Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ENG101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B. Tech. I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

PROFESSIONAL ENGLISH

(Common to All)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q. No 1 are compulsory. In Q. No 2 to 6 answer either A or B only

			Marks	CO	BL
Q.1	i.	He had eaten lunch. (Rewrite the given sentence using simple past tense)	1M	1	2
	ii.	State whether the given statement is True or False. "Memo is used for communication with the customers."	1M	1	1
	iii.	Write one word by using the prefix – under.....	1M	2	2
	iv	Write one word by using the suffix - .....ment.	1M	2	2
	v.	What is the role of skimming in reading a passage?	1M	3	3
	vi	Write the noun for the given verb in brackets (criticize)	1M	3	3
	vii.	I think , he_____ speak. (can/may/could)	1M	4	1
	viii.	Define memo in one or two sentences.	1M	4	2
	ix.	Fill the blank with correct form of verb. They took a shower after they _____ (finish) the game.	1M	5	3
	x.	If she _____(run) a bit faster, she could have won. (Complete the sentence suitably)	1M	5	4
Q.2(A)		**i. Fill in the blank with the correct form of the verb given in bracket** The flowers remained long after the spring .....(go) **ii. Fill in the blank with appropriate modal auxiliary verb** Drivers .....stop when the traffic lights are red. **iii. Complete the sentence appropriately** If she had helped me ..... **iv. Change into Reported Speech.** "Why did you leave a little early yesterday? ", Ram asked me. **v. Make compound words using the base words given below** (a) ear , (b) wash **vi. Fill in the blank with the antonym of the word underlined** Her smile was not ....., but artificial **vii. Complete the sentence using an appropriate Modal Auxiliary Verb** Take an umbrella with you. It .....rain. **viii. Use a synonym for the word underlined.** He always keeps the room clean **ix. Add a suffix to the following words** **(a)** encourage (b) ugly **x. Use the appropriate form of the word in brackets** Commuting is a part of .....(day) life.	10M	1	3
		OR			
Q.2(B)		Complete the sentences given below with suitable verb forms for the words given in the brackets.	10M	1	2
	i.	I _____ (see) a great film yesterday.			
	ii.	How long you _____ (wait) for me?			
	iii.	Peter _____ (play) football in the afternoon when he got the call.			
	iv.	He twisted his ankle while he _____ (ski).			
	v.	He never _____ (work) in the evening of Sundays.			
	vi.	Lee _____ (be) late every day since Tuesday.			
	vii.	Herbert's father never _____ (forget) his son's birthday.			

viii. Travelling _____(become) much easier and more comfortable in the past hundred years.

ix. I _____ (not finish) my report because I had a problem with my computer.

x. He always goes to the supermarket alone, but today he _____ (take) his son with him.

Q.3(A)	i. Write a paragraph on the importance of digital transactions ii. Write a paragraph on the role of technology in education	5M 5M	2 2	5 5
	OR			
Q.3(B)	**Write a paragraph on the following topics.** a. Write a note on different strategies used for promoting reading comprehension. b. Write a paragraph about a new invention that you would create. Use descriptive phrases to describe your invention and to support the topic.	10M	2	3
Q.4(A)	Develop the following situation into meaningful conversation with minimum twelve exchanges: Ask your friend and share your routine actions.	10M	3	6
	OR			
Q.4(B)	Image one of your friends is planning to join in your college and wants to know some more information from you. Write an informal conversation between you and your friend by using the following points: • Introduce yourself • Inquire about wellbeing • Discuss college facilities (library, bus, canteen, scholarships) • Inform about college timings • Discuss about various cultural activities of the college • Any other relevant point • Conclude the conversation	10M	3	5
Q.5(A)	Imagine that you have to formally introduce your friend in a meeting. What might be the points you would like to include? Prepare a short profile of a friend of yours. You may include his/her strengths, background, good qualities, ambitions and aspirations, etc.	10M	4	5
	OR			
Q.5(B)	Imagine that you and your friends are planning to go on a week trip. Write dialogues with a minimum of twelve exchanges by including the following points: • Places to visit • Transportation and stay • Required things for the trip • Overall cost of the trip	10M	4	5
Q.6(A)	You are the project lead in your office. Your director has asked you to submit annual report for the year 2021-22. Write an annual report by using the following points: • Explain the work done under your leadership. • Describe the work that is in progress. • Explain the problems and challenges that you are facing in implementing them.	10M	5	4
	OR			
Q.6(B)	Write an email to the executive manager of your company informing about the training program you are conducting to the employees. Assume yourself as the training officer.	10M	5	6

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Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20EEE101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

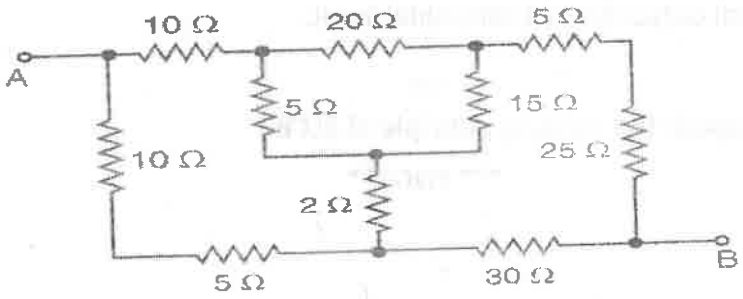
BASIC ELECTRICAL ENGINEERING

(Common to All)

Time: 3Hrs **Max Marks: 60**

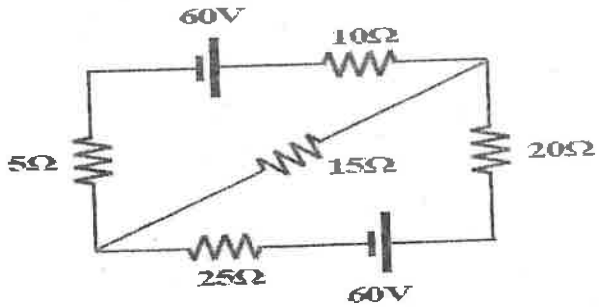
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. in Q.no 2 to 6 answer either A or B only

			Marks	CO	BL
Q.1	i.	Three resistors 10Ω, 10Ω and 10Ω are connected in parallel. Find the equivalent resistance.	1M	1	2
	ii.	Define Ohm's law.	1M	1	1
	iii.	Define frequency of AC signal.	1M	2	1
	iv	Define Peak factor of AC signal.	1M	2	1
	v.	Define flux density in a magnetic material.	1M	3	1
	vi	A single-phase step-up transformer has a transformation ratio (N_1/N_2) equal to 20. If its primary voltage is 120 V, find its secondary voltage.	1M	3	2
	vii.	Write down the emf equation for dc generator.	1M	4	1
	viii.	List the applications of three phase induction motor.	1M	4	1
	ix.	What is knee voltage of a PN junction diode?	1M	5	1
	x.	List various types of cables.	1M	5	1
Q.2(A)		Determine the resistance between the terminals A and B of the network shown in figure.	10M	1	3



OR

Q.2(B)		Apply superposition theorem to calculate current through the 15Ω resistor in the circuit shown in figure.	10M	1	3



Q.3(A)	A circuit consisting of a resistor in series with a capacitor takes 100 watts at a power factor of 0.5 from a 100 V, 60 Hz supply. Find (a) the current flowing, (b) the phase angle, (c) the resistance, (d) the impedance, and (e) the capacitance.	10M	2	3
	OR			
Q.3(B)	(i)Write the advantages of 3-phase systems.	3 M	2	1
	(ii) Derive the relationship between phase and line voltages and currents in a balanced three phase delta connected system. Also write the expressions for active, reactive and apparent powers.	7M	2	2
Q.4(A)	(i) Draw and explain B-H curve of a ferro magnetic material.	6M	3	2
	(ii) A magnetizing force of 8000A/m is applied to a circular magnetic circuit of mean diameter 30cm by passing a current through a coil wound on the circuit. If the coil is uniformly wound around the circuit and has 750 turns, find the current in the coil.	4M	3	3
	OR			
Q.4(B)	Draw the equivalent circuit of a transformer with respect to (a) primary side (b) secondary side.	10M	3	2
Q.5(A)	Discuss various methods to control the speed of a DC shunt motor with neat diagram.	10M	4	2
	OR			
Q.5(B)	List the methods of starting of a 3-phase induction motors. Describe any one method with neat sketch.	10M	4	2
Q.6(A)	Design a circuit with PN junction diodes and centre tapped transformer to obtain unidirectional output from a sinusoidal input.	10M	5	2
	OR			
Q.6(B)	With neat sketch explain the working principle of ELCB.	10M	5	2

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20CHE101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

ENGINEERING CHEMISTRY

(Common to All)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	BL
Q.1	i.	Define temporary hardness and permanent hardness.	1M	1	1
	ii.	What is reverse osmosis?	1M	1	1
	iii.	Draw the Lewis dot structure of ammonia molecule.	1M	2	2
	iv	Define ionization potential?	1M	2	1
	v.	Write any two applications of Raman spectroscopy?	1M	3	1
	vi	Calculate the number of NMR peaks in CH_3-OH molecule.	1M	3	2
	vii.	Define entropy.	1M	4	1
	viii.	What is a fuel cell?	1M	4	1
	ix.	Give one example of a Photo catalyst.	1M	5	1
	x.	Give two examples of semi-solid lubricant.	1M	5	1
Q.2(A)	iscuss the Ion-Exchange process for softening of water with neat diagram.		10M	1	6
		OR			
Q.2(B)	(i) Discuss the principle involved in estimation of DO by Winkler's method.		5M	1	6
	(ii) Write short note on caustic embrittlement.		5M	1	1
Q.3(A)	Describe SN^1 and SN^2 reaction with suitable mechanism.		10M	2	5
		OR			
Q.3(B)	(i) State Hund's rule and comment on the anomalous electron configurations of Chromium and Copper.		5M	2	2
	(ii) Describe the addition reaction with suitable example.		5M	2	5
Q.4(A)	Discuss the principle and applications of UV-Visible Spectroscopy with neat diagram..		10M	3	6
		OR			
Q.4(B)	Discuss the principle and applications of FT-IR Spectroscopy.		10M	3	6
Q.5(A)	Explain the working principles and applications of H_2-O_2 fuel cell with neat sketch.		10M	4	5
		OR			
Q.5(B)	Derive the expressions for the change in entropy for an ideal gas undergoing isothermal, isobaric and isochroic expansion process.		10M	4	5
Q.6(A)	Discuss the preparation of Portland cement with neat diagram.		10M	5	6
		OR			
Q.6(B)	Define lubricant, classify lubricants and describe the properties of lubricants.		10M	5	5

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20PHY101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

ENGINEERING PHYSICS

(Common to CE & ME)

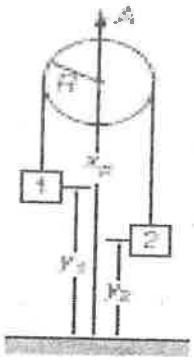
Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	BL
Q.1	i.	Write the expression for velocity in polar coordinates.	1M	1	1
	ii.	Define Newton's 2nd Law? Write the expression for it in differential form.	1M	1	1
	iii.	Write the fundamental rocket equation.	1M	2	1
	iv.	State the law of conservation of energy.	1M	2	1
	v.	What is the phase difference between two SHM described by equations $x = a\cos(\omega t + \pi/2)$ and $x = a\sin(\omega t + \pi/2)$.	1M	3	1
	vi.	String waves are always transverse in nature. Give the reason?	1M	3	1
	vii.	Define principle of superposition.	1M	4	1
	viii.	What is grating element?	1M	4	1
	ix.	What is population inversion?	1M	5	1
	x.	What is total inernal reflection?	1M	5	1
Q.2(A)		Derive the expression for the velocity and acceleration in polar coordinates by starting from position $\vec{r} = r\hat{r}$ of the particle and explain each term in the expression.	10M	1	5

OR

Q.2(B)	*i*)	A 3-kg mass moves under the influence of a force $\vec{F} = 6t^2\hat{\imath} - 3t\hat{\jmath}$ Newton, where t is the time in seconds. It starts at rest from the origin at $t = 0$. Find $\vec{r} \times \vec{v}$ at any later time.	4M	1	3
	ii)	Two masses, M_1 and M_2, are connected by a string that passes over a pulley. The pulley is accelerating upward at rate A, as shown in figure. Find how the accelerations of the bodies are related. Assume that there is no horizontal motion.	6M	1	4



Q.3(A)	Derive the rocket equation and show that final velocity is independent of how the mass is released when it moves in a free space?	10M	2	4
	OR			
Q.3(B)	i. Apply work energy theorem for sy stem of particles.	7M	2	4
	ii.An empty rocket weighs 6000 kg and contains 44,000 kg of fuel. If the exhaust gases is 1 km/S, find the maximum velocity attained by the rocket.	3M	2	3
Q.4(A)	i. Define Lissajous figures in superposition of harmonic oscillations.	2M	3	2
	ii. Plot the Lissajous figures for the superposition of following simple harmonic motions $X=5\cos(2\pi t)$ and $Y= 5\cos(2\pi t + \pi/2)$	8M	3	3
	OR			
Q.4(B)	Discuss the various cases of damped harmonic oscillator by deriving the necessary expressions?	10M	3	4
Q.5(A)	Discuss about Newton's rings experiment and deduce the equation for the calculation of radius of curvature of plano convex lens.	10M	4	4
	OR			
Q.5(B)	Describe Fraunhoffer diffraction due to single slit with a suitable diagram and obtain the conditions for principle maxima and minima and secondary maxima intensities.	10M	4	3
Q.6(A)	With the help of suitable diagrams, explain the principle, construction and working of a He-Ne laser.	10M	5	3
	OR			
Q.6(B)	Describe the step index fibre and explain the transmission of a signal through it.	6M	5	3
	Explain briefly 'Numerical aperture of a fibre'.	4M	5	2

***** END*****

Hall Ticket No: | | | | | | | | | | | Question Paper Code: 20PHY102

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular& Supplementary End Semester Examinations –SEP 2022

APPLIED PHYSICS

(Common to EEE, ECE, CSE, CST, CSE-AI, CSE-DS, CSE-CS, CSE-IOT)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	Bl
Q.1	i.	On what factors shape of Lissajous figures depends?	1M	1	1
	ii.	A travelling wave in a stretched string is described by the equation $y = A \sin(kx-\omega t)$. What is its maximum particle velocity?	1M	1	1
	iii.	Differentiate interference and diffraction.	1M	2	1
	iv	Define Polarization.	1M	2	1
	v.	Write any two Postulates of quantum mechanics.	1M	3	1
	vi	Define wave function Ψ.	1M	3	1
	vii.	What is Fermi energy level?	1M	4	1
	viii.	Define Semiconductor.	1M	4	1
	ix.	Write any two applications of lasers.	1M	5	1
	x.	Define basic principle of optical fibre.	1M	5	1
Q.2(A)		Deduce the displacement of a damped harmonic oscillator and discuss under damping, over damping & critical damping conditions in detail?	10M	1	4
		OR			
Q.2(B)		*i)* Obtain equation for velocity of transverse wave in stretched string.	8M	1	3
		ii) A transvers wave with displacement $y = 10\,Sin\,\pi(5x - 2t)$ is propagating in air. Find amplitude (A), wavelength (λ) .	2M	1	4
Q.3(A)		Describe Fraunhoffer diffraction due to single slit with a suitable diagram and obtain the conditions for maxima, minima, and secondary maxima intensities in the diffracted spectrum.	10M	2	4
		OR			
Q.3(B)		i) Show that if the angle of incidence corresponds to the Brewster's angle, then show that the angle between reflected and refracted beam is 90^{o}.	5M	2	3
		ii) Describe the construction and working of a Nicol prism.	5M	2	3
Q.4(A)		i) Define matter waves. Explain properties of matter waves.	5M	3	2
		ii) State and explain Heisenberg Uncertainty principle?	5M	3	2
		OR			
Q.4(B)		i) Applying Schrodinger time independent wave equation, show that the energies of a particle trapped in a potential well with infinite walls is quantized.	8 M	3	4
		ii) An electron is moving under a potential field of 15 kV. Evaluate the wavelength of the electron wave.	2 M	3	4

Q.5(A)	What is Hall effect? Derive expression for Hall voltage and Hall coefficient.	10M	4	3
	OR			
Q.5(B)	i) On the basis of band theory, explain how the solids are classified into metals, semiconductors and insulators?	5M	4	3
	ii) Distinguish between direct and indirect band gap semiconductors.	5M	4	3
Q.6(A)	Discuss the principle, construction and working of a Ruby LASER?	10M	5	3
	OR			
Q.6(B)	i) Define Acceptance angle and derive an expression for the acceptance angle of the fiber.	6M	5	4
	ii) A glass fiber has a core material of refractive index 1.48 and cladding material of refractive index 1.45. calculate a) Numerical Aperture and b) Acceptance Angle.	4M	5	4

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20CSE102

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

C PROGRAMMING AND DATA STRUCTURES

(Common to All)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	Bl.
Q.1	i.	List any two data types and their memory sizes.	1M	1	1
	ii.	What is a variable?	1M	1	1
	iii.	List the Storage classes.	1M	2	1
	iv	Define a function.	1M	2	1
	v.	Distinguish between Character Array and String.	1M	3	4
	vi	Write the syntax to declare a pointer variable.	1M	3	1
	vii.	Compare and Contrast text file and binary file.	1M	4	2
	viii.	Compare structure and union.	1M	4	2
	ix.	List out the operations performed in queue.	1M	5	1
	x.	List the applications of Stack.	1M	5	1
Q.2(A)	Explain the different types of looping statements with examples.		10M	1	2
	OR				
Q.2(B)	i. Explain in detail about structure of C program with an example.		5M	1	2
	ii. Develop C program to find roots of Quadratic equation.		5M	1	2
Q.3(A)	Illustrate and develop the code for Linear Search to find the particular key in a given array 67, 19, 81, 77, 56, 29, 99, 37,41,7		10M	2	6
	OR				
Q.3(B)	Illustrate and develop insertion sort for the following data. 67, 19, 81, 77, 56, 29, 99, 37,41,7		10M	2	6
Q.4(A)	i. Explain dynamic memory allocation and related function with example.		8M	3	2
	ii. Develop a program to find length of a string without using strlen().		2M	3	3
	OR				
Q.4(B)	i. What is a pointer? How it is initialized? Explain,		5M	3	2
	ii. Build a C program to check whether a string is palindrome.		5M	3	6
Q.5(A)	Discuss file opening modes and develop a C program to count number of lines, words and characters in a file.		10M	4	6
	OR				
Q.5(B)	i. Explain the Pointer to Structure.		5M	4	5
	ii. Discuss the File I/O Functions.		5M	4	6
Q.6(A)	Explain the stack implementations using arrays.		10M	5	5
	OR				
Q.6(B)	Discuss the various Single linked list operations in detail.		10M	5	6

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20MAT110

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

LINEAR ALGEBRA

(Common to CSE, CSE-AI, CSE-DS, CSE-CS, CSE-IOT)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	BL
Q.1	i.	Explain reduced row echelon form.	1M	1	1
	ii.	Determine the characteristic roots of the matrix $A=\begin{bmatrix}1 & 4\\ 2 & 3\end{bmatrix}$	1M	1	2
	iii.	Determine the set of vectors $\{(1,2,-1),(2,4,5),(0,0,0)\}$ form basis (or) not.	1M	2	2
	iv	Define Basis of the vector space.	1M	2	1
	v.	Find T^{-1}, if exists for the Linear transformation $T(x,y)=(3x,x+y)$	1M	3	2
	vi	State Rank-Nullity theorem.	1M	3	1
	vii.	Write the standard basis with respect to R^3.	1M	4	1
	viii.	Find the matrix representation of the linear transformation $T(x,y)=(y,3x-y)$ on R^2 with respect to the standard basis $\{e_1,e_2\}$	1M	4	2
	ix.	Normalize the vector $u=(2,1,-1)$	1M	5	1
	x.	Determine whether $\{(1,0),(0,3)\}$ in R^2 is orthogonal, orthonormal nor neither with respect to the Euclidean inner product space.	1M	5	2

Q.2(A) Solve the following system of linear equations using Gaussian elimination. 10M 1 3

$$x_1+3x_2-2x_3+2x_5=0$$
$$2x_1+6x_2-5x_3-2x_4+4x_5-3x_6=-1$$
$$5x_3+10x_4+15x_6=5$$
$$2x_1+6x_2+8x_4+4x_5+18x_6=6$$

OR

Q.2(B) Verify Cayley-Hamilton theorem for $A=\begin{pmatrix}1 & 2 & -1\\ 2 & 1 & -2\\ 2 & -2 & 1\end{pmatrix}$ and find A^{-1}& A^4. 10M 1 3

Q.3(A) Show that the set $\{1,x,x^2,x^3,x^4\}$ are linearly independent in the vector space $C[-1,1]$. 10M 2 3

OR

Q.3(B)	Find bases for $R(A)$, $N(A)$ and $C(A)$ of the matrix $A=\begin{bmatrix}1 & -2 & 0 & 0 & 3\\ 2 & -5 & -3 & -2 & 6\\ 0 & 5 & 15 & 10 & 0\\ 2 & 6 & 18 & 8 & 6\end{bmatrix}$	10M	2	4
Q.4(A)	Show that the linear transformation T on R^3 is invertible and find a formula for T^{-1}. i. $T(x,y,z)=(3x,x-y,2x+y+z)$. ii. $T(x,y,z)=(2x,4x-y,2x+3y-z)$.	10M	3	3
	OR			
Q.4(B)	Find the unique linear transformation $T: R^3 \to R^2$ so that $M=\begin{bmatrix}4 & 2 & 1\\ 0 & 1 & 3\end{bmatrix}$ is the matrix of T with respect to the bases $\alpha_1=\{(1,0,0),(1,1,0),(1,1,1)\}$, $\alpha_2=\{(1,0),(1,1)\}$ and find $T(x,y,z)$.	10M	3	3
Q.5(A)	Find a basis change matrix $[id]_{\alpha}^{\beta}$ from α to β and $[id]_{\beta}^{\alpha}$ from β to α, when $\alpha=\{t,1,t^2\}, \beta=\{3+2t+t^2, t^2-4, 2+t\}$.	10M	4	3
	OR			
Q.5(B)	Let $\alpha=\{(1,0,1),(1,2,1),(0,0,1)\}$ be a basis for R^3. Find the dual basis α^*.	10M	4	3
Q.6(A)	Find the Projection matrix for $A=[c_1c_2c_3]=\begin{bmatrix}1 & 1 & 0\\ 1 & 0 & 1\\ 0 & 1 & 1\\ 0 & 0 & 1\end{bmatrix}$	10M	5	4
	OR			
Q.6(B)	Find an orthonormal basis for the column space $C(A)$ of $A=\begin{bmatrix}1 & 1 & 2\\ 1 & 2 & 2\\ 1 & 0 & 4\\ 1 & 1 & 0\end{bmatrix}$.	10M	5	4

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20MAT106

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

LINEAR ALGEBRA AND TRANSFORM CALCULUS

(EEE)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	Bl
Q.1	i.	Find inverse of the matrix $A=\begin{bmatrix}\cos\theta & -\sin\theta\\ \sin\theta & \cos\theta\end{bmatrix}$	1M	1	2
	ii.	Find the Eigen values of a matrix $A=\begin{bmatrix}1 & -1\\ 0 & 2\end{bmatrix}$	1M	1	2
	iii.	State Cauchy Integral Formula	1M	2	1
	iv	Determine the singular points of the function $f(z)=\dfrac{z^2-2z+3}{(z-2)^2(z+1)}$	1M	2	2
	v.	Find $L\{\cos^2 t\}$	1M	3	2
	vi	Find $L^{-1}\left(\dfrac{1}{(s-1)^2}\right)$	1M	3	2
	vii.	Define Fourier Transform	1M	4	1
	viii.	If $F[f(x)]=f(p)$ then $F[f(ax)]$?	1M	4	2
	ix.	Find $Z\left((n+1)^2\right)$	1M	5	1
	x.	Find $Z^{-1}\left(\dfrac{z}{(z+7)}\right)$	1M	5	2
Q.2(A)		Reduce the following matrix in to its normal form and find its rank $\begin{pmatrix}2 & 3 & -1 & -1\\ 1 & -1 & -2 & -4\\ 3 & 1 & 3 & -2\\ 6 & 3 & 0 & -7\end{pmatrix}$.	10M	1	3
		OR			
Q.2(B)		Reduce the quadratic form $2x_1x_2+2x_1x_3-2x_2x_3$ to a canonical form by an orthogonal reduction.	10M	1	3
Q.3(A)		Evaluate $\oint_C \dfrac{e^z}{(z-1)(z-2)}dz$; where C is the Circle $\lvert z\rvert=3$	10M	2	3
		OR			
Q.3(B)		Expand $f(z)=\dfrac{1}{(z-1)(z-2)}$ in the region (a) $\lvert z\rvert<1$ (b) $1<\lvert z\rvert<2$	10M	2	3

Q.4(A)	i) Find the Laplace transforms of $\frac{e^{at}-\cos bt}{t}$ ii) Find the inverse Laplace transforms of $\frac{s+2}{s^2-4s+13}$	10M	3	3
	OR			
Q.4(B)	Solve by the method of transforms, $y''+4y'+3y=e^{-t}, \quad y(0)=y'(0)=1$	10M	3	3
Q.5(A)	Find the Fourier transform of $f(x)=\begin{cases}1-x^2 & for\ |x|\le 1\\ 0 & for\ |x|>1\end{cases}$ and hence evaluate $\int_0^{\infty}\frac{x\cos x-\sin x}{x^2}\cos\frac{x}{2}dx$	10M	4	3
	OR			
Q.5(B)	Find the Fourier cosine transform of e^{-x^2}	10M	4	4
Q.6(A)	Find the Z-transform of the following (a) $3n-4\sin\frac{n\pi}{4}+5a$ (b) $\cosh n\theta$	10M	5	3
	OR			
Q.6(B)	Using Z-transform solve $u_{n+2}+4u_{n+1}+3u_n=3^n$ *with* $u_0=0,\ u_1=1$	10M	5	3

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20MAT102

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS

(Common to CE, ME)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	BL
Q.1	i.	What are the Consistency conditions of system of linear equations?	1M	1	1
	ii.	State the Caley-Hamilton theorem.	1M	1	1
	iii.	Define Order and Degree of a Differential Equation.	1M	2	2
	iv	What is the exact condition of a differential equation.	1M	2	1
	v.	What is Wronskian in the differential equation.	1M	3	2
	vi	Form partial differential equation by eliminating arbitrary constants $z=(x+a)(x+b)$.	1M	3	1
	vii.	Solve $\frac{dx}{x}=\frac{dy}{y}=\frac{dz}{z}$.	1M	4	1
	viii.	Find inverse Laplace transform of $L^{-1}\left(\frac{1}{s^2}\right)$.	1M	4	2
	ix.	Write the general form of Lagrange's Linear Partial Differential Equation.	1M	5	1
	x.	Define wave equation in one dimensional space.	1M	5	2
Q.2(A)		Show that every square matrix can be expressed as the sum of a symmetric and skew symmetric matrices in one and only way.	10M	1	3
		OR			
Q.2(B)		Find the Eigen values and Eigen vectors of the matrix $\begin{bmatrix} 5 & -2 & 0 \\ -2 & 6 & 2 \\ 0 & 2 & 7 \end{bmatrix}$	10M	1	3
Q.3(A)		i) Solve $e^y dx+(xe^y+2y)dy=0$ ii) Solve $e^x\frac{dy}{dx}=2xy^2+ye^x$	10M	2	3
		OR			
Q.3(B)		Solve the differential equation $x\log x\frac{dy}{dx}+y=\log x^2$	10M	2	3
Q.4(A)		Find the solution of differential equation $y''+4y=\tan 2x$ using the method of variation of parameters.	10M	3	3
		OR			
Q.4(B)		Solve differential equation $x^2y''-3xy'+4y=0$	10M	3	3

Q.5(A)	Find $L^{-1}\left(\frac{s}{\left(s^2+a^2\right)^2}\right)$ using Convolution Theorem.	10M	4	3
	OR			
Q.5(B)	Solve $y''-3y'+2y=1-e^{2t};\ y(0)=1, y'(0)=0$ using Laplace Transforms	10M	4	3
Q.6(A)	Using the method of separation of variables, solve $\frac{\partial u}{\partial x}=2\frac{\partial u}{\partial t}+u$, where $u(x,0)=6e^{-3x}$.	10M	5	4
	OR			
Q.6(B)	Form the partial differential equation by eliminating the arbitrary constants and functions. (i) $(x-a)^2+(y-b)^2+z^2=1$ (ii) $z=f(x+at)+g(x-at)$.	10M	5	3

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20MAT107

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

LINEAR ALGEBRA, COMPLEX VARIABLES AND ORDINARY DIFFERENTIAL EQUATIONS

(ECE)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	BL
Q.1	i.	Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 & 4 \\ 5 & 6 & 7 & 8 \\ 8 & 7 & 0 & 5 \end{bmatrix}$	1M	1	2
	ii.	Find the sum of Eigen values of the matrix $\begin{bmatrix} 2 & 2 & 1 \\ 1 & 3 & 1 \\ 1 & 2 & 2 \end{bmatrix}$	1M	1	2
	iii.	Show that complex variable function $f(z) = z^3$ to analyticity for all values of z in Cartesian form.	1M	2	2
	iv	Show that the function $U(x,y) = \sin hx \sin y$ is harmonic.	1M	2	1
	v.	Find the Residue by Laurent's expansion to $f(z) = \frac{e^z}{(z-1)^2}$ about $z=1$.	1M	3	1
	vi	Evaluate $\int \frac{z}{9-z^2}\, dz$, where C is the circle $\|z\| = 2$	1M	3	1
	vii.	Solve the differential equation $(x+1)p = y + 2p^2$	1M	4	1
	viii.	Find the order and degree of $\frac{d^2y}{dx^2} = \left[y + \left(\frac{dy}{dx} \right)^6 \right]^{1/4}$.	1M	4	2
	ix.	Solve the differential equation $(D^2 + a^2)y = 0$	1M	5	2
	x.	Find wronskian of the functions $y_1 = x^3$ and $y_2 = x^2$	1M	5	1

Q.2(A) State rank-nullity theorem and verify rank-nullity theorem for the following linear mapping — 10M, 1, 3

$$L\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 4 & -2 & 8 \\ 7 & 1 & 5 \\ -2 & -1 & 0 \\ 3 & -2 & 7 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$$

OR

Q.2(B) Determine the Eigen values and Eigen vectors of the matrix — 10M, 1, 3

$$A = \begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$$

Q.3(A)	Show that			
	(i) $f(z) = \|z\|$ is not differentiable at z=0	5M	2	3
	(ii) $f(z) = \bar{z}$ is not differentiable at z=0	5M	2	3
Q.3(B)	Find all roots of the equation			
	(i) $\text{Sinh}\, z = 1$	5M	2	3
	(ii) $\text{Cosh}\, z = \frac{1}{2}$	5M	2	3
Q.4(A)	Evaluate $\oint_c f(z)dz$, where $f(z) = \begin{cases} 1, & when\ y < 0 \\ 4y, & when\ y > 0 \end{cases}$ and C is an arc from $z = -1 - i$ to $z = 1 + i$ along the curve $y = x^3$	10M	3	3
Q.4(B)	Show that when $0 < \|z-1\| < 2$, $\frac{z}{(z-1)(z-3)} = -3\sum_{0}^{\infty} \frac{(z-1)^n}{2^{n+2}} - \frac{1}{2(z-1)}$	10M	3	3
Q.5(A)	Solve the differential equation $(x+1)\frac{dy}{dx} - y = e^{3x}(x+1)^2$	10M	4	3
	OR			
Q.5(B)	Solve the differential equation $p(p+y) = x(x+y)$, (where $\frac{dy}{dx} = p$).	10M	4	3
Q.6(A)	Find the solution of differential equation $y'' + y = \tan x$, using the method of parameters.	10M	5	3
	OR			
Q.6(B)	Solve the differential equation $x^2\frac{d^2y}{dx^2} - x\frac{dy}{dx} + 2y = x\, sin(logx)$	10M	5	3

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20MAT110

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

LINEAR ALGEBRA

(CST)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	BL
Q.1	i.	State Cayley- Hamilton theorem.	1M	1	1
	ii.	Determine the rank of A= $\begin{bmatrix} -1 & 2 & 0 \\ 3 & 7 & 1 \\ 5 & 9 & 3 \end{bmatrix}$	1M	1	2
	iii.	Find the basis for row space for the matrix $A=\begin{bmatrix} 1 & 3 \\ 2 & 6 \end{bmatrix}$	1M	2	2
	iv	Determine whether the given set of vectors $\{[1,2,-1],[3,6,-3]\}$ is Linearly Independent (or) not.	1M	2	2
	v.	Find $S \circ T$ whenever it is defined $T(x,y,z)=(x-y+z,x+z)$, $S(x,y)=(x,x-y,y)$.	1M	3	2
	vi	Find T^{-1}, if exists for the Linear transformation $T(x,y)=(3x,x-y)$	1M	3	2
	vii.	Let $T:R^2 \to R^2$ be the Linear transformation defined by $T(x_1,x_2)=(x_1+x_2,-x_1+x_2)$. Compute $[T^*]_{\alpha'}$ for the standard basis $\alpha=\{e_1,e_2\}$.	1M	4	2
	viii.	Find the transition matrix $[Id]_{\alpha}^{\beta}$ from α to β, when $\alpha=\{(2,3)(0,1)\}$ and $\beta=\{(6,4)(4,8)\}$.	1M	4	2
	ix.	Let $S=\{(0,1,0),(0,0,1)\}$. Find a basis for $S^{\perp}$ with respect to the Euclidean Inner product space on R^3.	1M	5	1
	x.	Check whether the matrix $\begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$ is orthogonal or not.	1M	5	2
Q.2(A)		Solve the following system of linear equations by Gauss-Jordan method $x_1+3x_2-2x_3=3;\ 2x_1+6x_2-2x_3+4x_4=18;\ x_2+x_3+3x_4=10$.	10M	1	3
		OR			
Q.2(B)		Find the eigenvalues and eigenvectors of the matrix, $A=\begin{bmatrix} 1 & 1 & 2 \\ -1 & 2 & 1 \\ 0 & 1 & 3 \end{bmatrix}$	10M	1	3

Q.3(A)	Let W be the subspace of $\mathbb{R}^4$ spanned by the vectors $x_1 = (1,-2,5,-3), x_2 = (0,1,1,4)$ and $x_3 = (1,0,1,0)$. Find a basis for W and extend it to a basis for $\mathbb{R}^4$.	10M	2	3
	OR			
Q.3(B)	Find bases for the row space, the column space, and the null space of the matrix. $A = \begin{bmatrix} 0 & 1 & -1 & -2 & 1 \\ 1 & 1 & -1 & 3 & 1 \\ 2 & 1 & -1 & 8 & 3 \\ 0 & 0 & -2 & 2 & 1 \\ 3 & 5 & -5 & 5 & 10 \end{bmatrix}$	10M	2	4
Q.4(A)	Let $T: P_3(R) \to P_3(R)$ be the linear transformation defined by $Tf(x) = f''(x) - 4f'(x) + f(x)$. Find the matrix $[T]_\alpha$ for the basis $\alpha = \{x, 1+x, x+x^2, x^3\}$.	10M	3	3
	OR			
Q.4(B)	If $T: R^3 \to R^3$ is defined by $T(x,y,z) = (2x-z, 3x-2y, x-2y+z)$ i. Determine the null-space N(T) of T. ii. Determine whether T is one-to-one. iii. Find a basis for N(T).	10M	3	3
Q.5(A)	Let T be a linear transformation from $\mathbb{R}^3$ into $\mathbb{R}^2$ defined by $T(x_1, x_2, x_3) = (x_1 + x_2, 2x_3 - x_1)$. (a). For the standard ordered basis α and β for R^3 and R^2 respectively, find the associated matrix for T with respect to the basis α and β. (b). Let $\alpha = \{x_1, x_2, x_3\}$ and $\beta = \{y_1, y_2\}$, where $x_1 = (1,0,-1)$, $x_2 = (1,1,1)$, $x_3 = (1,0,0)$ and $y_1 = (0,1)$, $y_2 = (1,0)$. Find the associated matrices $[T]_\alpha^\beta$ and $[T^*]_{\alpha^*}^{\beta^*}$.	10M	4	3
	OR			
Q.5(B)	Consider the following ordered bases of R^3: $\alpha = \{e_1, e_2, e_3\}$ the standard basis and $\beta = \{u_1 = (1,1,1), u_2 = (1,1,0), u_3 = (1,0,0)\}$. i. Find the transition matrix P from α to β. ii. Find the transition matrix Q from β to α. Show that $[T]_\beta = Q^{-1}[T]_\alpha Q$ for the linear transformation T defined by $T(x,y,z) = (2y + x, x - 4y, 3x)$.	10M	4	3
Q.6(A)	Let $v_1 = (1,1,-1,-2)$, $v_2 = (5,8,-2,-3), v_3 = (3,9,3,8)$ be basis in the Euclidean space. Construct orthogonal basis using Gram-Schmidt orthogonalization process.	10M	5	3
	OR			
Q.6(B)	Find the QR factorization of the matrix $A = \begin{bmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \end{bmatrix}$	10M	5	4

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20MAT101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

ENGINEERING CALCULUS

(Common to CE, ECE, ME, CSE, CST, CSE-AI, CSE-DS, CSE-CS, CSE-IOT)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

			Marks	CO	BL
Q.1	i.	Write the formula for surface area of the solid generated by the revolution of the arc of the curve $r = f(\theta)$ about the initial line, from $\theta = \alpha$ to $\theta = \beta$	1M	1	1
	ii.	Find the value of $\int_0^1 x^3 (1-x)^5 \, dx$	1M	1	2
	iii.	State the Cauchy's mean value theorem	1M	2	1
	iv	Evaluate $\lim_{x \to 0} \frac{5^x - 2^x}{x}$	1M	2	2
	v.	State Ratio Test	1M	3	1
	vi	Obtain a_0 for the Fourier series of $f(x) = x \sin x$ in $0 < x < \pi$.	1M	3	2
	vii.	If $f(x,y) = x \cos y + y \sin x$ then find $\frac{\partial^2 f}{\partial x \partial y}$	1M	4	2
	viii.	Write a chain rule for $\frac{dz}{dt}$; when $z = f(x,y)$, $x = g(t), y = h(t)$ and $z = k(t)$	1M	4	1
	ix.	Evaluate $\int_{\theta=0}^{\pi} \int_{r=0}^{2} r \, dr \, d\theta$	1M	5	2
	x.	Find the $Curl F$ when $F = x^2 i + y^2 j + z^2 k$	1M	5	2
Q.2(A)		Find the volume obtained by revolving one arch of the cycloid $x = a(t - \sin t)$, $y = a(1 - \cos t)$ about its base.	10M	1	3
		OR			
Q.2(B)		Define Gamma function and show that the value of $\Gamma\left(\frac{1}{2}\right) = \sqrt{\pi}$	10M	1	3
Q.3(A)		Prove that (if $0 < a < b < 1$), $\frac{b-a}{1+b^2} < \tan^{-1} b - \tan^{-1} a < \frac{b-a}{1+a^2}$ and hence show that $\frac{\pi}{4} + \frac{3}{25} < \tan^{-1}\left(\frac{4}{3}\right) < \frac{\pi}{4} + \frac{1}{6}$	10M	2	3
		OR			

Q.3(B)	i. Find the values of a, b and c such that $\lim_{x\to 0} \frac{ae^x - b\cos x + ce^{-x}}{x\sin x} = 2$	5M	2	3
	ii. Show that $\sin x(1+\cos x)$ is a maximum when $x = \frac{\pi}{3}$	5M	2	3
Q.4(A)	Test whether the series converges or diverges a) $\sum_{n=1}^{\infty} \frac{n(n+1)}{(n^2+1)(n-1)}$ b) $\sum_{n=1}^{\infty} \sqrt{\frac{n+1}{n^2+2}}$	10M	3	3
	OR			
Q.4(B)	Express $f(x) = x$ as a half-range cosine and sine series in $0 < x < 2$.	10M	3	3
Q.5(A)	Find $\frac{\partial w}{\partial r}$ and $\frac{\partial w}{\partial s}$, if $w = (x+y+z)^2$, $x = r-s$, $y = \cos(r+s)$. $z = \sin(r+s)$ at $(r,s) = (1,-1)$.	10M	4	3
	OR			
Q.5(B)	A delivery company accepts only rectangular boxes the sum of whose length and girth (perimeter of cross section) does not exceed 108 in. Find the dimensions of an acceptable box of largest volume.	10M	4	3
Q.6(A)	Find the volume of the " ice cream cone" D cut from the solid sphere $\rho \le 1$ by the cone $\phi = \pi/3$.	10M	5	3
	OR			
Q.6(B)	Use Divergence theorem to evaluate outward flux of $F = xyi + yzj + zxk$ through the surface of the cube cut from the first octant by the planes $x = 1,\ y = 1,\ z = 1$.	10M	5	4

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20MAT105

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Regular & Supplementary End Semester Examinations – SEP 2022

CALCULUS AND DIFFERENTIAL EQUATIONS

(EEE)

Time: 3Hrs **Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

			Marks	CO	BL
Q.1	i.	State Lagrange's Mean Value Theorem	1M	1	1
	ii.	Find the area of the curve $y = x$ from $x = 0$ to $x = 4$.	1M	1	1
	iii.	Define the mixed derivative theorem.	1M	2	1
	iv	Evaluate $\lim_{(x,y) \to (3,-4)} \sqrt{x^2 + y^2}$	1M	2	2
	v.	State Stokes Theorem.	1M	3	2
	vi	Find the gradient of the function $f(x,y) = y - x$ at $(2,1)$	1M	3	1
	vii.	What is the exactness condition of a differential equation.	1M	4	1
	viii.	Find the solution of $y'' + y' - 6y = 0$.	1M	4	1
	ix.	Write one example for a linear P.D.E.	1M	5	1
	x.	What are the conditions for convergence of a series in Ratio test.	1M	5	1
Q.2(A)		Verify Rolle's theorem for the function $f(x) = \frac{Sinx}{e^x}$ in $(0,\pi)$	10M	1	4
		OR			
Q.2(B)		Find the surface area of the solid generated by the revolution of the Cardioid $r = a(1 + Cos\theta)$ about the initial line.	10M	1	4
Q.3(A)		Find $\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y}, \frac{\partial^2 f}{\partial x^2}, \frac{\partial^2 f}{\partial y^2}, \frac{\partial^2 f}{\partial x \partial y}$ and $\frac{\partial^2 f}{\partial y \partial x}$ for the function $f(x,y,z) = \log(x + 2y + 3z)$	10M	2	3
		OR			
Q.3(B)		Find the derivative of $f(x,y) = xe^y + \cos(xy)$ at the point (2,0) in the direction of v = 3i - 4j.	10M	2	3
Q.4(A)		Calculate $\iint_R f(x,y)dA$ for $f(x,y) = 100 - 6x^2y$ and $R: 0 \le x \le 2, \ -1 \le y \le 1$	10M	3	3
		OR			
Q.4(B)		Verify divergence theorem for the expanding vector field $F = x\bar{i} + y\bar{j} + z\bar{k}$ over the sphere $x^2 + y^2 + z^2 = a^2$.	10M	3	4

Q.5(A)	Solve $x \log x \frac{dy}{dx} + y = \log x^2$	10M	4	3
	OR			
Q.5(B)	Solve $y'' + 4y = Tan2x$ using the method of variation of parameter.	10M	4	3
Q.6(A)	Solve $p \tan x + q \tan y = \tan z$	10M	5	3
	OR			
Q.6(B)	Determine the series converges or diverges $\sum_{n=1}^{\infty} \frac{2^n}{n^3}$	10M	5	3

*** END***

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year I & II Semester (R20) Supplementary End Semester Examinations –OCT 2022

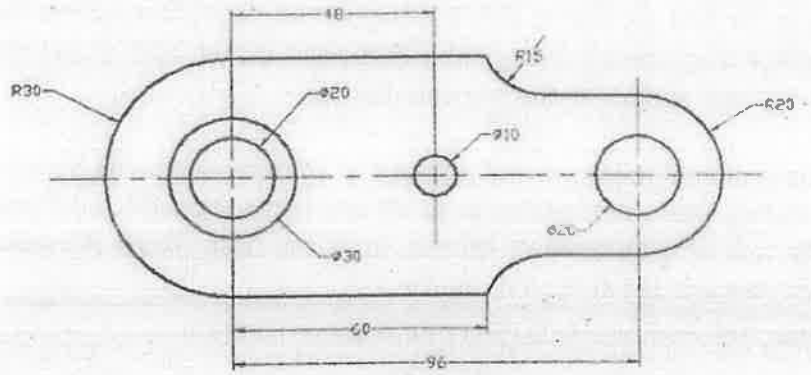
ENGINEERING GRAPHICS

(Common to All)

Time: 3Hrs **Max Marks: 60**

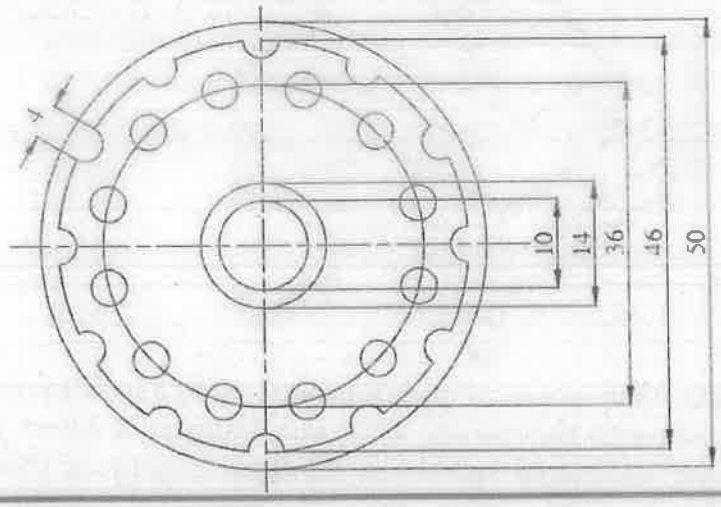
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	B
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



OR

Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

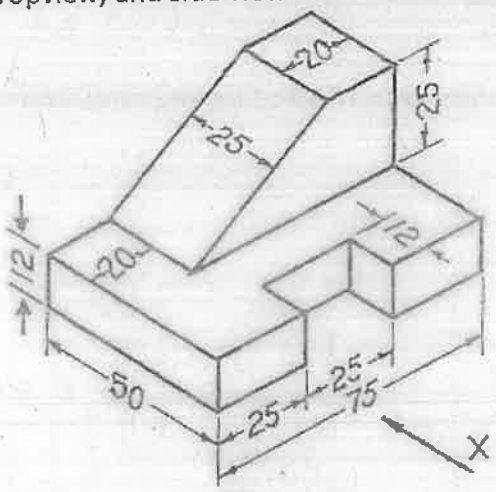


Q.2(A)	Draw the projections of the following points on the same ground line XY; keeping the distance between the projectors as 50mm. Also state the quadrants in which they lie	12M	2	3

i) Point E, 35mm above the H.P. and 40mm in front of the V.P.
ii) Point F, 45mm above the H.P. and 35mm behind the V.P.
iii) Point G, 30mm below the H.P. and 50mm in front of the V.P.
iv) Point H, 30mm below the H.P. and 50mm behind the V.P.

OR

Q.2(B)	Draw the projections of a 90mm long line in the following positions i. Inclined at 55° to H.P, its one end 30mm above H.P, parallel to and 40mm infront of V.P ii. Inclined at 50° to V.P, its one end 25mm infront of V.P, Parallel to and 25mm above H.P.	6M 6M	2 2	3 3
Q.3(A)	A rectangular plate of negligible thickness having 100mm length and 70mm width is resting on one of its smaller side on HP. The surface makes an inclination of 45^0 to HP and smaller side makes an inclination of 50^0 to VP. Draw the projection of the plate.	12M	3	3
	OR			
Q.3(B)	A Pentagonal Prism of base edge 30mm and axis 60mm rests on an edge of its base in the H.P. Its axis is parallel to V.P and inclined at 45^0 to H.P. Draw its projections	12M	3	3
Q.4(A)	A pentagonal prism of base side 30mm and height 75 mm resting on its base on H.P with the rectangular face parallel to V.P. It is cut by a section plane inclined at 45 degrees to the H.P and passing though the mid point of the axis. Draw the development of the lateral surface of the truncated prism.	12M	4	3
	OR			
Q.4(B)	A cylinder with a base diameter 40 mm and a height of 80 mm rests on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 45° to HP and passes through the axis at a distance of 40 mm from the base. Draw the front view, sectional top view and the sectional side view.	12M	4	3
Q.5(A)	Draw the Front view , Topview, and side view of the above diagram	12M	5	3



OR

Q.5(B)	A cylinder 50mm dia.and 70mm axis is completely penetrated by a square prism of 25 mm sides.and 70 mm axis, horizontally. Both axes Intersect & bisect each other. All faces of prism are equally inclined to Hp. Draw projections showing curves of intersections.	12M	5	3

*** END***

Set - 1

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

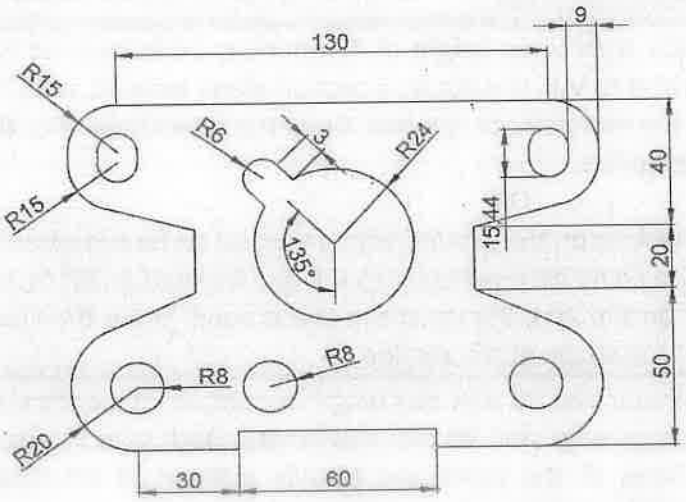
ENGINEERING GRAPHICS

(Common to CSE, CSE-AI)

Time: 3Hrs **Max Marks: 60**

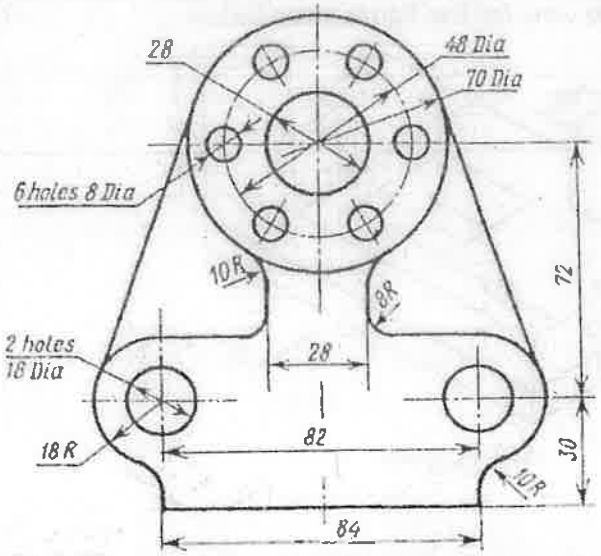
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	BI
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

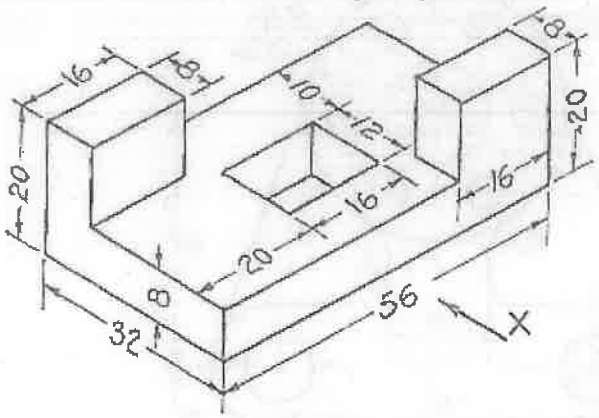


OR

Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	Draw the projections of the following points on the same ground line, keeping the projectors 40 mm apart. a) Point A, in the H.P. and 40 mm infront of .P. b) Point B, 25 mm below the H.P. and 25 mm behind the V.P. c). Point C, 15 mm above the H.P. and 50 mm behind the V.P. d) Point D, 40 mm below the H.P. and on V.P.	12M	2	3
	OR			
Q.2(B)	A line AB is 80mm in length. Point A is 20mm above HP and 30mm Infront of VP. Another endpoint B is 40mm above HP and 50mm Infront of VP. Draw the projections of the line and determine its inclinations with HP and VP.	12M	2	3
Q.3(A)	Draw the projections of a regular hexagon of 25 mm side having one of its sides in the H.P and inclined at 60^0 to V.P and its surface making an angle of 45^0 with H.P.	12M	3	3
	OR			
Q.3(B)	A Pentagonal prism of base side 30mm and height 70 mm is resting with its base on HP, with the rectangular face parallel to V.P. It is cut by a section plane inclined at 45^0 to the H.P and passing through the mid-point of the axis. Draw the development of the lateral surface of the truncated prism.	12M	3	3
Q.4(A)	A Hexagonal prism of base side 30mm and height of 70mm rests on its base on H.P with the rectangular face parallel to V.P. It is cut by a section plane inclined at 45^0 to the H.P and passing through the mid-point of the axis. Draw the development of the lateral surface of the truncated prism.	12M	4	4
	OR			
Q.4(B)	A cube of side 50mm long is resting on the ground with a vertical surface inclined at 30^0 to V.P. It is cut by a section plane perpendicular to V.P and inclined at 30^0 to H.P and passing through a point on the axis, 35mm above the ground. Draw the Front view, Sectional top view and True shape of the section.	12M	4	4
Q.5(A)	A cylinder having 70 mm diameter and 90 mm axis length is completely penetrated by a square prism of 40 mm base edge and 90 mm axis length. Both axes Intersect and bisect each other. All faces of the prism are equally inclined to HP. Draw projections showing curves of intersections.	12M	5	4
	OR			
Q.5(B)	Draw the front, top and left side view for the figure given below	12M	5	3



*** END***

Set - 2

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

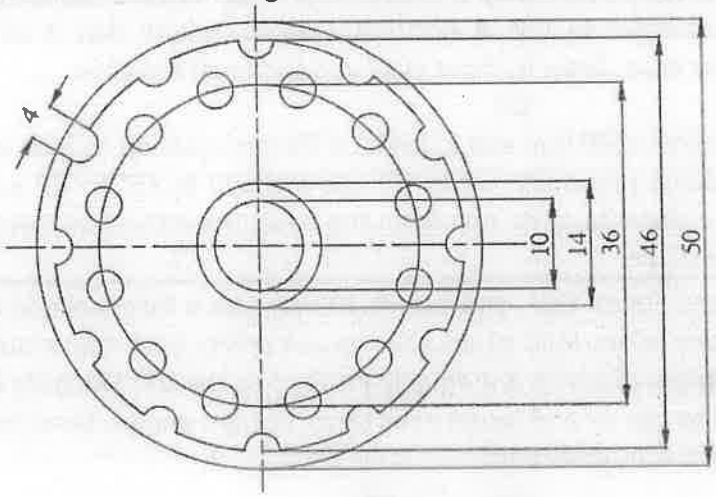
ENGINEERING GRAPHICS

(Common to CSE, CSE-AI)

Time: 3Hrs **Max Marks: 60**

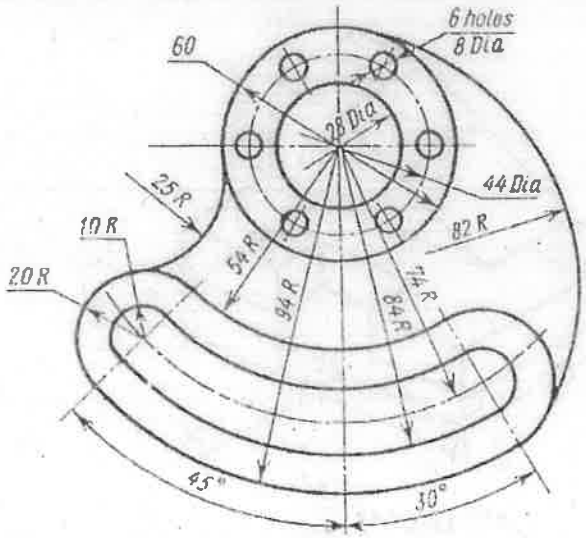
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	E
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	

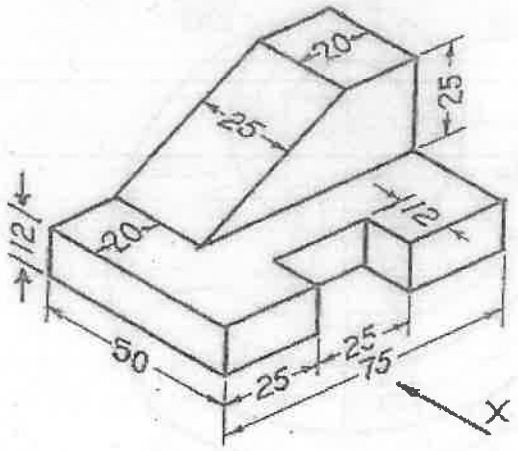


OR

Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	



Q.2(A)	A point P is 15mm above H.P and 20mm in front of V.P. Another point Q is 25mm behind V.P and 40mm below H.P. Draw projections of the points P and Q; keeping the distance between their projectors equal to 90mm. Draw the straight lines joining their top views and the front views. Also state the quadrants in which the points P and Q lie.	12M	2
	OR		
Q.2(B)	The Top view of a 75mm long line measures 65mm. While the length of its Front view is 50mm. Its one end A is in H.P and 12mm in front of V.P. Draw the projections of AB and determine its inclinations with H.P and V.P	12M	2
Q.3(A)	A Hexagonal Pyramid with Base side of 30mm and an axis 60mm is lying on a slant edge on the H.P with the axis parallel to V.P. Draw its projections.	12M	3
	OR		
Q.3(B)	A square ABCD of 50mm side has its corner A in the H.P. its diagonal AC is inclined at 30^0 to the H.P and the diagonal BD inclined at 45^0 to the VP and parallel to H.P. Draw its projections.	12M	3
Q.4(A)	A Pentagonal prism of base edge 30mm side and axis 65mm has its base horizontal and an edge of the base parallel to V.P. A horizontal section plane cuts it at a distance of 25mm above the base. Draw its front view and sectional top view.	12M	4
	OR		
Q.4(B)	A cylinder with a base diameter of 40 mm and a height of 70 mm rests on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 45° to HP and passes through the axis at a distance of 40 mm from the base. Draw the front view, sectional top view and true shape.	12M	4
Q.5(A)	A vertical square prism, base 50mm side, and height 100mm has a face inclined at 45^0 to the VP. It is completely penetrated by another square prism, base 40mm side and 90mm long, both the faces of which are equally inclined to the VP. The axes of the two prisms are parallel to the VP and bisect each other at right angles. Draw the projections showing lines of the intersection.	12M	5
	OR		
Q.5(B)	Draw the front view, top view, and side view for the figure shown	12M	5



*** END***

Set - 3

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

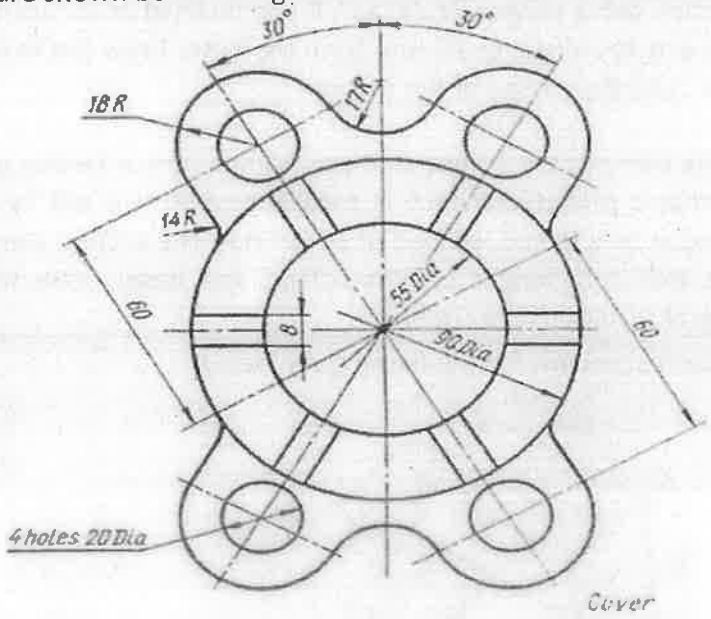
ENGINEERING GRAPHICS

(Common to CSE-DS, CSE-CS)

Time: 3Hrs **Max Marks: 60**

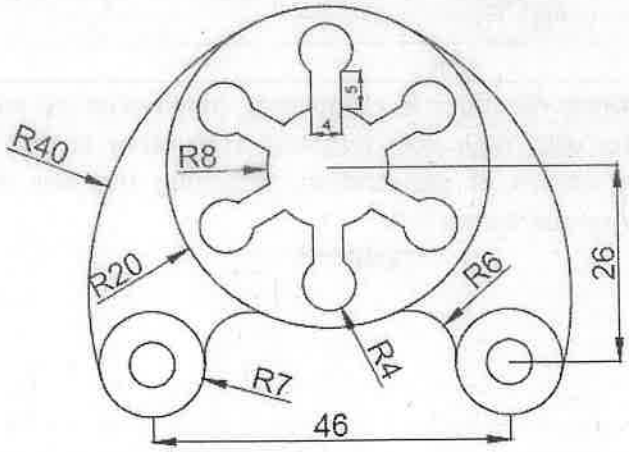
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	Bl
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

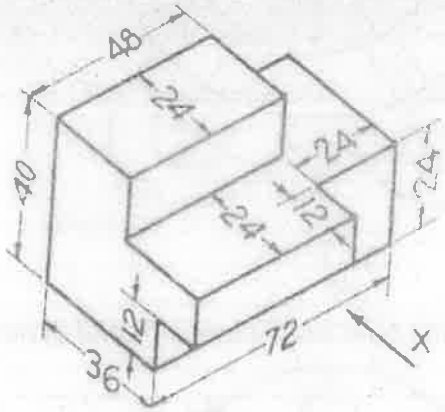


OR

		Marks	CO	Bl
Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	A point A is 20 mm above H.P and 35mm in front of V.P. Another point B is 25 mm behind V.P and 40 mm below H.P. Draw the projections of A and B keeping the distance between the projections equal to 50mm. Draw straight lines, joining (i) the top views and (ii) the front views.	12M	2	3
	OR			
Q.2(B)	The Top view of a 75mm long line measures 65mm. While the length of its Front view is 50mm. It's one end A is in H.P and 12mm infront of V.P. Draw the projections of AB and determine its inclinations with H.P and V.P.	12M	2	3
Q.3(A)	A Hexagonal pyramid of a base side 30mm and axis 60mm has an edge of its base on the ground. Its axis is inclined at 40^0 to the ground and parallel to V.P. Draw its projections.	12M	3	3
	OR			
Q.3(B)	Draw the projections of a regular Pentagon of 25mm side having one of its sides in the H.P and inclined at 60^0 to V.P. The surface of the plane is inclined at 40^0 with H.P.	12M	3	3
Q.4(A)	A cylinder with a base diameter of 40 mm and height of 80 mm rests on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 45° to HP and passes through the axis at a distance 40 mm from the base. Draw the front view, sectional top view , and true shape of the section.	12M	4	3
	OR			
Q.4(B)	A hexagonal prism of the side of base 30 mm and axis 70 mm long is resting on its base on H.P. such that a rectangular face is parallel to V.P. It is cut by a section plane perpendicular to V.P. and inclined at 30^0 to H.P. The section plane is passing through the axis at a height of 40mm from the base. Draw the development of the lateral surface of the cut prism.	12M	4	4
Q.5(A)	Draw the front, top and left side view for the figure given below	12M	5	3



OR

Q.5(B)	A Vertical cylinder of 100mm diameter is completely penetrated by another cylinder of 70mm diameter with their axes bisecting each other at 90^0. Draw their projections showing curves of penetration, assuming the axis of the penetrating cylinder to be parallel to the V.P.	12M	5	4

END

Set - 4

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

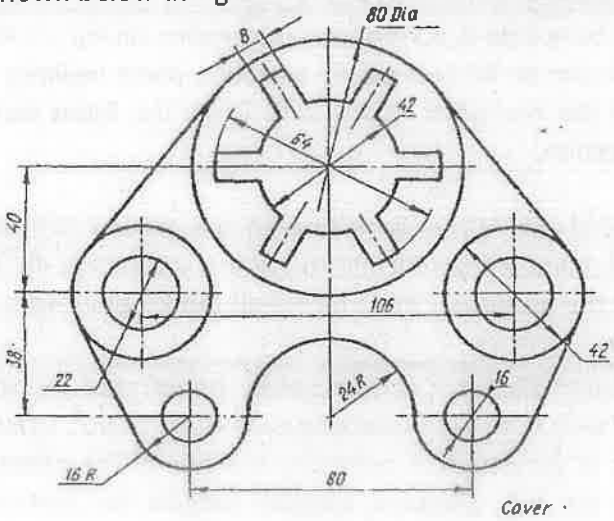
ENGINEERING GRAPHICS

(Common to CS-DS, CS-CS)

Time: 3Hrs **Max Marks: 60**

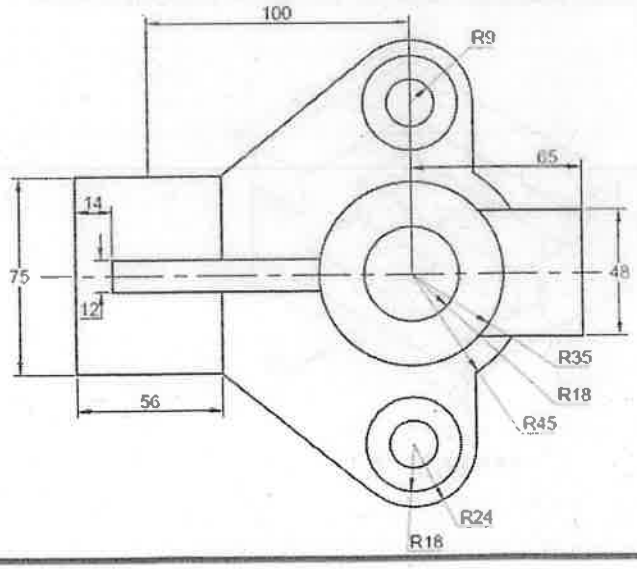
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	BL
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

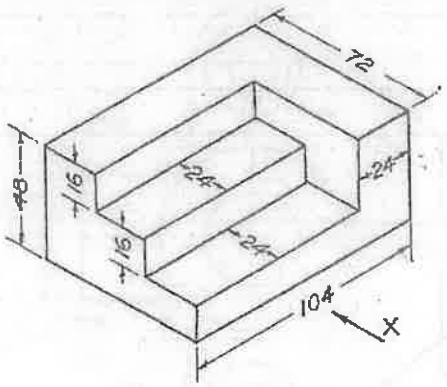


OR

		Marks	CO	BL
Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	A Line CD is 70 mm long and it is inclined at 45^0 to HP and 30^0 to VP. The End C is 30mm above HP and 25mm infront of VP. Draw the projections of the line and find its apparent inclinations with HP and VP.	12M	2	3
	OR			
Q.2(B)	i. A point A is 30mm above H.P, 50mm in front of V.P, and 25mm in front of P.P. Draw the front view, top view, and left side view of the point.	6M	2	3
	ii. A point B is 40mm below H.P, 50mm behind V.P, and 30mm in front of P.P. Draw the front view, top view, and right side view of the point.	6M	2	3
Q.3(A)	A Pentagonal Prism of base edge 30 mm and axis 60mm has a corner on the H.P with its axis inclined at 45^0 to the H.P. Draw the projections when the plane containing the resting corner and the axis is parallel to V.P.	12M	3	3
	OR			
Q.3(B)	Draw the projections of a circle of 50mm diameter resting in the H.P and a point A on the circumference. Its plane is inclined at 45^0 to the HP and the top view of the diameter AB makes an angle of 30^0 with the VP.	12M	3	3
Q.4(A)	A Hexagonal prism, 35 mm base side & 60 mm axis is standing on Hp on its base whose one side is perpendicular to VP. It is cut by a section plane inclined at 45^0 to Hp and passing through the mid-point of the axis. Draw the Front view and Sectional Top view of the section.	12M	4	4
	OR			
Q.4(B)	A cylinder of base 50mm and axis 60mm is resting on the ground with its axis vertical. It is cut by a section plane perpendicular to V.P and inclined at 45^0 to H.P passing through the top of the generator and cutting all other generators. Draw the development of its lateral surface.	12M	4	4
Q.5(A)	A Vertical cylinder of 100mm diameter is completely penetrated by another cylinder of 70mm diameter with their axes bisecting each other at 90^0. Draw their projections showing curves of penetration, assuming the axis of the penetrating cylinder to be parallel to the V.P. (Assume suitable lengths for vertical and horizontal cylinders)	12M	5	4
	OR			
Q.5(B)	Draw the Front view, Topview, and side view for the given isometric view.	12M	5	3



*** END***

Set - 5

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

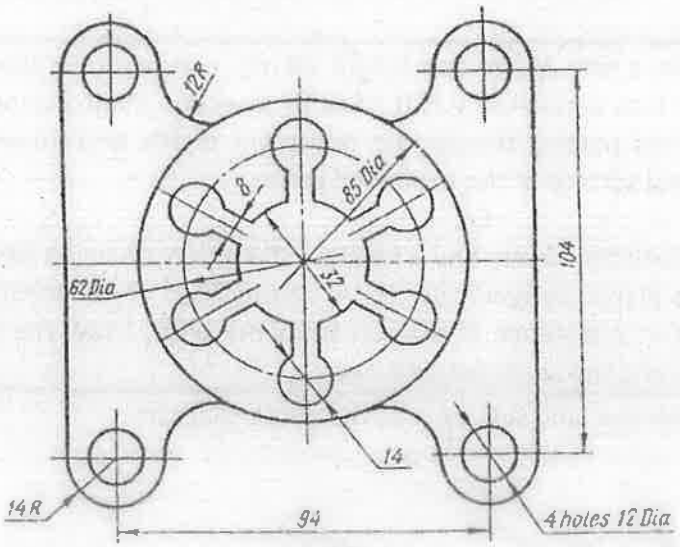
ENGINEERING GRAPHICS

(Common to CSE, CSE-DS)

Time: 3Hrs **Max Marks: 60**

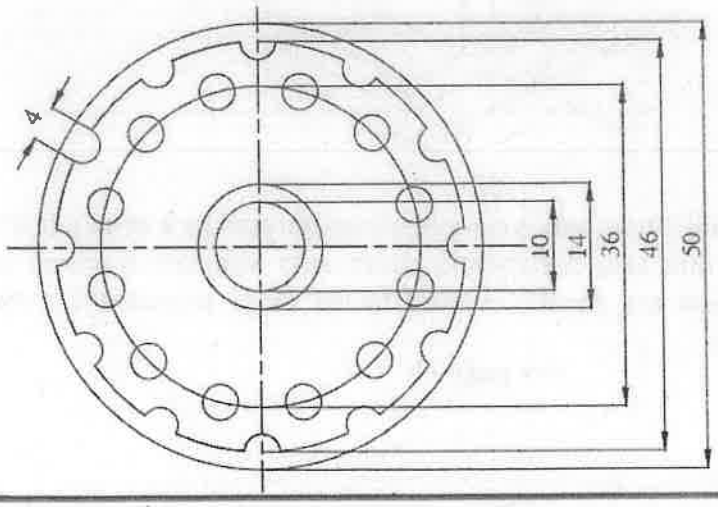
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	Bl.
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

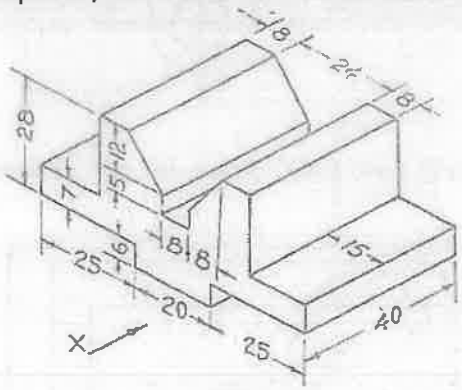


OR

Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	Draw the projections of a 75mm long line in the following positions i. Inclined at 45° to H.P, its one end 20mm above H.P, parallel to and 30mm infront of V.P	6M	2	3
	ii. Inclined at 50° to V.P, its one end 25mm infront of V.P, Parallel to and 25mm above H.P.	6M	2	
	OR			
Q.2(B)	i. A point A is 30mm above H.P, 50mm in front of V.P, and 30mm in front of P.P. Draw the front view, top view, and left side view of the point.	6M	2	3
	ii. A point B is 40mm below H.P, 50mm behind V.P, and 30mm in front of P.P. Draw the front view, top view, and right side view of the point.	6M	2	3
Q.3(A)	A rectangular plate of negligible thickness having 150mm length and 100mm width is resting on one of its smaller side on HP. The surface makes an inclination of 30^0 to HP and smaller side makes an inclination of 60^0 to VP. Draw the projection of the plate.	12M	3	3
	OR			
Q.3(B)	A Pentagonal Prism of base edge 30mm and axis 60mm rests on an edge of its base in the H.P. Its axis is parallel to V.P and inclined at 45^0 to H.P. Draw its projections	12M	3	3
Q.4(A)	A pentagonal prism of base side 30mm and height 70 mm resting on its base on H.P with the rectangular face parallel to V.P. It is cut by a section plane inclined at 45 degrees to the H.P and passing though the mid point of the axis. Draw the development of the lateral surface of the truncated prism.	12M	4	3
	OR			
Q.4(B)	A cylinder with a base diameter 40 mm and a height of 80 mm rests on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 45° to HP and passes through the axis at a distance of 40 mm from the base. Draw the front view, sectional top view and the sectional side view.	12M	4	3
Q.5(A)	Draw the Front view , Topview, and side view of the above diagram	12M	5	3



OR

Q.5(B)	A cylinder 50mm dia.and 70mm axis is completely penetrated by a square prism of 25 mm sides.and 70 mm axis, horizontally. Both axes Intersect & bisect each other. All faces of prism are equally inclined to Hp. Draw projections showing curves of intersections.	12M	5	3

*** END***

Set – 6

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

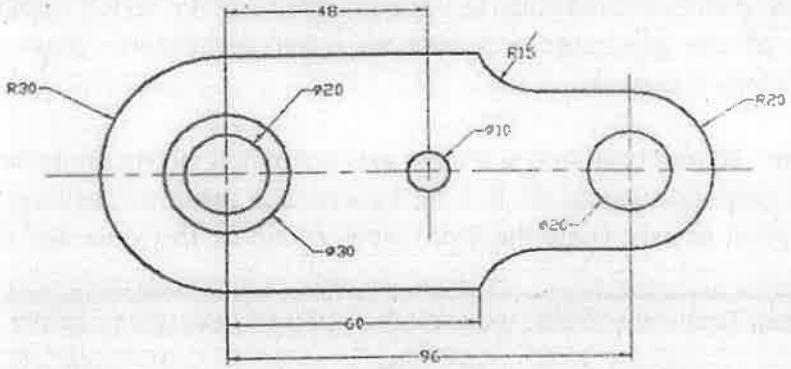
ENGINEERING GRAPHICS

(Common to CSE, CSE-DS)

Time: 3Hrs **Max Marks: 60**

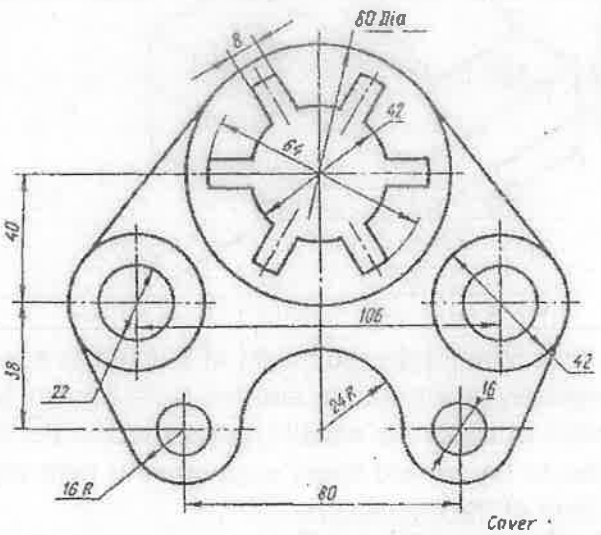
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	BL
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



OR

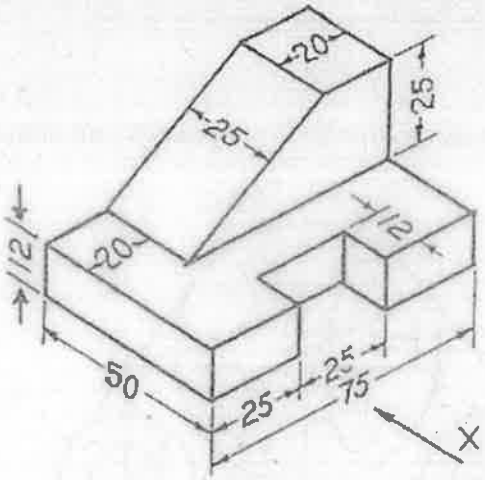
		Marks	CO	BL
Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



		Marks	CO	BL
Q.2(A)	The line AB is 70 mm long and A is 20mm above HP and 15mm in front of VP and other end B is 60mm in front of VP and 50mm above HP. Draw the projection of line and find inclination of lines.	12M	2	3

OR

Q.2(B)	Draw the projections of the following points on the same ground line XY; keeping the distance between the projectors as 50mm. Also state the quadrants in which they lie i) Point E, 35mm above the H.P. and 40mm in front of the V.P. ii) Point F, 45mm above the H.P. and 35mm behind the V.P. iii) Point G, 30mm below the H.P. and 50mm in front of the V.P. iv) Point H, 30mm below the H.P. and 50mm behind the V.P.	12M	2	3
Q.3(A)	A Hexagonal pyramid of base side 30mm and axis 60mm has an edge of its base on the ground. Its axis is inclined at 45^0 to the ground and parallel to V.P. Draw its projections.	12M	3	3
	OR			
Q.3(B)	Draw the projections of a circle of 50mm diameter resting in the H.P and a point A on the circumference. Its plane is inclined at 45^0 to the HP and the topview of the diameter AB making an angle of 30^0 with the VP.	12M	3	3
Q.4(A)	A cylinder of base 50mm and axis 60mm is resting on ground with its axis vertical. It is cut by a section plane perpendicular to V.P and inclined at 45^0 to H.P passing through the top of the generator and cuts all other generators. Draw its development of its lateral surface.	12M	4	4
	OR			
Q.4(B)	A pentagonal prism , 30 mm base side & 50 mm axis is standing on Hp on its base whose one side is perpendicular to VP. It is cut by a section plane 45^0 inclined to Hp, through mid point of axis. Draw the Front view, sectional Top view and the side view.	12M	4	4
Q.5(A)	Draw the Front view, Topview and side view for the isometric view given below	12M	5	3



OR

Q.5(B)	A vertical square prism, base 50mm side and height of 90mm has a face inclined at 30^0 to the VP. It is completely penetrated by another square prism, base 40mm side and 100mm long, faces of which are equally inclined to the VP. The axes of the two prisms are parallel to the VP and bisect each other at right angles. Draw the projections showing lines of the intersection.	12M	5	4

*** END***

Set - 7

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Examinations –SEPTEMBER 2022

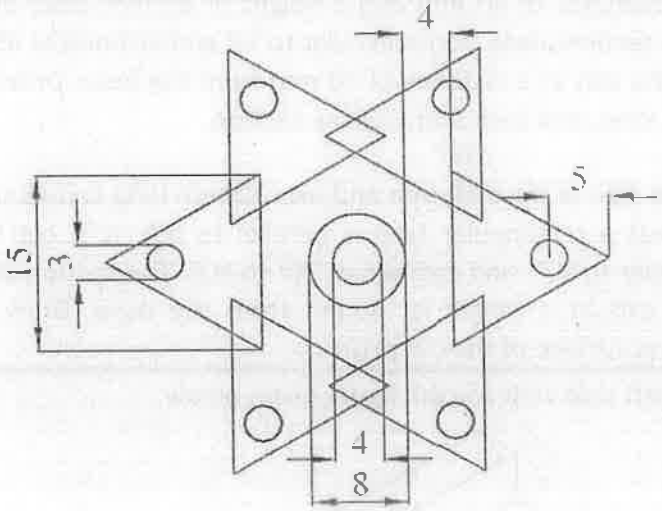
ENGINEERING GRAPHICS

(CSE)

Time: 3Hrs **Max Marks: 60**

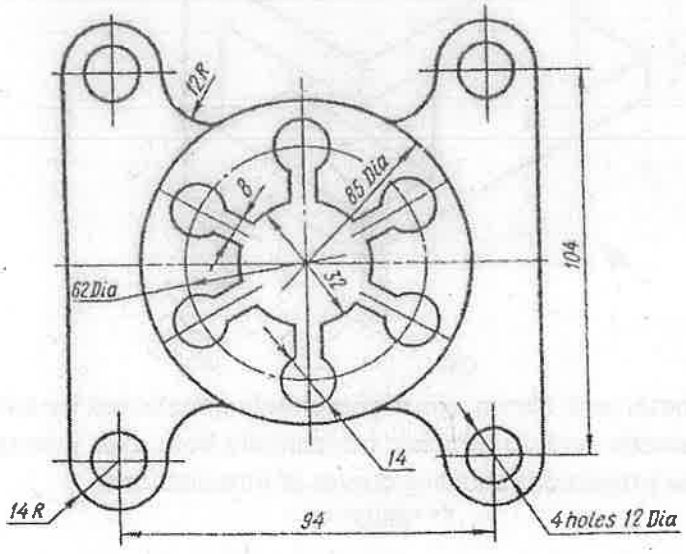
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	Bl
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

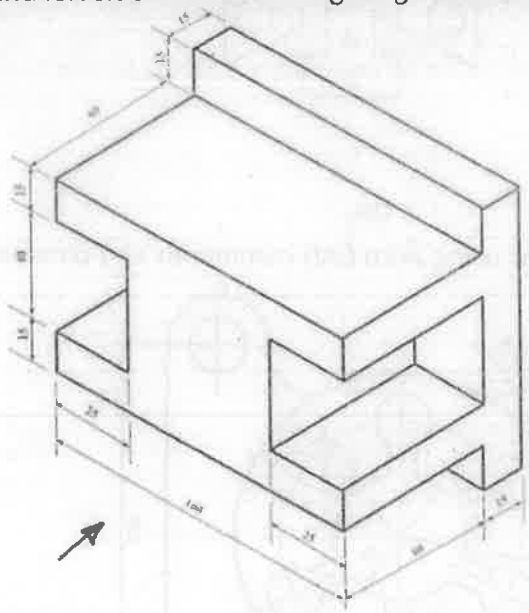


OR

		Marks	CO	Bl
Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	Two points C and D are in the H.P. The point C is 15mm in front of V.P and D is behind the V.P. the distance between their projectors is 40mm and line joining their top views makes an angle of 40^0 with xy. Find the distance of the point C from the V.P.	12M	2	3
	OR			
Q.2(B)	The Top view of a 75mm long line measures 65mm. While the length of its Front view is 50mm. It's one end A is in H.P and 20 mm infront of V.P. Draw the projections of the line AB and determine its inclinations with H.P and V.P.	12M	2	3
Q.3(A)	A Pentagonal pyramid with a base side of 30mm and an axis of 70mm has an edge of its base on the ground. Its axis is inclined at 30^0 to the ground and parallel to V.P. Draw its projections.	12M	3	3
	OR			
Q.3(B)	A rectangular lamina with longer edge 175mm and smaller edge 100mm is resting on one of its smaller edges on the HP. It is inclined with the HP in such a way that its TV appears as a square with maximum dimensions. Draw projections if the smaller edge makes inclinations of 60^0 with the VP	12M	3	3
Q.4(A)	A cylinder with a base diameter of 40 mm and a height of 80 mm rests on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 45° to HP and passes through the axis at a distance of 40 mm from the base. Draw the front view, sectional top view, and true shape of the section.	12M	4	3
	OR			
Q.4(B)	A hexagonal prism of the side of base 30 mm and axis 70 mm long is resting on its base on H.P. such that a rectangular face is parallel to V.P. It is cut by a section plane perpendicular to V.P. and inclined at 30^0 to H.P. The section plane is passing through the axis at a height of 40mm from the base. Draw the development of the lateral surface of the cut prism.	12M	4	4
Q.5(A)	Draw the front, top and left side view for the figure given below	12M	5	3



	OR			
Q.5(B)	A cylinder 50mm diameter and 70mm axis is completely penetrated By another cylinder of 40 mm diameter and 70 mm axis horizontally Both axes intersect & bisect each other. Draw projections showing curves of intersections.	12M	5	4

*****END*****

Set - 8

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

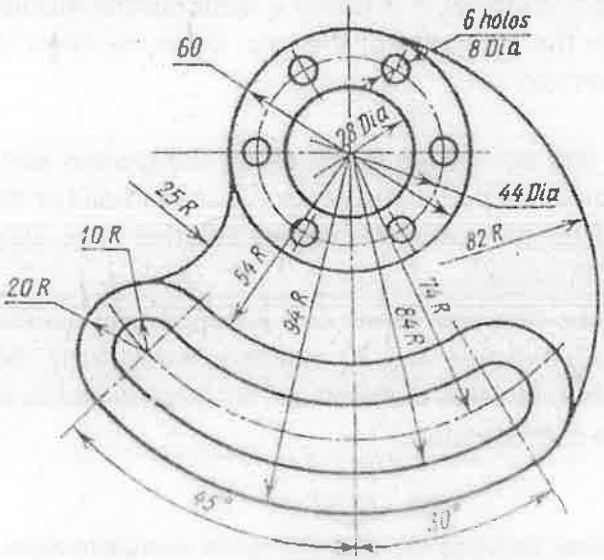
ENGINEERING GRAPHICS

(CSE)

Time: 3Hrs **Max Marks: 60**

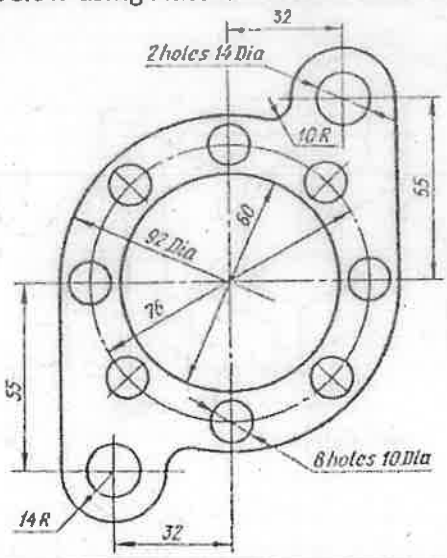
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	BL
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

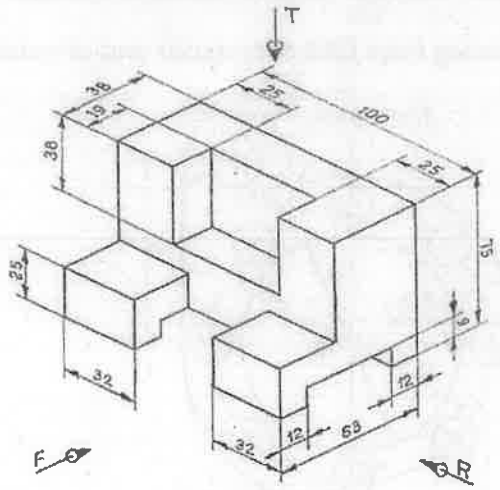


OR

Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	A line AB 90mm long is inclined at 45^0 to HP and its Top view makes an angle of 60^0 to V.P. The end A is in H.P and 12mm infront of V.P. Draw its Front view and find its True inclination with V.P	12M	2	3
	OR			
Q.2(B)	i. A point A is 30mm above H.P, 50mm in front of V.P, and 25mm in front of P.P. Draw the front view, top view, and left side view of the point. ii. A point B is 40mm below H.P, 50mm behind V.P, and 30mm in front of P.P. Draw the front view, top view, and right side view of the point.	12M	2	3
Q.3(A)	A Cylinder of base diameter 50mm and axis 70mm has a generator in V.P and inclined at 45^0 to H.P. Draw its projections.	12M	3	3
	OR			
Q.3(B)	Draw the projections of a circle of 50mm diameter resting in the H.P and a point A on the circumference. Its plane is inclined at 45^0 to the HP and the top view of the diameter AB makes an angle of 30^0 with the VP.	12M	3	3
Q.4(A)	A Hexagonal prism, 35 mm base side & 60 mm axis is standing on Hp on its base whose one side is perpendicular to VP. It is cut by a section plane inclined at 45^0 to Hp and passing through the mid-point of the axis. Draw the Front view and Sectional Top view of the section.	12M	4	4
	OR			
Q.4(B)	A cylinder of base 50mm and axis 60mm is resting on the ground with its axis vertical. It is cut by a section plane perpendicular to V.P and inclined at 45^0 to H.P passing through the top of the generator and cutting all other generators. Draw the development of its lateral surface.	12M	4	4
Q.5(A)	A square prism 30 mm base side and 70mm axis is completely penetrated by another square prism of 25 mm side and 70 mm axis, horizontally. Both axes Intersects & bisect each other. All faces of prisms are equally inclined to Vp. Draw projections showing curves of intersections.	12M	5	4
	OR			
Q.5(B)	Draw the Front view, Topview, and side view for the given isometric view.	12M	5	3



*** END***

Set - 9

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

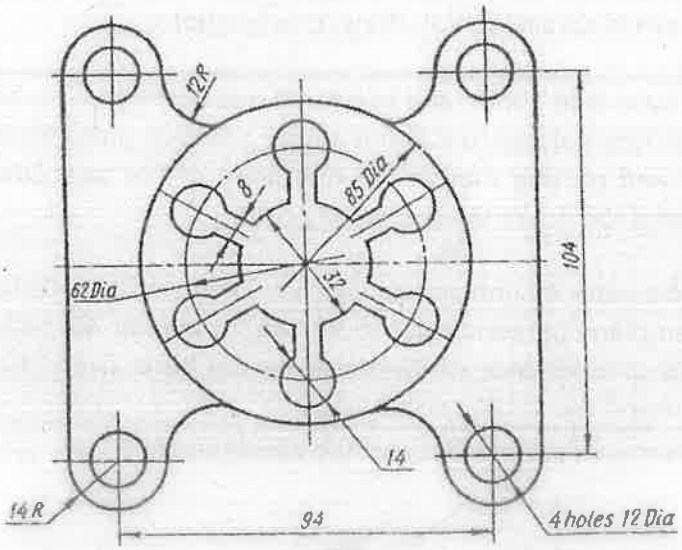
ENGINEERING GRAPHICS

(CSE - AI)

Time: 3Hrs **Max Marks: 60**

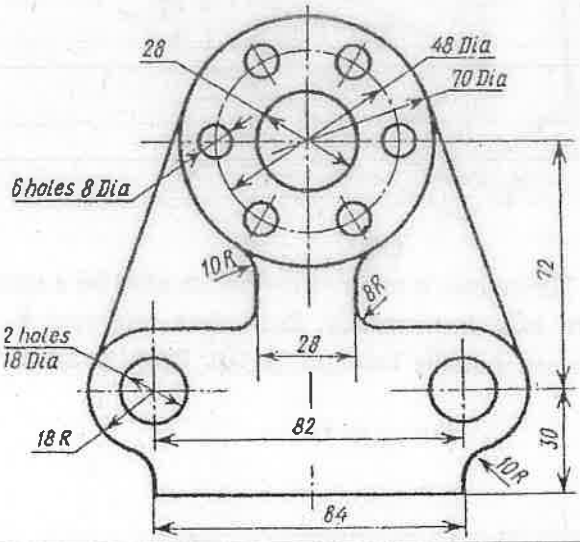
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	BL
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

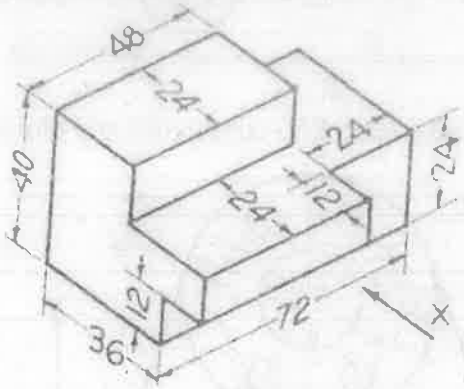


OR

Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	The line AB is 70 mm long and A is 20mm above HP and 15mm in front of VP and other end B is 60mm in front of VP and 50mm above HP. Draw the projection of line and find inclination of lines.	12M	2	3
	OR			
Q.2(B)	Draw the projections of the following points on the same ground line XY; keeping the distance between the projectors as 50mm. Also state the quadrants in which they lie i) Point A, 35mm above the H.P. and 40mm in front of the V.P. ii) Point B, 45mm above the H.P. and 35mm behind the V.P. iii) Point C, 30mm below the H.P. and 50mm in front of the V.P. iv) Point D, 30mm below the H.P. and 50mm behind the V.P.	12M	2	3
Q.3(A)	A rectangular plate of negligible thickness having 150mm length and 100mm width is resting on one of its smaller side on HP. The surface makes an inclination of 30^0 to HP and smaller side makes an inclination of 60^0 to VP. Draw the projection of the plate.	12M	3	3
	OR			
Q.3(B)	A Hexagonal Pyramid of base edge 30 mm and height 60mm has a triangular face on the ground and the axis is parallel to V.P. Draw its projections.	12M	3	3
Q.4(A)	A pentagonal prism of base side 30mm and height 70 mm resting on its base on H.P with the rectangular face parallel to V.P. It is cut by a section plane inclined at 45 degrees to the H.P and passing though the mid point of the axis. Draw the development of the lateral surface of the truncated prism.	12M	4	3
	OR			
Q.4(B)	A cylinder with a base diameter 40 mm and a height of 80 mm rests on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 45° to HP and passes through the axis at a distance of 40 mm from the base. Draw the front view, sectional top view and the sectional side view.	12M	4	3
Q.5(A)	Draw the Front view , Topview, and side view of the above diagram	12M	5	3



OR

Q.5(B)	A cylinder 50mm dia.and 70mm axis is completely penetrated by a square prism of 25 mm sides.and 70 mm axis, horizontally. Both axes Intersect & bisect each other. All faces of prism are equally inclined to Hp. Draw projections showing curves of intersections.	12M	5	3

*** END***

Set - 11

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

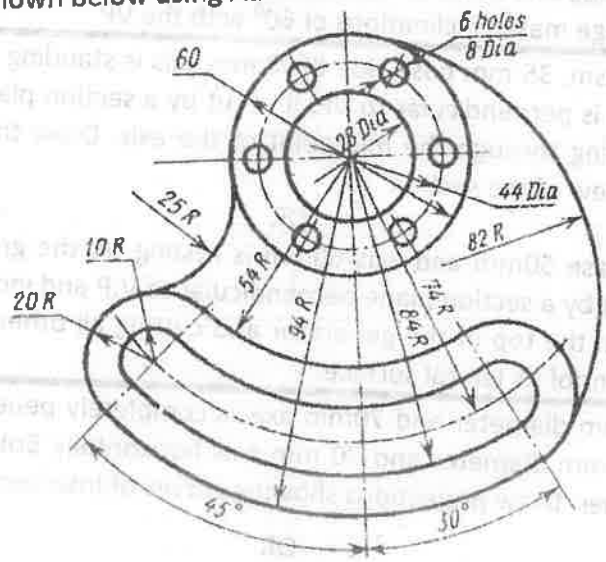
ENGINEERING GRAPHICS

(CSE)

Time: 3Hrs **Max Marks: 60**

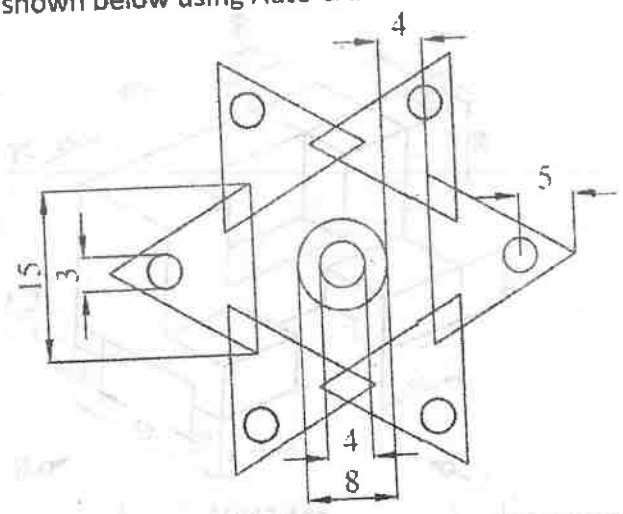
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	BL
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

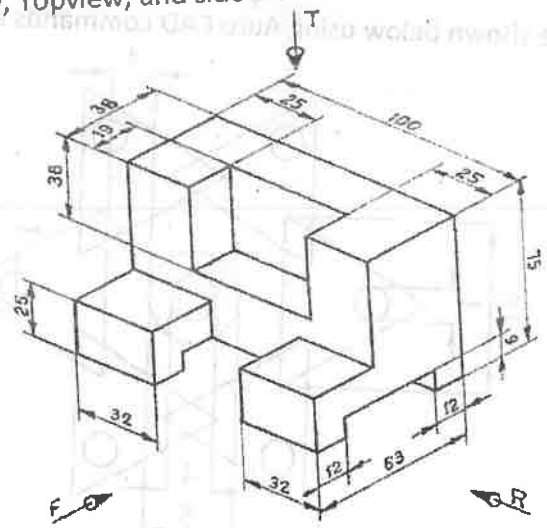


OR

Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	A line AB 90mm long is inclined at 45^0 to HP and its Top view makes an angle of 60^0 to V.P. The end A is in H.P and 12mm infront of V.P. Draw its Front view and find its True inclination with V.P	12M	2	3
	OR			
Q.2(B)	i. A point A is 30mm above H.P, 50mm in front of V.P, and 25mm in front of P.P. Draw the front view, top view, and left side view of the point. ii. A point B is 40mm below H.P, 50mm behind V.P, and 30mm in front of P.P. Draw the front view, top view, and right side view of the point.	12M	2	3
Q.3(A)	A Cylinder of base diameter 50mm and axis 70mm is resting with a point on the circumference of its base. Draw the projections, when the axis is inclined at 45^0 to H.P and parallel to VP.	12M	3	3
	OR			
Q.3(B)	A rectangular lamina with longer edge 175mm and smaller edge 100mm is resting on one of its smaller edges on the HP. It is inclined with the HP in such a way that its TV appears as a square with maximum dimensions. Draw projections if the smaller edge makes inclinations of 60^0 with the VP	12M	3	3
Q.4(A)	A Hexagonal prism, 35 mm base side & 60 mm axis is standing on Hp on its base whose one side is perpendicular to VP. It is cut by a section plane inclined at 45^0 to Hp and passing through the mid-point of the axis. Draw the Front view and Sectional Top view of the section.	12M	4	4
	OR			
Q.4(B)	A cylinder of base 50mm and axis 60mm is resting on the ground with its axis vertical. It is cut by a section plane perpendicular to V.P and inclined at 45^0 to H.P passing through the top of the generator and cutting all other generators. Draw the development of its lateral surface.	12M	4	4
Q.5(A)	A cylinder 50mm diameter and 70mm axis is completely penetrated By another cylinder of 40 mm diameter and 70 mm axis horizontally Both axes intersect & bisect each other. Draw projections showing curves of intersections.	12M	5	4
	OR			
Q.5(B)	Draw the Front view, Topview, and side view for the given isometric view.	12M	5	3



*** END***

Set - 12

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Examinations –SEPTEMBER 2022

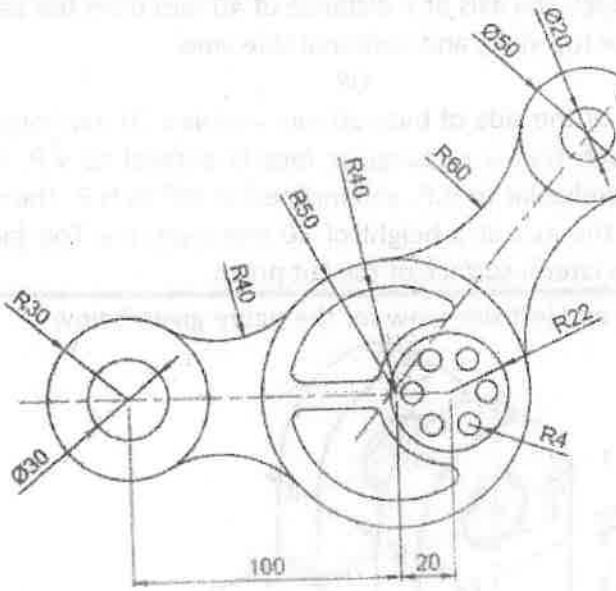
ENGINEERING GRAPHICS

(CSE-AI)

Time: 3Hrs **Max Marks: 60**

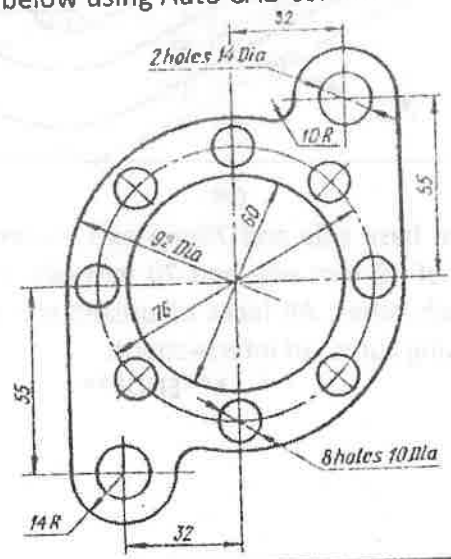
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	BL
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

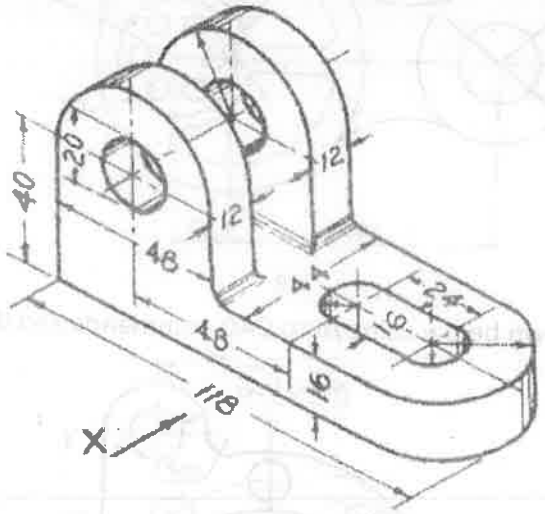


OR

Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	Two points C and D are in the H.P. The point C is 15mm in front of V.P and D is behind the V.P. the distance between their projectors is 40mm and line joining their top views makes an angle of 40^0 with xy. Find the distance of the point C from the V.P.	12M	2	3
	OR			
Q.2(B)	A line AB 80mm long is inclined at an angle of 30^0 to H.P and 45^0 to V.P. The point A is 20mm above H.P and 30mm infront of V.P. Draw its Projections.	12M	2	3
Q.3(A)	A Pentagonal pyramid with a base side of 30mm and an axis of 70mm has an edge of its base on the ground. Its axis is inclined at 30^0 to the ground and parallel to V.P. Draw its projections.	12M	3	3
	OR			
Q.3(B)	Draw the projections of a circle of 50mm diameter resting in the H.P and a point A on the circumference. Its plane is inclined at 45^0 to the HP and the top view of the diameter AB makes an angle of 30^0 with the VP.	12M	3	3
Q.4(A)	A cylinder with a base diameter of 40 mm and a height of 80 mm rests on its base on HP. It is cut by a section plane perpendicular to VP and inclined at 45° to HP and passes through the axis at a distance of 40 mm from the base. Draw the front view, sectional top view, and sectional side view.	12M	4	3
	OR			
Q.4(B)	A Hexagonal prism of the side of base 30 mm and axis 70 mm long is resting on its base on H.P. such that a rectangular face is parallel to V.P. It is cut by a section plane perpendicular to V.P. and inclined at 40^0 to H.P. The section plane is passing through the axis at a height of 30 mm from the Top face. Draw the development of the lateral surface of the cut prism.	12M	4	4
Q.5(A)	Draw the front, top and left side view for the figure given below	12M	5	3



OR

Q.5(B)	A square prism 30 mm base side and 70mm axis is completely penetrated by another square prism of 25 mm side and 70 mm axis, horizontally. Both axes Intersects & bisect each other. All faces of prisms are equally inclined to VP. Draw projections showing curves of intersections.	12M	5	4

END

Set – 10

Hall Ticket No: | | | | | | | | | | |

Question Paper Code: 20ME101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech I Year II Semester (R20) Regular End Semester Examinations –SEPTEMBER 2022

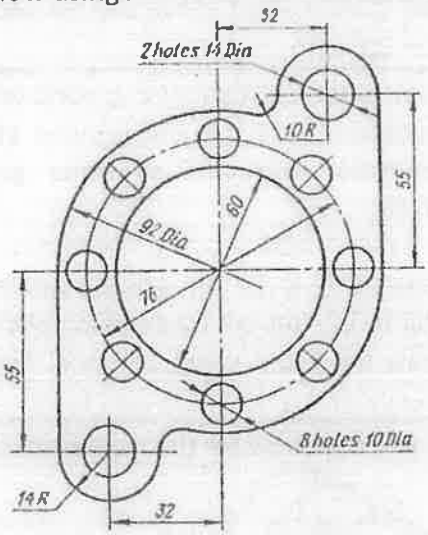
ENGINEERING GRAPHICS

(CSE-AI)

Time: 3Hrs **Max Marks: 60**

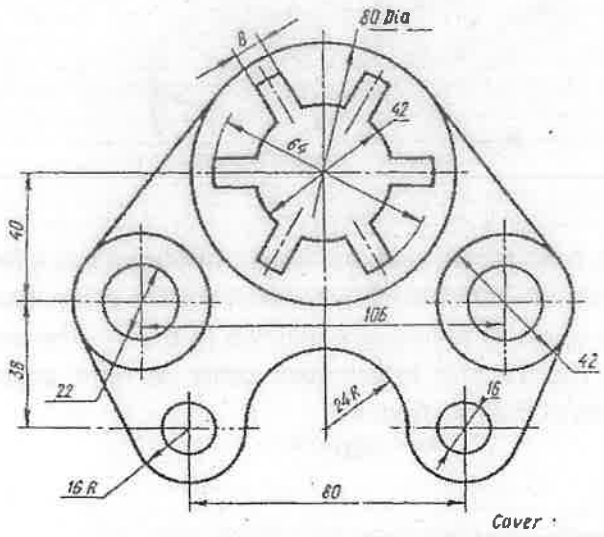
Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 1 to 5 answer either Part-A or B only

		Marks	CO	BL
Q.1(A)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3

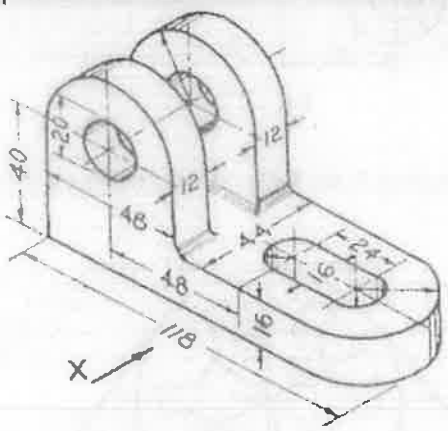


OR

Q.1(B)	Draw the figure shown below using Auto CAD commands and dimension it.	12M	1	3



Q.2(A)	Draw the projections of a 75mm long line in the following positions i. Inclined at 45° to H.P, its one end 20mm above H.P, parallel to and 30mm infront of V.P ii. Inclined at 50° to V.P, its one end 25mm infront of V.P, Parallel to and 25mm above H.P.	12M	2	3
	OR			
Q.2(B)	i. A point A is 30mm above H.P, 50mm in front of V.P, and 30mm in front of P.P. Draw the front view, top view, and left side view of the point. ii. A point B is 40mm below H.P, 50mm behind V.P, and 30mm in front of P.P. Draw the front view, top view, and right side view of the point.	12M	2	3
Q.3(A)	A Pentagonal Prism of base edge 30 mm and axis 60mm has a corner on the H.P with its axis inclined at 45^0 to the H.P. Draw the projections when the plane containing the resting corner and the axis is parallel to V.P.	12M	3	3
	OR			
Q.3(B)	Draw the projections of a circle of 50mm diameter resting in the H.P and a point A on the circumference. Its plane is inclined at 45^0 to the HP and the topview of the diameter AB making an angle of 30^0 with the VP.	12M	3	3
Q.4(A)	A cylinder of base 50mm and axis 60mm is resting on ground with its axis vertical. It is cut by a section plane perpendicular to V.P and inclined at 45^0 to H.P passing through the top of the generator and cuts all other generators. Draw its development of its lateral surface.	12M	4	4
	OR			
Q.4(B)	A pentagonal prism , 30 mm base side & 50 mm axis is standing on Hp on its base whose one side is perpendicular to VP. It is cut by a section plane 45^0 inclined to Hp, through mid point of axis. Draw the Front view, sectional Top view and the side view.	12M	4	4
Q.5(A)	Draw the Front view, Topview and side view for the isometric view given below	12M	5	3



OR

Q.5(B)	A vertical square prism, base 50mm side and height of 90mm has a face inclined at 30^0 to the VP. It is completely penetrated by another square prism, base 40mm side and 100mm long, faces of which are equally inclined to the VP. The axes of the two prisms are parallel to the VP and bisect each other at right angles. Draw the projections showing lines of the intersection.	12M	5	4

*** END***