LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
L.B. Reddy Nagar :: Mylavaram-521 230 :: NTR Dist. :: A.P
Approved by AICTE, New Delhi. Affiliated to JNTUK, Kakinada

B.Tech. (I Semester) (R23) Semester End Examinations (Regular & Supplementary) – January 2026

TIME TABLE

R23

A.Y. : 2025-26

Branch	20-01-2026 (Tuesday)	22-01-2026 (Thursday)	24-01-2026 (Saturday)	27-01-2026 (Tuesday)	29-01-2026 (Thursday)	31-01-2026 (Saturday)	
Time	10.00 AM to 01.00 PM	10.00 AM to 01.00 PM	10.00 AM to 01.00 PM	10.00 AM to 01.00 PM	10.00 AM to 01.00 PM	10.00 AM to 01.00 PM	02.00 PM to 05.00 PM
AI & DS	23FE01 - Communicative English	23FE02 - Chemistry	23CS01 - Introduction to Programming	23CM01 - Basic Civil and Mechanical Engineering	23FE03 - Linear Algebra and Calculus	--	--
ASE	23FE01 - Communicative English	23FE04 - Engineering Physics	23ME01-Engineering Graphics	23CM01 - Basic Civil and Mechanical Engineering	23FE03 - Linear Algebra and Calculus	--	--
CE	23FE01 - Communicative English	23FE04 - Engineering Physics	23ME01- Engineering Graphics	23CM01 - Basic Civil and Mechanical Engineering	23FE03 - Linear Algebra and Calculus	--	--
CSE	23FE01 - Communicative English	23FE02 - Chemistry	23CS01 - Introduction to Programming	23CM01 - Basic Civil and Mechanical Engineering	23FE03 - Linear Algebra and Calculus	--	--
CSE (AI & ML)	23FE01 - Communicative English	23FE02 - Chemistry	23CS01 - Introduction to Programming	23CM01 - Basic Civil and Mechanical Engineering	23FE03 - Linear Algebra and Calculus	--	--
ECE	23FE01 - Communicative English	23FE04 - Engineering Physics	--	23EE01 - Basic Electrical and Electronics Engineering	23FE03 - Linear Algebra and Calculus	23ME01- Engineering Graphics	--
EEE	23FE01 - Communicative English	23FE04 - Engineering Physics	--	23EE01 - Basic Electrical and Electronics Engineering	23FE03 - Linear Algebra and Calculus	--	23ME01-Engineering Graphics
IT	23FE01 - Communicative English	23FE02 - Chemistry	23CS01 - Introduction to Programming	23CM01 - Basic Civil and Mechanical Engineering	23FE03 - Linear Algebra and Calculus	--	--
ME	23FE01 - Communicative English	23FE04 - Engineering Physics	23ME01 - Engineering Graphics	23CM01 - Basic Civil and Mechanical Engineering	23FE03 - Linear Algebra and Calculus	--	--

Note(s): 1. Any omissions or clashes in the time table may please be informed to the Controller of Examinations immediately. 2. There is no objective paper for Engineering Graphics subject.

Date: 02-01-2026

CONTROLLER OF EXAMINATIONS

PRINCIPAL

Copy to: 1. Vice-Principal, Deans & HoDs 2. T&P cell, Transport Coordinator & Librarian
3. Canteen, PD, Security & Hostels 4. Coordinator-Disciplinary 5. Notice Boards

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20 JAN 2026

R23

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

L.B.Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist. :: A.P.

B.Tech. (I Semester) Regular/Supplementary Examinations

23FE01-COMMUNICATIVE ENGLISH

(Common to All)

Time : 3 hours Max. Marks : 70

Q.No	Compulsory Question	Marks	CO	BL
1(a)	What had Jim done to give a gift to his wife?	2M	CO1	L1
(b)	**Identify and write Roots words for the following words:** (i) happiness (ii) contentment.	2M	CO1	L1
(c)	What kind of landscape is described in the first three stanzas?	2M	CO3	L1
(d)	Define Homonyms and Homographs.	2M	CO3	L1
(e)	What is SpaceX and what has been its impact on space exploration?	2M	CO2	L1
(f)	What is called Note-making?	2M	CO3	L1
(g)	What expectations did the children have from their uncle's toys?	2M	CO2	L1
(h)	**Rewrite the following sentences in Indirect speech:** (i) Harsha said,' I am returning to Nagpur next Monday." (ii) 'Mani writes very well', said her friend.	2M	CO2	L1
(i)	How does intrapersonal communication help us overcome challenges?	2M	CO1	L1
(j)	Write any *FOUR* technical vocabulary of *Electrical Engineering*.	2M	CO2	L1

Q.No	All questions carry equal marks	Marks	CO	BL
2(a)	Write a note on the different ways in which O. Henry tells his readers about the financial situation of the couple.	5M	CO1	L1
(b)	Write the differences between Content word and Function word.	5M	CO3	L1
	(OR)			
3(a)	How do Jim's and Della's actions symbolize the strength of their love for each other?	5M	CO1	L1
(b)	**Punctuate the following sentences correctly and capitalize words where required:** (i) i need assistant who can do the following input data write reports and complete tax forms (ii) its lovely day today isnt it I want to go the park but im not sure if its open.	5M	CO2	L3
4.	**Write a descriptive paragraph of about 200 words on <u>one</u> of the following topics:** (i) Privacy in the internet age (ii) Pets: do we need them?	10M	CO1	L3
	(OR)			
5(a)	Explain what you think is meant by the lines 'For men may come and men may go, / But I go on forever'. What does it say about Nature?	5M	CO1	L2
(b)	**Fill in the blanks with suitable prepositions:** (i) He lives _____ 19 Tower Road. (ii) We will be gone _____ two days. (iii) Sharma and his friends will divide the money _____ themselves. (iv) I will arrive _____ six o'clock. (v) I have known her _____last year.	5M	CO2	L1
6(a)	In what way has Musk proved to be a visionary leader of cutting-edge technology? Discuss with relevant examples.	5M	CO1	L2

<table>
<tr><td>(b)</td><td>Fill in the blanks with the correct forms of the verbs in brakcets:
(i) Raman _____ (live) in Chennai for 15 years.
(ii) My friend promised to drop in next week but I don't think he will be able to come as he _____ (travel).
(iii) Suraj _____ (love) going to parties ith his friends.
(iv) I have _____ (read) many books in the last one year.
(v) He has been _____ (wear) this expensive watch for quite some time now.</td><td>5M</td><td>CO2</td><td>L2</td></tr>
<tr><td colspan="5">(OR)</td></tr>
<tr><td>7(a)</td><td>Explain the following works of Elon Musk:
(i) x.com and Pay Pal
(ii) SpaceX: The Mars Pioneer</td><td>5M</td><td>CO1</td><td>L2</td></tr>
<tr><td>(b)</td><td>Fill in the blanks with the correct forms of the verbs in brackets:
(i) How have you been _____? (do)
(ii) Keep _____ (guess) the answers till you get them right.
(iii) Were you _____ (pay) attention to what was being said?
(iv) The last candidate interviewed _____ (score) much better than the rest.
(v) Ravi _____(teach) for six years at the computer institute by the time his father.</td><td>5M</td><td>CO2</td><td>L2</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>8(a)</td><td>Do you think Harvey and Eleanor's experiment failed? Justify your answer.</td><td>5M</td><td>CO1</td><td>L3</td></tr>
<tr><td>(b)</td><td>Convert the following table information into a passage:
<table>
<tr><th>ID Code</th><th>Project name</th><th>Time</th><th>Budget (Rs.)</th></tr>
<tr><td>1001</td><td>Corporate Web Site</td><td>2 Years</td><td>1, 912,000.00</td></tr>
<tr><td>1002</td><td>Year 2008 Fixes</td><td>1 Year</td><td>99,998,000.00</td></tr>
<tr><td>1003</td><td>Accounting System Implementation</td><td>2 Years</td><td>897,000.00</td></tr>
<tr><td>1004</td><td>Data Warehouse Maintenance</td><td>2 Years</td><td>294,000.00</td></tr>
<tr><td>1005</td><td>TCP Implementation</td><td>2 Years</td><td>425,000.00</td></tr>
</table></td><td>5M</td><td>CO1</td><td>L3</td></tr>
<tr><td colspan="5">(OR)</td></tr>
<tr><td>9.</td><td>Write a request letter to the principal to allow you to celebrate the New Year celebrations.</td><td>10M</td><td>CO5</td><td>L3</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>10(a)</td><td>Reflect on the ways in which you can incorporate intrapersonal communication in your own life. Describe these.</td><td>5M</td><td>CO1</td><td>L3</td></tr>
<tr><td>(b)</td><td>Write an essay on any ONE of the following topics:
(i) Social Media: a curse or boon?
(ii) The role of the youth in nation building.</td><td>5M</td><td>CO5</td><td>L3</td></tr>
<tr><td colspan="5">(OR)</td></tr>
<tr><td>11(a)</td><td>Explain the following concepts of Intrapersonal Communication:
(i) Intrapersonal Communication and Decision-making
(ii) Intrapersonal communication and personal growth.</td><td>5M</td><td>C02</td><td>L3</td></tr>
<tr><td>(b)</td><td>Rewrite the following sentences correctly:
(i) When did they arrived?
(ii) You must take lunch with us.
(iii) Do you know where does she come from?
(iv) The cold air affected him greatly.
(v) The bag was very heavy that I could not carry it.</td><td>5M</td><td>CO2</td><td>L2</td></tr>
</table>

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22 JAN 2026

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LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

L.B.Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist. :: A.P.

B.Tech. (I Semester) Regular/Supplementary Examinations

23FE02-CHEMISTRY

(AI&DS,CSE,CSE(AI&ML) and IT)

Time : 3 hours Max. Marks : 70

Q.No	Compulsory Question	Marks	CO	BL
1(a)	Write the mathematical form of Heisenberg's uncertainty principle.	2M	CO1	L1
(b)	State de Broglie hypothesis.	2M	CO1	L1
(c)	Distinguish between conductors and semiconductors.	2M	CO2	L1
(d)	Compare energy density of batteries and supercapacitors.	2M	CO2	L1
(e)	Give any two advantages of conductometric titration over indicator titration.	2M	CO3	L1
(f)	What is the role of the working electrode in an electrochemical sensor?	2M	CO3	L1
(g)	What is functionality?	2M	CO4	L1
(h)	Write the monomers of Buna-S rubber.	2M	CO4	L1
(i)	What happens to absorbance if the concentration of a solution is doubled?	2M	CO5	L1
(j)	Write the differences between spectrum and spectrophotometer.	2M	CO5	L1
Q.No	**All questions carry equal marks**	**Marks**	**CO**	**BL**
2(a)	Explain the significance of Ψ and Ψ^2.	5M	CO1	L2
(b)	Draw a neat molecular orbital theory diagram for O_2 molecule, calculate bond order and magnetic behavior of oxygen molecule.	5M	CO1	L2
	(OR)			
3(a)	How the bond order of a molecule is calculated? Give its significance.	5M	CO1	L2
(b)	Discuss about the π-molecular orbitals of butadiene with a neat diagram.	5M	CO1	L2
4.	Write briefly about the P-type and N-type semiconductors.	10M	CO2	L2
	(OR)			
5(a)	What is a superconductor? Discuss the critical temperature of superconductors.	5M	CO2	L2
(b)	Discuss about the types of the super capacitors in brief.	5M	CO2	L2
6(a)	Describe the construction and working of Zn-air battery with relevant reactions occurring during discharge.	5M	CO3	L2
(b)	What is an electrochemical sensor? Discuss about the potentiometric sensors with example.	5M	CO3	L2
	(OR)			
7(a)	Discuss about the potentiometric titrations.	5M	CO3	L2
(b)	What is a fuel cell? Describe the construction and working of hydrogen-oxygen fuel cell.	5M	CO3	L2
8(a)	What are the differences between addition polymerization and condensation polymerization?	5M	CO4	L2
(b)	Give the detailed preparation of Nylon-6,6 with chemical reactions, write the properties and engineering uses of Nylon-6,6.	5M	CO4	L2
	(OR)			
9.	Give the detailed preparation of phenol-formaldehyde resin with chemical reactions, write the properties and engineering uses of Bakelite.	10M	CO4	L2
10(a)	Explain the principle, instrumentation and working of UV-Visible spectroscopy with a neat diagram.	5M	CO5	L2
(b)	Discuss the importance of finger print region in infrared spectroscopy.	5M	CO5	L2
	(OR)			
11(a)	Explain Beer–Lambert's law in detail. Write the equation and discuss its applications and limitations.	5M	CO5	L2
(b)	Write a short note on chromatography and its basic principle.	5M	CO5	L2

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B.Tech. (I Semester) Regular/Supplementary Examinations

Revised 22/1/26

23FE04-ENGINEERING PHYSICS

(ASE,CE,ECE,EEE&ME)

Time : 3 hours Max. Marks : 70

Q.No	Compulsory Question	Marks	CO	BL
1(a)	What is interference? Why Newton's rings are circular?	2 M	CO1	L1
(b)	What are the various types of polarization? How do you represent them?	2 M	CO1	L2
(c)	Define the following (1) crystal lattice (2) coordination number	2 M	CO2	L1
(d)	What are the important features of Miller indices?	2 M	CO2	L1
(e)	Write the differences between polar dielectrics and non-polar dielectrics.	2 M	CO3	L2
(f)	Draw B-H curve for ferro magnetic materials and represent retentivity and coercivity on the curve.	2 M	CO3	L3
(g)	What are matter waves? Write the properties of matter waves.	2 M	CO4	L2
(h)	Mention the drawbacks of quantum free electron theory.	2 M	CO4	L1
(i)	What is drift current and diffusion current in semiconductors?	2 M	CO5	L1
(j)	Write any two differences between intrinsic and extrinsic semiconductors.	2 M	CO5	L2
Q.No	**All questions carry equal marks**	**Marks**	**CO**	**BL**
2(a)	Explain the formation of Newton's rings with a neat diagram. Determine the wavelength of sodium light using Newton's rings experiment.	5M	CO1	L2
(b)	Calculate the wavelength of light used in a Newton's rings experiment if the diameter of 15^{th} ring is 0.59 cm and that of the 5^{th} ring is 0.336 cm and the radius of the plano convex lens is 100 cm.	5M	CO1	L3
	(OR)			
3(a)	Describe the Fraunhoffer diffraction pattern obtained with a single slit with a neat diagram.	5M	CO1	L2
(b)	What are the various applications of polarized light?	5M	CO1	L1
4.	Obtain the expressions for atomic radius, nearest neighbouring distance, coordination number and packing fraction for FCC lattice.	10M	CO2	L1
	(OR)			
5(a)	Derive an expression for interplanar spacing in case of cubic structure.	5M	CO2	L3
(b)	Copper has FCC structure and the atomic radius is 0.1278 nm. Calculate the interplanar spacing for (1 1 0) plane.	5M	CO2	L3
6(a)	Deduce an expression for Lorentz field relating to a dielectric materials.	5M	CO3	L3
(b)	Distinguish between soft and hard magnetic materials.	5M	CO3	L2
	(OR)			
7(a)	Write the properties of Dia, Para and Ferro magnetic materials.	5M	CO3	L2
(b)	Derive clausius – Mosotti relation in dielectrics subjected to static fields.	5M	CO3	L3
8(a)	Derive the time independent Schrodinger wave equation.	5M	CO4	L3
(b)	State and explain Fermi-Dirac distribution function.	5M	CO4	L2
	(OR)			
9.	Apply Schrodinger's wave equation to the case of a particle in one dimentional box and show that the energies of the particle are quantized.	10M	CO4	L3
10(a)	Derive the expressions for carrier concentration in p-type extrinsic semiconductors.	5M	CO5	L3
(b)	Draw the energy band diagram at 0 K and room temperature for intrinsic semiconductor.	5M	CO5	L3
	(OR)			
11(a)	What is Hall effect? Derive the expressions for Hall co-efficient and Hall voltage.	5M	CO5	L2
(b)	Mention the applications of Hall Effect.	5M	CO5	L1

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B.Tech. (I Semester) Regular/Supplementary Examinations

Dec 2025 24/01/26

23CS01-INTRODUCTION TO PROGRAMMING

(AI&DS,CSE,CSE(AI&ML) and IT)

Time : 3 hours

Max. Marks : 70

Q.No	Compulsory Question	Marks	CO	BL
1(a)	What is meant by type conversion?	2M	CO1	L1

(b)	What is the output for the below program? Is there any logical error? If yes, what is the error?
	int main()
	{
	// Comments /
	printf("Monday \n");
	printf("Tuesday \n");
	printf("Wednesday \n ");
	return 0;
	}
		2M	CO5	L2

(c)	What is the difference between while and do-while loop?	2M	CO2	L2

(d)	What is the output for the below program?
	#include<stdio.h>
	int main()
	{
	float me = 5.25;
	double you = 5.25;
	if(me == you)
	printf("Hello");
	else
	printf("Hai");
	return 0;
	}
		2M	CO5	L2

(e)	Write the general form of array declaration. Give an example.	2M	CO3	L2
(f)	What is the purpose of null character (\0)?	2M	CO3	L2
(g)	What is pointer arithmetic? Give an example.	2M	CO4	L2
(h)	Write the syntax for declaring a structure and give an example.	2M	CO4	L2
(i)	What is a recursive function?	2M	CO5	L2
(j)	List any two built-in functions in C.	2M	CO5	L2

Q.No	All questions carry equal marks	Marks	CO	BL
2(a)	Discuss the steps involved in developing a computer program.	5M	CO1	L2
(b)	Develop an algorithm and flowchart to find the GCD of two numbers using the Euclidean method.	5M	CO1	L3
	(OR)			
3(a)	Develop an algorithm and flowchart to generate prime numbers up to the given range 'n'.	5M	CO1	L3
(b)	Explain time and space complexities of algorithms with examples.	5M	CO1	L2
4(a)	Write a C program using if-else ladder to find the grade of a student based on marks obtained in an exam.	5M	CO3	L3
(b)	Write a C program to display the day of the week using switch statement.	5M	CO3	L3
	(OR)			
5(a)	Write a C program to check whether a number is a palindrome using do-while loop.	5M	CO3	L3
(b)	Write a C program to print numbers from 1 to 100 skipping multiples of 5.	5M	CO3	L3
6(a)	Explain array indexing and memory model of one-dimensional arrays with an example.	5M	CO2	L2
(b)	Write a C program to perform matrix multiplication using two-dimensional arrays.	5M	CO3	L3
	(OR)			
7(a)	Write a C program to read and display elements of a one-dimensional array.	5M	CO3	L3
(b)	Write a C program to count the number of vowels, consonants, digits, and special characters in a string.	5M	CO3	L3
8(a)	Write a C program to find the largest element in an array using pointers.	5M	CO3	L3
(b)	Write a C program using pointers to structures and explain the execution flow.	5M	CO4	L3
	(OR)			
9(a)	Write a C program to display the value and address of a variable using dereferencing and address operators.	5M	CO4	L3
(b)	Write a C program using an array of structures to store details of n employees and display them.	5M	CO4	L3
10(a)	Explain the advantages of using functions in program development and demonstrate with a suitable example.	5M	CO5	L2
(b)	Write a C program to copy the contents of one file into another file.	5M	CO5	L3
	(OR)			
11(a)	Differentiate between call by value and call by reference with suitable examples.	5M	CO5	L2
(b)	Differentiate between local, global, and static variables based on scope and lifetime.	5M	CO2	L2

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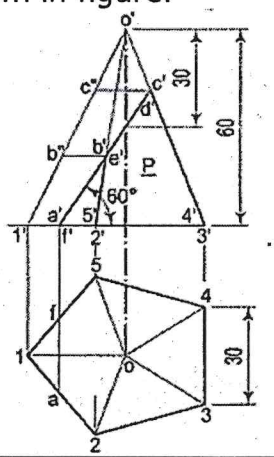
B.Tech. (I Semester) Regular/Supplementary Examinations

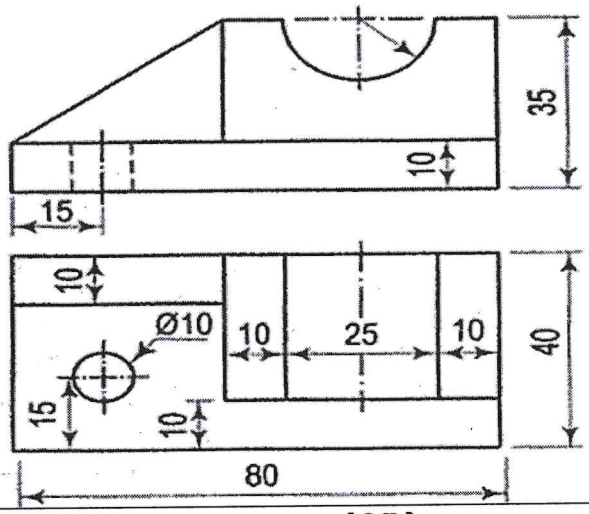
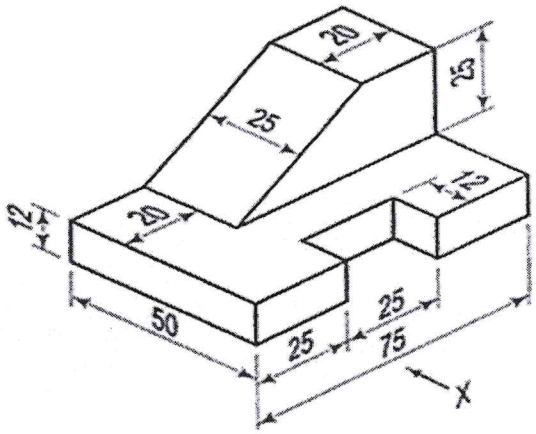
Dasari 24/01/26

23ME01-ENGINEERING GRAPHICS

(ASE,CE & ME)

Time : 3 hours Max. Marks : 70

Q.No	All questions carry equal marks	Marks	CO	BL
1.	To construct an ellipse when the distance of the focus from the directrix is equal to 65 mm and eccentricity is 2/3. Draw a tangent and norma 30 mm from focus.	14M	CO1	L2
	(OR)			
2.	A regular pentagonal plate of 20 mm side is fixed at its centre. An in elastic rope is circumscribed along the perimeter of the pentagonal plate. Draw the path of free end of the rope when it is unwounded keeping, tight for one complete turn.	14M	CO1	L2
3(a)	State the quadrants in which the following points are situated: (i) A point P; its top view is 40 mm above xy; the front view, 20 mm below the top view. (ii) A point Q, its projections coincide with each other 40 mm below xy.	7M	CO2	L2
(b)	A line AB, 75 mm long, is inclined at 45° to the H.P. and 30° to the V.P. Its end B is in the H.P. and 40 mm in front of the V.P. Draw its projections.	7M	CO2	L2
	(OR)			
4.	Draw the projections of a circle of 50 mm diameter, having its plane vertical and inclined at 30° to the V.P. Its centre is 30 mm above the H.P. and 20 mm in front of the V.P.	14M	CO2	L2
5.	A hexagonal pyramid, base 25 mm side and axis 50 mm long, has an edge of its base on the ground. Its axis is inclined at 30° to the ground and parallel to the V.P. Draw its projections.	14M	CO3	L3
	(OR)			
6.	Draw the projections of a cone, base 75 mm diameter and axis 100mm long, lying on the H.P. on one of its generators with the axis parallel to the V.P	14M	CO3	L3
7.	A pentagonal pyramid, base 30 mm side and axis 65 mm long has its base horizontal and an edge of the base parallel to the V.P. A horizontal section plane cuts it at a distance of 25 mm above the base. Drmv its· from view and sectional top view.	14M	CO4	L3
	(OR)			
8.	Draw the development of the lateral surface of the part P of the pentagonal pyramid shown in figure. 	14M	CO4	L3

9.	Draw the isometric view of the casting shown in two views in figure. 	14M	CO5	L3
	(OR)			
10.	Isometric view of the objects shown in figure. Draw its (i) front view (ii) top view. 	14M	CO5	L3

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27 JAN 2026

R23

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING(AUTONOMOUS)

L.B. Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist.:: A.P.

B.Tech. (I Semester) Regular/Supplementary Examinations

23CM01-BASIC CIVIL AND MECHANICAL ENGINEERING

(AI&DS,ASE,CE,CSE,CSE(AI&ML),IT and ME)

Time : 3 hours

Max. Marks: 70

Part - A

Q.No	Compulsory Question	Marks	CO	BL
1(a)	List out the various disciplines of Civil Engineering.	1M	CO1	L1
(b)	Define leveling.	1M	CO2	L1
(c)	List out the various modes of Transportation.	1M	CO4	L1
(d)	Write one benefit of Rain water harvesting?	1M	CO5	L1
(e)	Define Benchmark.	1M	CO2	L1
Q.No	**All questions carry equal marks**	**Marks**	**CO**	**BL**
2(a)	Discuss briefly the Role of Civil Engineers in Society.	5M	CO1	L1
(b)	Classify the types of bricks and mention the properties of a good brick.	5M	CO3	L2
	(OR)			
3(a)	List out the various Elements of a Building and explain any two.	5M	CO1	L2
(b	Discuss briefly the stages of pre-fabrication.	5M	CO3	L2
4.	The following consecutive readings were taken with a dumpy level and a 4m leveling staff on a continuously sloping ground at 30m interval: 0.680, 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530, 2.250. The instrument was shifted after sixth and tenth readings. Reduced level of first reading on Benchmark is 80.750m. Calculate Reduced level of each station by Height of Instrument method.	10M	CO2	L3
	(OR)			
5(a)	Convert the following Whole Circle Bearings (WCB) into Reduced Bearings (RB): (i) 20°30′ (ii) 132°30′ (iii) 256°0′ (iv) 345°0′ (v)180°0′	5M	CO2	L3
(b)	Define contour. Mention the various characteristics of contour.	5M	CO2	L1
6(a)	Differentiate between Flexible pavement and Rigid pavement.	5M	CO3	L2
(b)	Define Airport and briefly explain the components of an airport.	5M	CO4	L2
	(OR)			
7(a)	Describe Hydrologic cycle with a neat sketch.	5M	CO5	L1
(b)	List out the various types of dams and their significance.	5M	CO5	L2

Part – B

Q.No	Compulsory Question	Marks	CO	BL
8(a)	Mention at least one example of non-ferrous materials.	1 M	CO1	L1
(b)	State the main advantage of CNC machines.	1 M	CO1	L1
(c)	On which cycle does a spark-ignition (SI) engine operate?	1 M	CO2	L2
(d)	What is the function of a boiler in steam power plant?	1 M	CO3	L2
(e)	Define the term "Industrial Robot".	1 M	CO4	L1
Q.No	**All questions carry equal marks**	**Marks**	**CO**	**BL**
9(a)	Discuss the role of a mechanical engineer in energy sector.	5M	CO1	L1
(b)	List out the ferrous metals and discuss about their properties.	5M	CO1	L1
	(OR)			
10(a)	Discuss the role of mechanical engineering in manufacturing sector.	5M	CO1	L1
(b)	Define smart material. Classify various types of smart materials with their applications.	5M	CO1	L2
11(a)	Define machining process and describe any two types of machining processes with neat sketches.	5M	CO1	L2
(b)	Explain the 3D Printing process in detail.	5M	CO1	L2
	(OR)			
12(a)	Differentiate 4-stroke engine and 2-stroke engine.	5M	CO2	L2
(b)	Explicate the main components of an electric vehicle with a neat diagram.	5M	CO2	L3
13.	Illustrate the working principle of Hydro-electric power plant with a neat sketch and also mention its advantages and disadvantages.	10M	CO3	L2
	(OR)			
14(a)	Discuss open and closed belt drive systems with sketches.	5M	CO3	L2
(b)	List different types of robot configuration systems and describe any one configuration system.	5M	CO4	L3

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27 JAN 2026

R23

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING(AUTONOMOUS)

L.B. Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist.:: A.P.

B.Tech. (I Semester) Regular/Supplementary Examinations

23EE01-BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

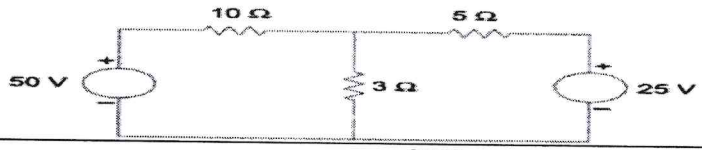
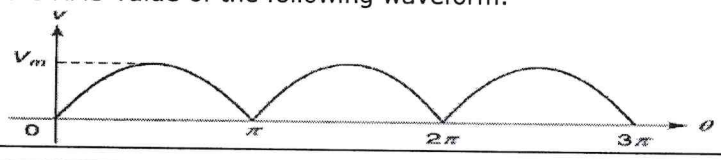
(ECE & EEE)

Proof 27/1/26

Time : 3 hours

Max. Marks: 70

Part - A

Q.No	Compulsory Question	Marks	CO	BL
1(a)	State Kirchhoff's current law.	1 M	CO1	L1
(b)	State DC Generator principle.	1 M	CO2	L1
(c)	What is meant by Electric Shock?	1 M	CO3	L1
(d)	List the applications of Ohm's Law.	1 M	CO1	L1
(e)	What are the types of transformers?	1 M	CO2	L1
Q.No	**All questions carry equal marks**	**Marks**	**CO**	**BL**
2(a)	Illustrate Kirchhoff's Voltage Law with an example.	5 M	CO1	L2
(b)	Determine the current through a 3 ohm resistor using the Superposition theorem. 	5 M	CO1	L3
	(OR)			
3(a)	Determine the following parameters of a voltage v = 200 sin314t. (i) Frequency (ii) Peak value (iii) Time period (iv) RMS value	5 M	CO1	L3
(b)	Determine the RMS value of the following waveform. 	5 M	CO1	L3
4(a)	Illustrate the principle and working of a single-phase transformer.	5 M	CO2	L2
(b)	Discuss the principle of the 3-phase Induction motor with a neat diagram.	5M	CO2	L2
	(OR)			
5(a)	Discuss the working of the Moving Iron type instrument.	5M	CO2	L2
(b)	Using Wheatstone's bridge, prove that $Rx = R_2 \times R_3/R_4$	5M	CO2	L3
6.	Draw the layout and discuss the operation of hydel power generation.	10 M	CO3	L2
	(OR)			
7(a)	Elaborate on the procedure to calculate the electricity bill for domestic consumers.	5M	CO3	L2
(b)	Describe the working of MCB with a neat diagram.	5M	CO3	L2

Part – B

Q.No	Compulsory Question	Marks	CO	BL
8(a)	Explain the formation of depletion layer in PN diode.	1 M	CO4	L1
(b)	State the function of a transformer in a power supply.	1 M	CO5	L1
(c)	What is the base (radix) of a number system?	1 M	CO6	L1
(d)	How the breakdown occurs in a Zener diode?	1 M	CO4	L1
(e)	If lower cutoff frequency is 100 Hz and upper cutoff is 10 kHz, find bandwidth.	1 M	CO5	L1
Q.No	**All questions carry equal marks**	**Marks**	**CO**	**BL**
9(a)	Illustrate the evolution of electronics from vacuum tubes to nanoelectronics.	5 M	CO4	L2
(b)	Examine the CE configuration of BJT with input and output characteristics.	5 M	CO4	L2
	(OR)			
10(a)	Describe the use of Zener diode as a voltage regulator with circuit diagram.	5 M	CO4	L2
(b)	A transistor has α = 0.98 and emitter current of 10 mA. Determine: (i) Collector current (ii) Base current (iii) β.	5 M	CO4	L3
11(a)	Explain the block diagram of a DC power supply with neat diagram.	5 M	CO5	L2
(b)	Discuss the role of coupling and bypass capacitors in CE amplifier.	5 M	CO5	L2
	(OR)			
12(a)	Examine the frequency response of a CE amplifier.	5 M	CO5	L2
(b)	Explain the basic electronic instrumentation system and indicate the flow of signals from sensor to display.	5 M	CO5	L2
13(a)	Construct a Full adder circuit and explain its working in detail.	5 M	CO6	L2
(b)	Convert the following decimal numbers to binary, octal and hexa decimal number system. (i) $(729)_{10}$ (ii) $(1024)_{10}$	5 M	CO6	L3
	(OR)			
14(a)	Explain different number systems used in digital electronics.	5 M	CO6	L2
(b)	Generate Hamming code for the given binary 1001 using Even parity.	5 M	CO6	L3

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29 JAN 2026

R23

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

L.B.Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist. :: A.P.

B.Tech. (I Semester) Regular/Supplementary Examinations

Proceed 29/1/26

23FE03-LINEAR ALGEBRA AND CALCULUS

(Common to All)

Time : 3 hours

Max. Marks : 70

Q.No	Compulsory Question	Marks	CO	BL
1(a)	Write the conditions for consistency of a linear non-homogeneous system $AX = B$	2 M	CO1	L1
(b)	Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 5 \\ 3 & 5 & 7 \end{bmatrix}$	2 M	CO1	L1
(c)	Find the quadratic form corresponding to the matrix $A = \begin{bmatrix} 1 & 2 & 1 \\ 1 & 3 & -1 \\ 1 & -1 & 5 \end{bmatrix}$	2 M	CO2	L2
(d)	If 2,1, -1 are the values of a matrix A, then write the eigen values of the matrix A^{-1} and A^T	2 M	CO2	L2
(e)	State Rolle's mean value theorem.	2 M	CO3	L1
(f)	Write the Maclaurin's series expansion of e^x.	2 M	CO3	L2
(g)	If u = x^2 + 2y, v = x - y then find $\frac{\partial(u,v)}{\partial(x,y)}$	2 M	CO4	L2
(h)	Prove that $\frac{\partial^2 u}{\partial x \partial y} = \frac{\partial^2 u}{\partial y \partial x}$, if $u = x^3 + y^3 - 3axy$	2 M	CO4	L2
(i)	Evaluate $\int_0^2 \int_0^3 xydydx$	2 M	CO5	L1
(j)	Write the formula to find the area enclosed by the curves $y = f(x), y = g(x)$ and the ordinates $x = a, x = b$ in Cartesian coordinates, by double integration.	2 M	CO5	L1
Q.No	**All questions carry equal marks**	**Marks**	**CO**	**BL**
2(a)	Reduce the following matrix into its Echelon form and hence find its Rank $\begin{bmatrix} 2 & 3 & -1 & -1 \\ 1 & -1 & -2 & -4 \\ 3 & 1 & 3 & -2 \\ 6 & 3 & 0 & -7 \end{bmatrix}$	5 M	CO1	L3
(b)	Apply Gauss Seidel iteration method to solve the equations $20x + y - 2z = 17, 3x + 20y - z = -18, 2x - 3y + 20z = 25$	5 M	CO1	L3
	(OR)			
3(a)	Solve $x + 2y + 2z = 2, 3x - 2y - z = 5, 2x - 5y + 3z = -4, x + 4y + 6z = 0$	5 M	CO1	L3
(b)	Solve completely the following system of equations: $4x + 2y + z + 3w = 0, 6x + 3y + 4z + 7w = 0, 2x + y + w = 0$	5 M	CO1	L3
4.	Verify Cayley-Hamilton theorem and apply it to evaluate A^{-1} and A^4 where A = $\begin{bmatrix} 3 & -1 & 1 \\ -1 & 5 & -1 \\ 1 & -1 & 3 \end{bmatrix}$	10 M	CO2	L3
	(OR)			

5(a)	Find Eigen values and Eigen vectors of the Matrix $\begin{bmatrix} 1 & 0 & -1 \\ 1 & 2 & 1 \\ 2 & 2 & 3 \end{bmatrix}$	5M	CO2	L3
(b)	Show that sum of the Eigen values equal to the trace of the matrix.	5M	CO2	L3
6(a)	Verify Rolle's theorem for the function f(x) = $(x-a)^m(x-b)^n$ where m, n are positive integers in [a, b].	5M	CO3	L3
(b)	Obtain the Taylor's series expansion for e^x about $x = -1$.	5M	CO3	L3
	(OR)			
7(a)	If a < b, prove that $\frac{b-a}{(1+b^2)} < \tan^{-1} b - \tan^{-1} a < \frac{b-a}{(1+a^2)}$ using Lagrange's mean value theorem.	5M	CO3	L3
(b)	Expand $\log_e x$ in powers of $(x-1)$ and hence evaluate $\log_e 1.1$.	5M	CO3	L3
8(a)	Expand $e^x \sin y$ in powers of x and y.	5 M	CO4	L3
(b)	Show that the functions $u = xy + yz + zx, v = x^2 + y^2 + z^2, w = x + y + z$ are functionally dependent. Find the relation between them.	5 M	CO4	L3
	(OR)			
9.	A rectangular box open at the top is to have volume of 32 cubic ft. Find the dimensions of the box requiring the least material for its construction.	10 M	CO4	L3
10(a)	Evalauate $\int_{-1}^{1}\int_{0}^{z}\int_{x-z}^{x+z}(x+y+z)\,dydxdz$	5M	CO5	L3
(b)	Evalaute $\iint_R y\,dydx$, Where R is the region bounded by the parabolas $y^2 = 4x$ *and* $x^2 = 4y$	5M	CO5	L3
	(OR)			
11(a)	Evaluate $\int_0^2\int_0^{\sqrt{2x-x^2}} \frac{x}{x^2+y^2}\,dxdy$ by transforming into polar coordinates	5M	CO5	L3
(b)	Evaluate $\iiint_V dxdydz$ where V is the finite region of space formed by the planes $x = 0, y = 0, z = 0$ *and* $2x + 3y + 4z = 12$	5M	CO5	L3

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31 JAN 2026

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LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

L.B.Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist. :: A.P.

B.Tech. (I Semester) Regular/Supplementary Examinations

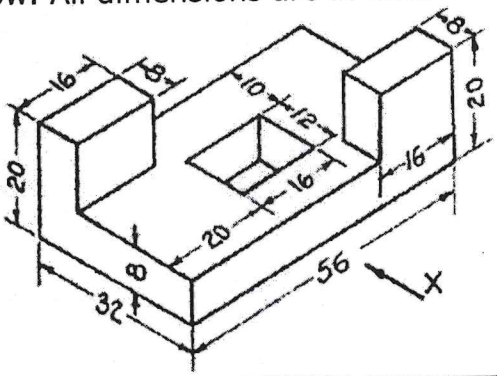
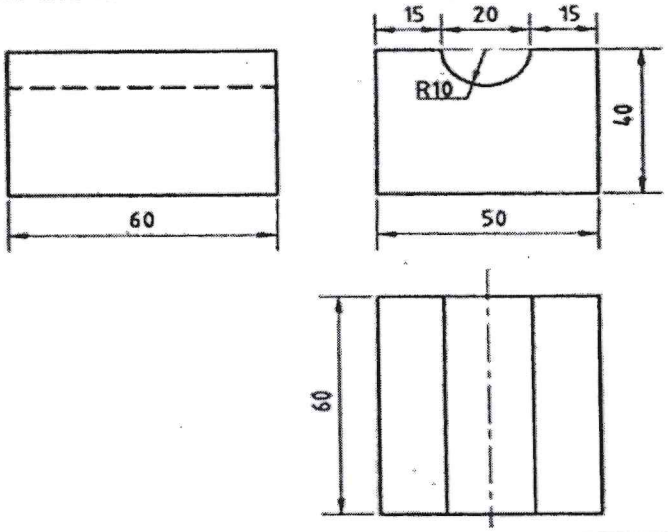
23ME01–ENGINEERING GRAPHICS

(ECE)

Time : 3 hours

Max. Marks : 70

Q.No	All questions carry equal marks	Marks	CO	BL
1(a)	Construct an ellipse when the distance of the focus from the directrix is equal to 50mm and eccentricity is 2/3. Draw tangent and normal at a point 40 mm from the directrix.	7 M	CO1	L3
(b)	Draw the projections of the following points (i) A is 10 mm above HP and 25 mm in front of VP (ii) B is on HP and 35 mm behind VP (iii) C is on VP and 25 mm above HP (iv) D is on both HP and VP	7 M	CO1	L2
	(OR)			
2(a)	A circle of diameter 45 mm rolls on a flat surface without slipping. Trace the path of a point lying on its circumference for one clockwise revolution of the circle. Draw a normal and tangent to the curve at a point 33 mm above the directing line.	7 M	CO1	L3
(b)	Draw the projections and state the following points in which quadrants they are lying on: (i) Top view and front view of Point A are 15 mm above XY. (ii) Top view and front view of Point B are 20 mm below XY. (iii) Top view of point C is on XY and front view of it is 20mm above XY (iv) Top view, front view of Point D is on XY.	7 M	CO1	L3
3	One end of line AB is 20 mm above H.P. and 15 mm in front of V.P. The line measures 80 mm and is inclined at 30^0 to H.P. & 45^0 to V.P. Draw the projections of the line.	14 M	CO2	L3
	(OR)			
4(a)	A line AB 40mm long is parallel to HP and perpendicular to VP. Point A is nearer to VP, is 30mm above HP. and 20mm in front of VP. Draw its projections.	7 M	CO2	L3
(b)	A square plane of 35 mm side has an edge in the H.P. with its surface perpendicular to the V.P. and inclined at 45^0 to the H.P. Draw its projections.	7 M	CO2	L3
5(a)	Draw the projections of a square prism with a 30 mm side and a 60mm long resting on its base on HP, with one of the base edges perpendicular to the VP.	7 M	CO3	L3
(b)	A cone of base 40 mm diameter and axis 60 mm long lies on a point on its circumference on H.P. with its axis inclined 45^0 H.P. Draw the projections of the cone.	7 M	CO3	L3
	(OR)			
6	Draw the projections of the cylinder 50 mm in diameter and 70 mm long, lying on the ground with its axis inclined at 30^0 to V.P. and parallel to the ground.	14 M	CO3	L3

7.	A square pyramid of base edge 30 mm and axis 60 mm is lying on the ground on its base HP with all base edges are equally inclined to the VP. It is cut by a section plane, perpendicular to VP and inclined at 30^0 to HP at a distance of 15 mm from the top end of the axis. Draw its front view & sectional top view, and true shape of the section.	14 M	CO4	L3
	(OR)			
8.	A hexagonal prism with a side of base of 25 mm and an axis length of 50 mm resting on its base on the HP. It is cut by a section plane normal to VP, makes an angle of 30^0 with the HP, and bisects the axis of the prism. Draw the development of the surface of the remaining portion of the solid.	14 M	CO4	L3
9.	Draw (i) Front view (ii) Top view and (iii) one of its side views of the object shown below. All dimensions are in mm. 	14 M	CO5	L3
	(OR)			
10.	Orthographic projections of the object are shown in the following figures. Draw the isometric view of the object. 	14 M	CO5	L3

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31 JAN 2026

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LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

L.B.Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist. :: A.P.

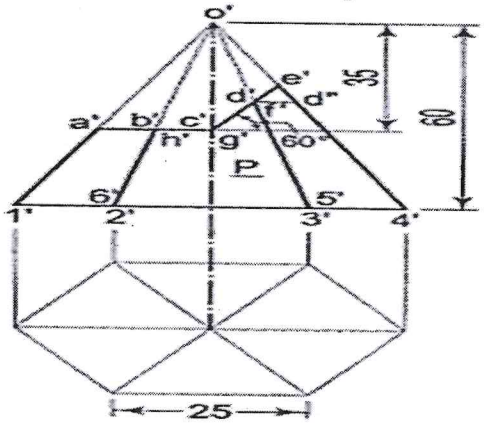
B.Tech. (I Semester) Regular/Supplementary Examinations

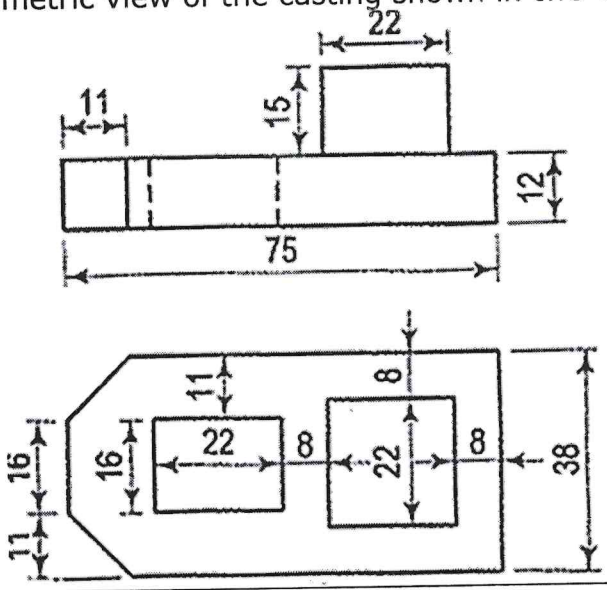
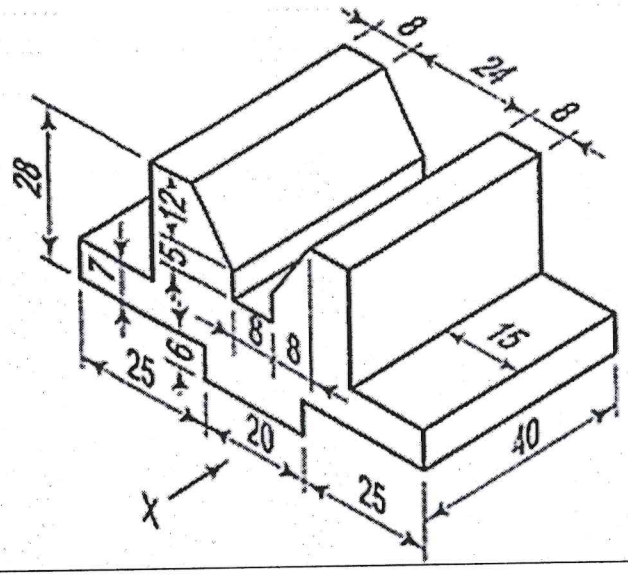
23ME01-ENGINEERING GRAPHICS

(EEE)

Time : 3 hours

Max. Marks : 70

Q.No	All questions carry equal marks	Marks	CO	BL
1.	The directrix of a hyperbola is 65 mm from its focus. Draw the curve if the eccentricity is 3/2 Draw a normal and a tangent at a point on the curve, 35 mm from the focus.	14M	CO1	L3
	(OR)			
2.	A circle of 60 mm diameter rolls along a straight line without slipping. Draw the curve traced out by a point P on the circumference, for one complete revolution of the circle. Name the curve. Draw a tangent to the curve at a point on it 50 mm from the line.	14M	CO1	L3
3(a)	A point P is 50 mm from both the reference planes. Draw its projections in all possible positions.	7M	CO2	L3
(b)	A line AB, 50 mm long, has its end A in both the H.P and the V.P It is inclined at 30° to the H.P. and at 45° to the V.P Draw its projections.	7M	CO2	L3
	(OR)			
4.	A pentagonal plate of 45 mm side. The plane stands on one of its sides on the H.P with its plane perpendicular to V.P. and 45° inclined to the H.P. Draw the projections.	14M	CO2	L3
5.	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	14M	CO3	L3
	(OR)			
6.	Draw the projections of a pentagonal pyramid, base 30 mm edge and axis 50 mm long, having its base on the H.P. and an edge of the base parallel to the V.P. Also draw its side view.	14M	CO3	L3
7.	A cube of 35 mm long edges is resting on the H.P. on one of its faces with a vertical face inclined at 30° to the V.P. It is cut by a section plane parallel to the V.P. and 9 mm away from the axis and further away from the V.P. Draw its sectional front view and the top view.	14M	CO4	L3
	(OR)			
8.	Draw the development of the lateral surface of the part P of the hexagonal pyramid shown in figure. 	14M	CO4	L3

9.	Draw the isometric view of the casting shown in two views in figure. 	14M	CO5	L3
	(OR)			
10.	Isometric view of the object shown in figure. Draw its (i) front view (ii) top view 	14M	CO5	L3

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