1, 0);\ X_2 = (2, 4, -2, 1);\ X_3 = (3, 6, -3, 2);$ & $X_4 = (4, 8, -4, 3);$	**[5]**	**CLO1**

C	Calculate the current flow in the given electric circuit by using matrix method:  	[5]	CLO1
Q.2	**Attempt two of the following.**	[10]	
A	If A is a 3×3 matrix whose eigenvalues are $3,2, K$ *and* $\det(A) = 30$. then find 1. K 2. $trace(A)$ 3. $Eigenvalues\ of\ A^{-1}$ 4. Eigenvalues of A^2 5. Eigenvalues of $A - 3I$	[5]	CLO2
B	Find Modal Matrix P which diagonalizes the given matrix $A = \begin{bmatrix} 4 & 1 \\ 2 & 3 \end{bmatrix}$	[5]	CLO2
C	Using Cayley Hamilton Theorem find A^4 for given matrix $A = \begin{bmatrix} 2 & 2 & 0 \\ 2 & 1 & 1 \\ -7 & 2 & -3 \end{bmatrix}$	[5]	CLO2

****** End of Question Paper******

"PCU"	Pimpri Chinchwad Education Trust's **Pimpri Chinchwad University** **Sate Maval, Pune**	**Record No.: ACAD/R/20** **Revision: 00** **Date: 04/10/2025**
Unit Test Examination		

First Year B. Tech. (ALL)
Procedural Programming (UBTFY114)
ODD Semester (2025-26)

Total No. of Questions-II *Total No. of Printed Pages-01*

[Time: 01 Hr. 00 min.] *[Max. Marks: 20]*

PRN										

Instructions:
IMP: Verify that you have received a question paper with correct course, code, branch etc.
i. All questions are compulsory.
ii. Assume suitable data wherever necessary.
iii. Neat labeled diagrams must be drawn wherever necessary.
iv. Figure to right indicates full marks.
v. Use of a non-programmable calculator is allowed.

Q. No	Questions	Marks	CLO No.
Q.1	Attempt two of the following.	10	
A	Define Flowchart and Explain any four symbols used in drawing flowchart with an example flowchart.	5	CLO 1
B	List all the sections of the structure of a C program and explain any three of these sections in detail.	5	CLO 1
C	Explain in detail formatted Input and Formatted Output functions with syntax in C language.	5	CLO 1
Q.2	Attempt two of the following.	10	
A	Describe syntax of if-else statements in C programming with example programs.	5	CLO 2
B	Describe nested if-else statements with the help of Syntax and Flowchart.	5	CLO 2
C	Write a C Program to check if the number is positive or negative or zero. Take input from the user.	5	CLO 2

****** End of Question Paper******

	Pimpri Chinchwad Education Trust's **Pimpri Chinchwad University** **Sate Maval, Pune**	**Record No.:** ACAD/R/20 **Revision: 00** **Date: 06/10/25**
Unit Test Examination		

First Year B. Tech. (G to L)
Engineering Graphics (UBTFY107-I)
ODD Semester (2025-26)

Total No. of Questions-IV *Total No. of Printed Pages-01*

[Time: 1 Hr.] *[Max. Marks: 20]*

PRN										

Instructions:

i. Solve Q1. A OR B And Q2. A OR B.
ii. Assume suitable data wherever necessary.
iii. Figure to right indicates full marks.

		Marks	CLO No.
Q.1	**Attempt Any one question from the following.**		
A	The point A of line AB is 15 mm above HP and in VP. The front view and top view of line makes 40° and 35° with HP and VP respectively. Draw the projections if the projector distance between end points of the line is 60 mm. Find true length and true inclinations.	10	CLO1
B	End P of line PQ is 10 mm above HP and 20 mm in front of VP. Line is inclined at 30° to HP and elevation makes 45° with HP. True length is 80 mm. Draw the projections.	10	CLO1
Q.2	**Attempt Any one question from the following.**		
A	A rhombus having longer diagonal 60 mm and smaller diagonal 30 mm , rest on HP on one of its corner so that longer diagonal inclined at 45° to HP while smaller diagonal inclined at 35° to VP.	10	CLO2
B	A triangular plane side 55mm, 50 mm and 40 mm is resting on HP on its larger side. Its top view is a right angled triangle. The Larger side making an angle of 50° with VP. Draw the projection.	10	CLO2

****** End of Question Paper******

	Pimpri Chinchwad Education Trust's **Pimpri Chinchwad University** **Sate Maval, Pune**	**Record No.:** ACAD/R/20 **Revision: 00** **Date:** 07-10-2025
Class Test 1		

First Year B. Tech. (ALL)
Engineering Physics (UBTFY103)
ODD Semester (2024-25)

Total No. of Questions-02 *Total No. of Printed Pages-01*

[Time: 1 Hr] *[Max. Marks: 20]*

PRN											

Instructions:
IMP: Verify that you have received a question paper with correct course, code, branch etc.
i. All questions are compulsory.
ii. Assume suitable data wherever necessary.
iii. Neat labeled diagrams must be drawn wherever necessary.
iv. Figure to right indicates full marks.
v. Use of a non-programmable calculator is allowed.

		Marks	CLO No.
Q.1	**Attempt two of the following.**	**10**	
A	Derive an expression for path difference in Young's double slit experiment and obtain the conditions of constructive and destructive interference.	**5**	**1**
B	What is Optical fiber? Explain the principle on which it works.	**5**	**1**
C	A parallel beam of light 632 nm incident at an angle 30° on a glass plate of refractive index 1.5. Calculate the thickness of glass plate which will appear dark by reflection.	**5**	**1**
Q.2	**Attempt two of the following.**	**10**	
A	Difference between Crystalline solid and Amorphous solid.	**5**	**2**
B	Define a) Basis, b) Lattice, c) Translational vector, d) Translational symmetry, e) Unit cell.	**5**	**2**
C	(i) Calculate the Atomic Packing Fraction of Simple Cubic (SC) Crystal Structure. (3 Marks) (ii) Calculate the miller indices of plane with intercepts (2,2,3). (2 Marks)	**5**	**2**

****** End of Question Paper******