MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B. Tech I Year I Semester (R20) Supplementary End Semester Examinations, January – 2025
ENGINEERING CALCULUS
(Common to CE, ECE, ME, CSE, CST, CDS, CAI, 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 2 to 6 answer either A or B only

Q.No		Question	Marks	CO	BL
Q.1	i.	Determine the area between the curve $y = \sqrt{x}$, $0 \le x \le 4$ and the x-axis.	1M	1	1
	ii.	Find the value of $\Gamma\left(\dfrac{7}{2}\right)$	1M	1	2
	iii.	State Rolle's theorem	1M	2	1
	iv	Evaluate $\underset{x \to 0}{Lt} \dfrac{3^x - 2^x}{x}$	1M	2	2
	v.	State P-Series test	1M	3	1
	vi	If $f(x) = x^2$ in $0 < x < 2$ then determine a_0.	1M	3	2
	vii.	If $f(x,y) = y \sin x + x e^y$ then find $\dfrac{\partial f}{\partial x}$ and $\dfrac{\partial f}{\partial y}$.	1M	4	2
	viii.	When a function $f(x,y)$ has local minimum at (a,b).	1M	4	1
	ix.	Evaluate $\int\limits_0^3 \int\limits_0^2 dy\,dx$	1M	5	2
	x.	Find the $CurlF$ when $F = xyi + yzj + zx\,k$	1M	5	2
Q.2(A)		Find the volume of the solid generated by the revolution of the cardioid $r = a(1 - \cos\theta)$ about the initial line.	10M	1	3
		OR			
Q.2(B)		Evaluate a. $\int\limits_0^\infty e^{-x^2} dx$ b. $\int\limits_0^\infty e^{-kx} x^{p-1} dx\,(k>0)$	10M	1	3
Q.3(A)		If $f(x) = \sin^{-1}(x)$ (if $0 < a < b < 1$), Use mean value theorem to prove that $\dfrac{b-a}{\sqrt{1-a^2}} < \sin^{-1} b - \sin^{-1} a < \dfrac{b-a}{\sqrt{1-b^2}}$	10M	2	3
		OR			
Q.3(B)		A window has the form of a rectangle surmounted by a semi-circle. If the perimeter is 40ft., find its dimensions so that the greatest amount of light may be admitted.	10M	2	3
Q.4(A)		Investigate the series converges or diverges, a) $\sum\limits_{n=1}^{\infty} \dfrac{3^n}{n^3 2^n}$ b) $\sum\limits_{n=1}^{\infty} \dfrac{n-2}{n^3 - n^2 + 3}$	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

| | | 10M | 4 | 3 |

Q.5(A) Determine $\dfrac{\partial w}{\partial u}$ and $\dfrac{\partial w}{\partial v}$, if $w = xy + yz + zx$, $x = u + v$, $y = u - v$, $z = uv$ at $(1,2)$

OR

| | | 10M | 4 | 3 |

Q.5(B) Find the local extreme values of the function $f(x,y) = x^3 + 3xy^2 - 15x + y^3 - 15y$

Q.6(A) Sketch the region of integration, reverse the order of integration, and evaluate the integral $\displaystyle\int_0^2 \int_0^{4-x^2} \dfrac{xe^{2y}}{4-y}\, dy\, dx$ 10M   5   3

OR

Q.6(B) Use Divergence theorem to evaluate outward flux of $F = x^2 i + y^2 j + z^2 k$ through the surface of the cube cut by the planes $x = \pm 1$, $y = \pm 1$, $z = \pm 1$ 10M   5   3

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B. Tech I Year I Semester (R20) Supplementary End Semester Examinations, January – 2025
CALCULUS AND DIFFERENTIAL EQUATIONS
(Electrical & Electronics Engineering)

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

Q.No		Question	Marks	CO	BL
Q.1	i.	State the Lagrange's mean value theorem	1M	1	1
	ii.	Determine the area between the curve $y = \sqrt{x}$, $0 \le x \le 4$ and the x-axis.	1M	1	1
	iii.	Evaluate $\underset{x \to 0}{Lt} \dfrac{x - \sin x}{x^2}$	1M	2	1
	iv	When the function $f(x, y)$ has saddle point	1M	2	1
	v.	Evaluate $\iint\limits_{R} dA$, when $0 \le r \le 2, 0 \le \theta \le 2\pi$	1M	3	1
	vi	Find the divergence of $f(x, y, z) = x^2 y\,i + y^2 z\,j + z^2 x\,k$	1M	3	1
	vii.	Define order and degree of a differential equation.	1M	4	1
	viii.	What is particular integral of $y'' - 4y = e^x$	1M	4	1
	ix.	State Divergence theorem	1M	5	1
	x.	Test the convergence of the series $\sum\limits_{n=1}^{\infty} \dfrac{1}{n^{7/2}}$	1M	5	1
Q.2(A)		Prove that (if $0 < a < b$), $\dfrac{b-a}{\sqrt{1-a^2}} < Sin^{-1}b - Sin^{-1}a < \dfrac{b-a}{\sqrt{1-b^2}}$	10M	1	3
		OR			
Q.2(B)		Find the area of the parametric curve $x = a\cos^3 t, \; y = a\sin^3 t$	10M	1	4
Q.3(A)		Find all second order derivatives for the function $f(x, y, z) = \log(x + 2y + 3z)$	10M	2	3
		OR			
Q.3(B)		Find the local extreme values of function $f(x,y) = xy - x^2 - y^2 - 2x - 2y + 4$	10M	2	3
Q.4(A)		Evaluate $\iint\limits_{R} e^{x^2 + y^2} dy\,dx$, where R is the semicircular region bounded by the X-axis and the curve $y = \sqrt{1 - x^2}$ by using polar coordinates	10M	3	3
		OR			
Q.4(B)		Use Green's theorem to find the counter clockwise circulation for the field $F = (x^2 + 4y)i + (x + y^2)j$ over the square bounded by x = 0, x = 1, y = 0, y = 1	10M	3	4
Q.5(A)		Solve $y'' + y = Co\sec x$ using the method of variation of parameter.	10M	4	3

OR

Q.5(B)	Find the general solution of $y'' + 10y' + 25y = 14e^{-5x}$	10M	4	3
Q.6(A)	Form the partial differential equations by eliminating the arbitrary functions from the following $i)\, z = xf(x+t) + g(x+t)$ $ii)\;\; z = f(x) + e^y g(x)$	10M	5	3

OR

| Q.6(B) | Use any method to determine the series converges or diverges.

$i)\, \sum\limits_{n=1}^{\infty} \dfrac{(n+1)(n+2)}{n!}$ $ii)\, \sum\limits_{n=1}^{\infty} \dfrac{n-2}{n^3 - n^2 + 3}$ | 10M | 5 | 4 |

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B. Tech I Year I & II Semesters (R20) Supplementary End Semester Examinations, January – 2025
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

Q.No		Question	Marks	CO	BL
Q.1	i.	Write the structure of EDTA.	1M	1	2
	ii.	Name any two coagulants.	1M	1	2
	iii.	Draw the structure of $BeCl_2$?	1M	2	3
	iv	Define polymerization.	1M	2	1
	v.	State Beer Lambert's law.	1M	3	2
	vi	What is coupling constant in NMR spectroscopy.	1M	3	1
	vii.	What are state functions in thermodynamics?	1M	4	1
	viii.	Mention the Nernst equation of cell potential.	1M	4	2
	ix.	Give the chemical formula of Gypsum.	1M	5	1
	x.	Write the Scherrer equation.	1M	5	1
Q.2(A)		(i) 100mL of water sample required 4mL of 0.02N H_2SO_4 for neutralization to phenolphthalein end point. Another 16mL of the same acid was needed for further titration to methyl orange end point. Determine the type and extent of alkalinity present in the sample water.Source: Engineering Chemistry By Jain and Jain and Jain Engineering Chemistry, 15th edition, Page No: 46.	6M	1	3
		(ii) Define Sludge and scale. Give the reason for their formation in boilers.	4M	1	2
		OR			
Q.2(B)		(i) What is Brackish water? Explain the treatment of brackish water by reverse osmosis?	6M	1	3
		(ii) Explain caustic embrittlement?	4M	1	2
Q.3(A)		(i) Define isoelectronic species with example? Arrange the ions N^{3-}, O^{2-},F^- and Na^+ in the increasing order of their size?	4M	2	4
		(ii) Define atomic radius. Why cations are smaller and anions are larger in size than their parent atoms?	6M	2	4
		OR			
Q.3(B)		(i) Differentiate between addition and condensation polymerization	10M	2	2
		(ii) Discuss elimination reactions with examples.			
Q.4(A)		Write about principle and applications of UV-visible Spectroscopy.	10M	3	2
		OR			
Q.4(B)		Identify the different protons in the following compounds and find the number of NMR signals in each compound. (i) CH_3-CH_3 (ii) CH_3-CO-CH_3 (iii) CH_3-CH_2-CH_2OH (iv) CH_3-CH_2-O-CH_2-CH_3 (v)CH_3-CHO	10M	3	4
Q.5(A)		Define Entropy. Discuss the entropy change in reversible and irreversible Processes.	10M	4	2
		OR			
Q.5(B)		Explain the construction and working of Lead acid battery during charging and discharging with equations?	10M	4	2
Q.6(A)		What is lubricant. Describe properties of lubricants with their significance?	10M	5	2
		OR			
Q.6(B)		Describe the preparation of carbon nanotubes using chemical vapor deposition method.	10M	5	2

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B. Tech I Year I & II Semester (R20) Supplementary End Semester Examinations, January – 2025
APPLIED PHYSICS
(Common to EEE, ECE, CSE, CST, CSE-AI, CSE-DS, CSE-IOT and 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 2 to 6 answer either A or B only**

Q.No		Question	Marks	CO	BL
Q.1	i.	Write the relation between velocity amplitude 'v', the displacement amplitude 'A' and the angular frequency 'ω' of SHM.	1 M	1	1
	ii.	A travelling wave in a stretched string is described by the equation y = A Sin(kx-ωt). What is its maximum particle velocity?	1 M	1	1
	iii.	What is coherence?	1 M	2	1
	iv	Quartz has refractive indices 1.553 and 1.544. Calculate the thickness of the quarter wave plate for sodium light of wavelength 589 nm.	1 M	2	2
	v.	Calculate the wavelength associated with an electron with energy 2000 eV.	1 M	3	2
	vi	Define wave function Ψ.	1 M	3	1
	vii.	What is Fermi energy level?	1 M	4	1
	viii	Give examples of Direct and indirect bandgap semiconductors.	1 M	4	1
	ix.	What is the active working material used in Ruby Laser?	1 M	5	1
	x.	Calculate the angle of acceptance of a given optical fiber, if the refractive indices of the core and cladding are 1.563 and 1.498, respectively.	1 M	5	2
Q.2(A)	i)	What are Lissajous figures? On what factor does it depend?	2 M	1	
	ii)	Construct the Lissajous figures for the superimposed two perpendicular simple harmonic motions described by following equations x = Cos(2ωt) and y =Cos(ωt+$\frac{\pi}{2}$).	8 M	1	3

OR

Q.2(B)	Discuss the various cases of damped harmonic oscillator by deriving the necessary expressions?	10 M	1	4

Q.3(A)	i)	Define Interference? Explain how the radius of curvature of the given plano-convex lens is determined using Newton's rings experiment.	8 M	2	
	ii)	In Newton's ring experiment, determine the diameter of 10th ring using source of wavelength 600 nm and the radius of curvature of the lens is 100 cm.	2 M	2	3

OR

Q.3(B)	i)	Show that if the angle of incidence corresponds to the Brewster's angle, then the angle between reflected and refracted beam is 90°.	5 M	2	
	ii)	Describe the construction the construction and working of a Nicol prism.	5 M	2	3

Q.4(A)	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	
	ii)	An electron is moving under a potential field of 15 kV. Evaluate the wavelength of the electron wave.	2 M	3	4

OR

Q.4(B)	What is tunneling? And explain the construction and working of scanning tunneling microscope.	10 M	3	4
Q.5(A)	i) On the basis of band theory, explain how the solids are classified into metals, semiconductors and insulators?	5 M	4	
	ii) Distinguish between direct and indirect band gap semiconductors.	5 M	4	3

OR

Q.5(B)	i) Explain the effect of temperature on the Fermi-level in a semiconductor.	5 M	4	
				3
	ii) Explain Hall effect and its importance.	5 M	4	

Q.6(A)	Discuss the principle, construction and working of a He-Ne LASER?	10 M	5	3

OR

Q.6(B)	i) Explain how optical fibers are classified.	5 M	5	4
	ii) Draw the block diagram of an optical fiber communication system and explain the function of each block.	5 M	5	3

*** **END*** **

Hall Ticket No: ☐☐☐☐☐☐☐☐☐☐   Question Paper Code: 20PHY101

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B. Tech I Year I & II Semester (R20) Supplementary End Semester Examinations, January – 2025

ENGINEERING PHYSICS
(Common to CE and 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

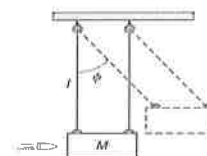| Q.No		Question	Marks	CO	BL
Q.1	i.	Write an expression for velocity in polar coordinates.	1M	1	1
	ii.	Given force $\vec{F} = -5t^3\hat{i} - 25t\hat{j}$ N and the mass is 5Kg, find acceleration of the body.	1M	1	2
	iii	What is conservative force?	1M	2	1
	iv	State work-energy theorem.	1M	2	1
	v.	What is the speed of the pendulum in SHM at $x = a/2$ with amplitude a and time-period T?	1M	3	2
	vi	Define longitudinal and transverse waves.	1M	3	2
	vii.	What is the relationship between the path difference and phase difference?	1M	4	1
	viii	What is grating element?	1M	4	1
	ix.	What is total internal reflection?	1M	5	1
	x.	If the acceptance angle of an opticalfiber is 30°, calculate the numerical aperture value?	1M	5	1
Q.2(A)		Derive the equation of motion of an electron of charge -e in the ionosphere and mass m which is initially at rest, and which is suddenly subjected to an electric field E = Eo Sin ωt (ω is the frequency of oscillation in radians per second).	10M	1	3

OR

Q.2(B)	Two masses, M1 and M2, are connected by a string that passes over a massless pulley, accelerating upward at rate A, the gravitational field as shown. Find the rate at which the masses accelerate and the tension T in the string.	10M	1	2
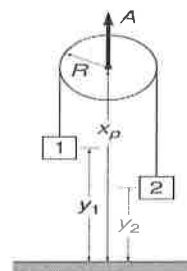
Q.3(A)	Derive the rocket equation and show that final velocity is independent of how the mass is released when it moves in a free space?	10M	2	4

OR

Q.3(B)	i) State and prove work-energy theorem.	4M	2	4
	ii) A wooden block of mass M is suspended from cables of length l. The block swings with the impact of the bullet to a maximum angle φ as shown. Find the velocity of the bullet by measuring m, M, l, and φ.	6M		

Q.4(A)	i) What are Lissajous figures? On which factors the shape of Lissajous figures depends?	2M	3	3
	ii) Two vibrations at right angles to one another are described by the equations given below. (a) $x = 10 \cos (5\pi t)$ and (b) $y = 10 \cos (10\pi t + \pi/2)$. Construct the Lissajous figure of the combined motion.	8M		

OR

Q.4(B)	Derive the transverse wave velocity in a stretched string of tension T and uniform linear density μ. If the T and are μ doubled, what will be the velocity of the transverse wave?	10M	3	3
Q.5(A)	i) What is interference? What are the conditions to get interference?	3M	4	3
	ii) Explain how the radius of curvature of a given plano-convex lens is determined by forming Newton's rings.	7M		

OR

Q.5(B)	i) What is Double Refraction?	2 M	4	3
	ii) Explain the construction and working of Nicol Prism.	8 M	4	
Q.6(A)	Explain the working of He-Ne Laser using construction and energy level diagrams.	10M	5	4

OR

Q.6(B)	i) Describe the principle, construction and working optical fiber.	8 M	5	4
	ii) An optical fiber has a core of refractive index 1.563 and cladding of refractive index 1.498 The light is launched into it in air. Calculate its numerical aperture and acceptance angle.	2 M	5	

*** 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, January – 2025
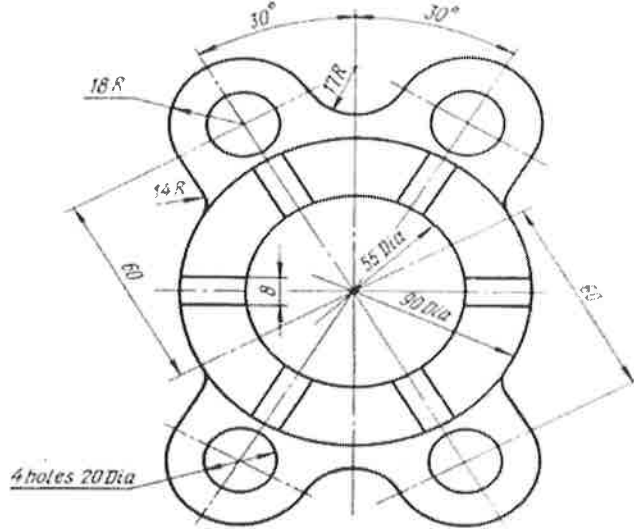
ENGINEERING GRAPHICS
(Common to All)

Time: 3Hrs   Max Marks: 60

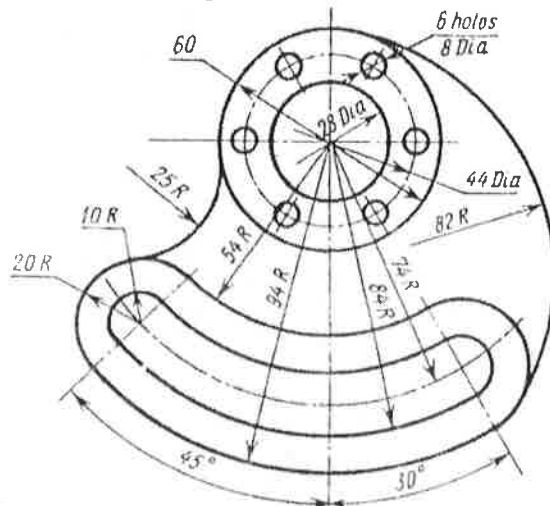Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either Part-A or B only

Q.No	Question	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)	i. A point G is 20 mm above H.P, 25mm in front of V.P and 30mm in front of P.P. Draw front view, top view and left side view of the point.	6M	2	3
	ii.A point H is 35mm below H.P, 30mm behind V.P and 40mm in front of P.P. Draw front view, top view and left side view of the point.	6M	2	3

Q.2(B)	A line AB 70mm long is inclined at an angle of 30⁰ to H.P and 45⁰ to V.P. The point A is 30mm above H.P and 30mm in front of V.P. Draw its Projections and find the apparent inclinations with F.V&T.V.	12M	2	3
Q.3(A)	A pentagonal pyramid side of base 30 mm and axis 65 mm is resting with one of its slant edge on the HP. The axis of the pyramid is parallel to VP. Draw its projections.	12M	3	3

OR

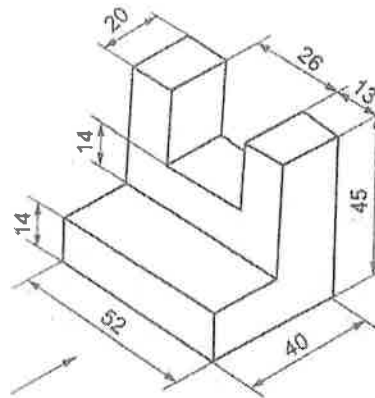|				
Q.3(B)	Draw the projections of a regular hexagon of 25mm side having one of its sides in the H.P and inclined at 60⁰ to V.P and its surface making an angle of 45⁰ with H.P.	12M	3	3
Q.4(A)	A Pentagonal prism of base edge 30mm side and axis 65mm has its base horizontal and an edge of the base parallel 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	3

OR

Q.4(B)	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 45⁰ to H.P passing through the top of the generator and cuts all other generators. Draw its development of its lateral surface.	12M	4	3
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 90⁰. Draw their projections showing curves of penetration, assuming the axis of penetrating cylinder to be parallel to the V.P.	12M	5	3

OR

Q.5(B)	Draw Front view ,Topview and right sideview for the given isometric view.	12M	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, January – 2025
ENGINEERING GRAPHICS
(Common to All)

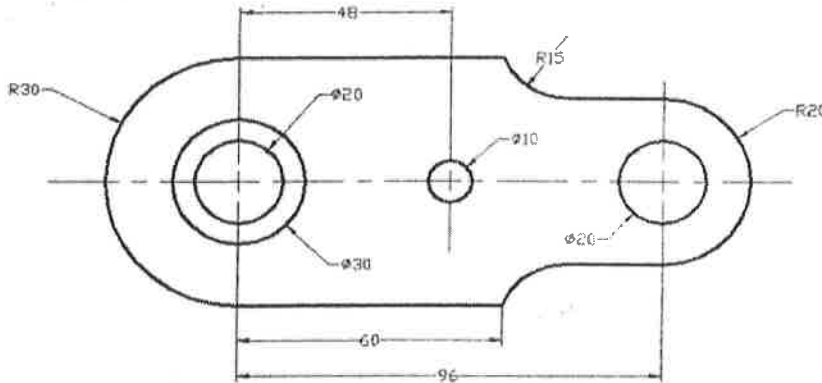Time: 3Hrs   Max Marks: 60

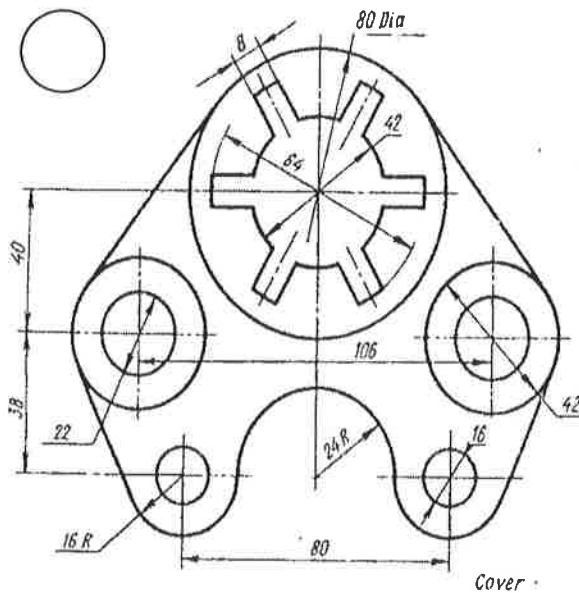> Attempt all the questions. All parts of the question must be answered in one place only.
> **In Q.no 1 to 5 answer either Part-A or B only**

Q.No	Question	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

Cover ·

Q.2(A)	A line CD 80mm long is inclined at an angle of 30° to HP and 45° to VP. The point C is 30mm above HP and 40mm in front of VP. Draw the projection of the straight line and find its apparent inclinations.	12M	2	3

OR

Q.2(B)	Draw the projections of the following points on the same ground line. Name the quadrants.
	   ➤ Point A, 20mm in front of the V.P. and 60mm above the H.P.
	   ➤ Point B, 25mm below the H.P. and on the V.P.
	   ➤ Point C, 15mm below the H.P. and 50mm behind the V.P.
		12M	2	3

Q.3(A)	Draw the projections of a regular pentagon of 25mm side, which is resting with its base side on the HP. The surface of the pentagon is inclined at 45^0 to the HP and the base side resting on the HP is inclined at 60^0 to the VP.	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 hexagonal 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	3
	OR			
Q.4(B)	A Pentagonal Prism 30mm base side & 60mm axis is standing on HP on its base whose one side is perpendicular to VP. It is cut by a section plane 45° inclined to HP, through mid-point of axis. Draw true shape of section and Development of surface of remaining Solid.	12M	4	3
Q.5(A)	A vertical square prism, base 50mm side and height 90mm long. It is completely penetrated by another square prism, base 40mm side and 90mm 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	3
	OR			
Q.5(B)	Draw Front view ,Topview and left sideview for the given isometric view.	12M	5	3
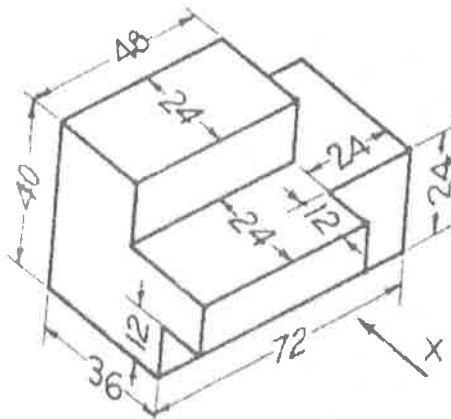
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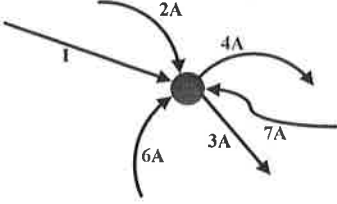(UGC-AUTONOMOUS)

B. Tech I Year I & II Semesters (R20) Supplementary End Semester Examinations, January – 2025
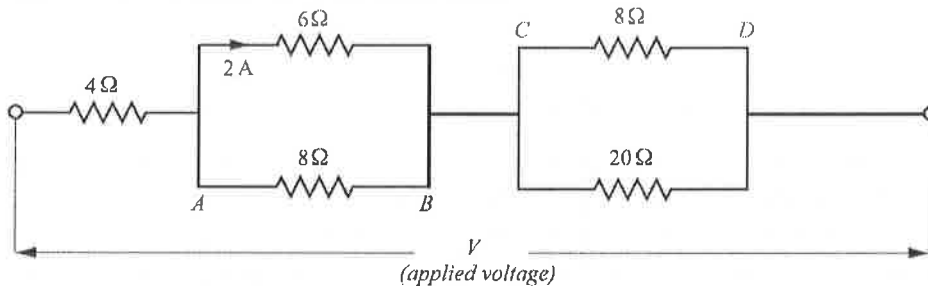
BASIC ELECTRICAL ENGINEERING
(Common to All)

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

| Q. No.		Questions	Marks	CO	BL
Q.1	i.	In superposition theorem, when we consider the effect of one voltage source, all the other voltage sources are .... a) Shorted b) Opened c) Removed d) Undisturbed	1M	1	1
	ii.	What is the value of the current I? 	1M	1	1
	iii.	Define frequency of AC signal?	1M	2	1
	iv.	Mention the advantages of 3-phase systems.	1M	2	1
	v.	Define flux density in a magnetic material.	1M	3	1
	vi.	What is an ideal transformer?	1M	3	1
	vii.	In a DC generator, which element is used to convert the A.C. voltage into D.C. voltage?	1M	4	1
	viii.	Expand DOL starter.	1M	4	1
	ix.	How will an ideal diode behave in an electric circuit, when it is reverse biased?	1M	5	1
	x.	What is the purpose of fuse?	1M	5	1
Q.2(A)		(i) The current in the 6Ω resistor of the network shown in figure is 2A. Determine the current in all branches. 	5M	1	3
		(ii) Obtain the equivalent resistance R_{ad} for the circuit shown in figure (all resistances are in Ω). 	5M	1	3
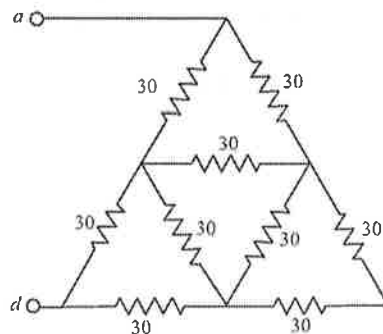
	Apply mesh current method, find the currents in resistances R_3, R_4, R_5 and R_6 of the circuit shown in Figure.	10M	1	3

Q.2(B)
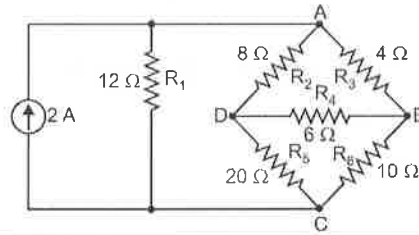
Q.3(A)	(i) A 10 Ω resistor and 400 µF capacitor are connected in series to a 60 V sinusoidal supply. The circuit current is 5 A. Calculate the supply frequency and phase angle between the current and voltage.	5M	2	3
	(ii) A circuit takes 100 watts at a power factor of 0.6 (leading) from a 100 V, 60 Hz supply. Find (a) the current flowing, (b) the circuit elements and (c) reactive power.	5M	2	3
	OR			
Q.3(B)	(i) Derive the relationship between phase and line voltages in a balanced three phase star connected system.	5M	2	2
	(ii) A balanced star connected load of (3+j4) Ω per phase is connected to a balanced three phase 400 V supply. Find current, active power, reactive power and apparent power.	5M	2	3
Q.4(A)	(i) 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.	6M	3	2
	(ii) State faraday's law of electromagnetic induction. Also explain about statically induced emf and dynamically induced emf.	4M	3	2
	OR			
Q.4(B)	(i) Derive the emf equation of a transformer.	5M	3	2
	(ii) A 200 kVA rated transformer has a full-load copper loss of 1.5 kW and an iron loss of 1 kW. Determine the transformer efficiency at full load and 0.85 power factor.	5M	3	2
Q.5(A)	With the help of neat sketch, explain the constructional details of a DC machine.	10M	4	2
	OR			
Q.5(B)	(i) Explain about the DOL starter for induction motor with neat diagram.	6M	4	2
	(ii) A three-phase, four-pole induction motor is supplied from three-phase, 50Hz AC supply. Calculate (a) synchronous speed, (b) rotor speed when slip is 4%, and (c) rotor frequency when rotor runs at 600rpm.	4M	4	2
Q.6(A)	Explain in detail the operation of a PN junction diode in forward and reverse bias conditions and draw the relevant V-I characteristics.	10M	5	2
	OR			
Q.6(B)	What is earthing? Explain with the help of neat sketch. Also, write the importance of earthing.	10M	5	2

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B. Tech I Year I & II Semesters (R20) Supplementary End Semester Examinations, January – 2025
LINEAR ALGEBRA & DIFFERNETIAL EQUATIONS
(Common to CE, and 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

Q. No		Question	Marks	CO	BL
Q.1	i.	Define Orthogonal Matrix with an example.	1M	1	1
	ii.	Find the Eigenvalues of the matrix $A = \begin{pmatrix} 1 & -1 \\ 0 & 3 \end{pmatrix}$.	1M	1	1
	iii.	Find the order and degree of the differential equation $\dfrac{d^2 y}{dx^2} + y^2 = \left(\dfrac{dy}{dx}\right)^{3/2}$	1M	2	1
	iv	Explain the Exact differential equation with an example.	1M	2	1
	v.	Find the solution of $y'' + 4y' + 4y = 0$.	1M	3	1
	vi	What is Wronskian in the differential equation	1M	3	1
	vii.	Find the Laplace transform of the $f(t) = \cos t e^{-t}$.	1M	4	1
	viii.	Find inverse Laplace transform of $L^{-1}\left(\dfrac{1}{(s+1)^2}\right)$.	1M	4	1
	ix.	Form partial differential equation by eliminating arbitrary constants $z = ax + by + a^2 + b^2$.	1M	5	1
	x.	Define Heat equation in one dimensional space.	1M	5	1
Q.2(A)		Show that every square matrix can be expressed uniquely as sum of a symmetric and skew symmetric matrix and give one example.	10M	1	3

OR

Q.2(B)	Find the eigenvalues and eigenvectors of the matrix $\begin{bmatrix} 1 & 3 & 4 \\ 0 & 2 & 5 \\ 0 & 0 & 3 \end{bmatrix}$	10M	1	3

Q.3(A)	Solve the differential equations $x^2 y\, dx - (x^3 + y^3)dy = 0$	10M	2	3

OR

Q.3(B)	i) Solve $(x^2 + y^2)dx = 2xy\, dy$ ii) Solve $\dfrac{dy}{dx} - 2xy = 6xe^{x^2}$	10M	2	3

Q.4(A)	Solve the differential equation $y'' + y = e^{-x} + x^3 + e^x \sin x$.	10M	3	3

OR

Q.4(B)	Solve $x^2 y'' - 3xy' + 4y = 0$	10M	3	3

Q.5(A) Find the Laplace transformation of the following   10M 4 3

(i) $F(t) = \begin{cases} 0 & if\ 0 < t < 2 \\ 4 & if\ t > 2 \end{cases}$ (ii) $F(t) = \sin t - \cos t$

OR

Q.5(B) Solve $y'' - 3y' + 2y = 1 - e^{2t}$, $y(0) = 1, y'(0) = 0$ using Laplace   10M 4 4
Transformations.

Q.6(A) Solve the partial differential equation by $2x\dfrac{\partial z}{\partial x} - 3y\dfrac{\partial z}{\partial y} = 0$ by using   10M 5 3

variable separable method.

OR

Q.6(B) Form the partial differential equation by eliminating the arbitrary   5M 5 3
constants and functions.

(i) $(x-a)^2 + (y-b)^2 + z^2 = 1$ (ii) $\phi\left(\dfrac{y}{x}, x^2 + y^2 + z^2\right) = 0$.   5M 5 3

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B. Tech I Year I & II Semesters (R20) Supplementary End Semester Examinations, January – 2025
LINEAR ALGEBRA, COMPLEX VARIABLES AND ORDINARY DIFFERENTIAL EQUATIONS
(Common to CSE, CST, CSE-AI, CSE-DS, CSE-IOT, and 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 2 to 6 answer either A or B only**

Q. NO.		Question	Marks	CO	BL
Q.1	i.	Find the rank of the matrix A= $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ -1 & -2 & 5 \end{bmatrix}$.	1M	1	1
	ii.	When a system of linear equations $AX = b$ has infinite solutions	1M	1	1
	iii.	Find the principal value of i^i	1M	2	1
	iv.	Determine the singular points of the function $f(z) = \frac{z^3+i}{z^3-3z+2}$	1M	2	2
	v.	Find the order and degree of a differential equation: $(x^2 + 1)\frac{d^2y}{dx^2} - (2x - 1)\frac{dy}{dx} = e^x$	1M	3	1
	vi.	Solve $\frac{dy}{dx} = \frac{y}{x}$	1M	3	1
	vii.	Classify that the following differential equation is linear or non-linear $(x^2 - ay)dx = (ax - y^2)dy$.	1M	4	1
	viii	Give an example of Clairaut's equation.	1M	4	1
	ix.	Find wronskian of the functions $y_1 = x^3$ and $y_2 = x^2$	1M	5	1
	x.	Find solution of the differential equation: $x^2\frac{d^2y}{dx^2} - 3x\frac{dy}{dx} + 4y = 0.$	1M	5	1
Q.2(A)		Using Gauss-Jordan method, find the inverse of the matrix $A = \begin{pmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{pmatrix}$	10M	1	2
		OR			
Q.2(B)		Find the Eigen values and Eigen vectors of the matrix $A = \begin{pmatrix} 3 & 1 & 4 \\ 0 & 2 & 6 \\ 0 & 0 & 5 \end{pmatrix}$	10M	1	3
Q.3(A)		State and derive Cauchy-Riemann (CR) equations in polar Coordinates.	10M	2	3
		OR			
Q.3(B)		Find all roots of the equation Sinz = Cosh4 by equating the real and imaginary parts of Sinz and Cosh 4.	10M	2	3
Q.4(A)		Evaluate $\int_c f(z)dz$ where $f(z) = y - x - 3ix^2$ and C consists of the line segments z=0 to z= i and other from z=i to z=1+i	10M	3	3
		OR			
Q.4(B)		Give two Laurent series expansions in the power of z for the function $f(z) = \frac{1}{z^2(1-z)}$ and specify the region in which those expansions are valid.	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 $xyp^2 - (x^2 + y^2)p + xy = 0$	10M	4	3

Q.6(A) Solve the differential equation $x^2 \frac{d^2y}{dx^2} - x \frac{dy}{dx} + 2y = x \sin(\log x)$ 10M   5   3

<div align="center">OR</div>

Q.6(B) Solve the differential equation $y'' + 4y = \tan 2x$, by using the method of variation of parameters.   10M   5   3

<div align="center">*** END***</div>

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B. Tech I Year I & II Semesters (R20) Supplementary End Semester Examinations, January – 2025

LINEAR ALGEBRA AND TRANSFORM CALCULUS
(Electrical & Electronics Engineering)

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**

Q.No		Question	Marks	CO	BL
Q.1	i.	Find the characteristic polynomial of a matrix $A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$	1M	1	2
	ii.	Find the Eigen values of a matrix $A = \begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix}$	1M	1	1
	iii.	Determine singular points of the function $f(z) = \dfrac{z^3 + i}{z^2 - 3z + 2}$.	1M	2	1
	iv	Determine singular points of the function $f(z) = \dfrac{z}{z^2 + 1}$.	1M	2	1
	v.	Find $L(t \cos at)$	1M	3	2
	vi	Find $L^{-1}\left(\dfrac{1}{(s-1)^2}\right)$	1M	3	2
	vii.	State linearity property of Fourier transform.	1M	4	1
	viii.	Find the Fourier sine transform of $f(x) = x$	1M	4	1
	ix.	State linearity property of Z-transform.	1M	5	1
	x.	Find $Z(e^{an})$	1M	5	2
Q.2(A)		Solve the following system of linear equations $4x + 2y + z + 3w = 0$, $6x + 3y + 4z + 7w = 0$, $2x + y + w = 0$	10M	1	3
		OR			
Q.2(B)		Reduce the quadratic form $3x^2 + 5y^2 + 3z^2 - 2yz + 2zx - 2xy$ to the canonical form and specify the matrix of transformation.	10M	1	3
Q.3(A)		Evaluate by using Cauchy's integral formula $\displaystyle\int_c \dfrac{e^{iz}}{z^2 + 1} dz$ where c: $\|z\| = 3$	10 M	2	3
		OR			
Q.3(B)		Evaluate $\displaystyle\oint_c \dfrac{z-3}{z^2 + 2z + 5} dz$, where C is the circle (a) $\|z\| = 1$, (b) $\|z + 1 - i\| = 2$, (c) $\|z + 1 + i\| = 2$	10M	2	3
Q.4(A)		Find the inverse Laplace transforms of $\dfrac{s+2}{s^2 - 4s + 13}$	10M	3	3
		OR			
Q.4(B)		Solove by the method of transforms, the equations $y''' + 2y'' - y' - 2y = 0$ $y(0) = y'(0) = 0$ and $y''(0) = 6$	10M	3	3

Q.5(A) Find the Fourier transform of $f(x)=\begin{cases}1-x^2 & for \ |x|\leq 1 \\ 0 & for \ |x|>1\end{cases}$. Hence evaluate 10M 4 3

$$\int_0^\infty \frac{x\cos x-\sin x}{x^2}\cos\frac{x}{2}dx.$$

OR

Q.5(B) Find the Fourier sine transform of $e^{-|x|}$. Hence show that 10M 4 3

$$\int_0^\infty \frac{x\sin mx}{1+x^2}dx=\frac{\pi e^{-m}}{2},m>0$$

Q.6(A) Using inversion integral method, find the inverse Z-transform of 10M 5 3

$$\frac{z}{(z-1)(z-2)}.$$

OR

Q.6(B) Solve the difference equation $y_n+\frac{1}{4}y_{n-1}=u_n+\frac{1}{3}u_{n-1}$ where u_n is a unit 10M 5 3

step sequence.

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B. Tech I Year I & II Semesters (R20) Supplementary End Semester Examinations, January – 2025
LINEAR ALGEBRA
(Common to CSE, CST, CSE-AI, CSE-DS, CSE-IOT, and 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 2 to 6 answer either A or B only**

Q.No		Question	Marks	CO	BL
Q.1	i.	When a linear system of non-homogeneous equations are said to be consistent	1M	1	1
	ii.	Determine the eigenvalues of the matrix $A = \begin{bmatrix} 2 & 0 \\ 8 & -7 \end{bmatrix}$	1M	1	1
	iii.	Find the basis for the Null space of the matrix $A = \begin{bmatrix} -2 & 0 \\ 0 & 0 \end{bmatrix}$	1M	2	1
	iv	Determine whether the set of vectors $\{(1,2,-1),(2,4,5),(0,0,0)\}$ are Linearly Independent (or) not.	1M	2	2
	v.	Find $T \circ S$ whenever it is defined $T(x,y,z) = (x-y+z, x+z)$, $S(x,y) = (x, x-y, y)$.	1M	3	2
	vi	Let $T: P_2(\mathbb{R}) \to P_3(\mathbb{R})$ be a linear transformation such that $T(1) = 1; T(x) = x^2$, and $T(x^2) = x^3 + x$. Find $T(ax^2 + bx + c)$.	1M	3	1
	vii.	Find the transition matrix $[Id]_\alpha^\beta$ from α to β, when $\alpha = \{(2,3)(0,1)\}$ and $\beta = \{(1,0)(1,1)\}$.	1M	4	2
	viii.	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
	ix.	Define Inner Product space	1M	5	1
	x.	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
Q.2(A)		Solve the following system of linear equations using Gaussian elimination. $$x_1 + 3x_2 - 2x_3 + 2x_5 = 0$$ $$2x_1 + 6x_2 - 5x_3 - 2x_4 + 4x_5 - 3x_6 = -1$$ $$5x_3 + 10x_4 + 15x_6 = 5$$ $$2x_1 + 6x_2 + 8x_4 + 4x_5 + 18x_6 = 6$$	10M	1	3

OR

Q.No		Question	Marks	CO	BL
Q.2(B)		Find the inverse and A^4 for the matrix $A = \begin{bmatrix} 1 & 1 & 2 \\ -1 & 2 & 1 \\ 0 & 1 & 3 \end{bmatrix}$ by using Cayley-Hamilton theorem.	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 $R(A)$, Null space $N(A)$ and column space $C(A)$ of the matrix $A = \begin{bmatrix} 1 & 2 & 0 & 2 & 5 \\ -2 & -5 & 1 & -1 & -8 \\ 0 & -3 & 3 & 4 & 1 \\ 3 & 6 & 0 & -7 & 2 \end{bmatrix}$.	10M	2	3

Q.4(A)	Let $w_1 = (1,0)$, $w_2 = (2,-1)$, $w_3 = (4,3)$ be three vectors in R^2. Let $\beta = \{v_1, v_2, v_3\}$ be the basis for 3-space R^3, where $v_1 = (1,1,1)$, $v_2 = (1,1,0)$, $v_3 = (1,0,0)$, and let $T:R^3 \rightarrow R^2$ be the linear transformation defined by, $T(v_1) = w_1$, $T(v_2) = w_2$, $T(v_3) = w_3$. Find $T(x_1, x_2, x_3)$, and then use it to compute $T(2,-3,5)$.	10M	3	3

OR

Q.4(B)	Let $T:R^4 \rightarrow R^3$ be the linear transformation defined by $T(x,y,z,u) = (x+2y, x-3z+u, 2y+3z+4u)$. Let α and β be the standard bases of R^4 and R^3 respectively. Find $[T]_\alpha^\beta$.	10M	3	3

Q.5(A)	Find the transition matrix $[Id]_\alpha^\beta$ from α to β, when i. $\alpha = \{(2,3), (0,1)\}, \beta = \{(6,4), (4,8)\}$; ii. $\alpha = \{(1,1,1), (1,1,0), (1,0,0)\}, \beta = \{(2,0,3), (-1,4,1), (3,2,5)\}$;	10M	4	4

OR

Q.5(B)	Let D be the differential operator on the vector space $P_2(R)$. Given two ordered basis $\alpha = \{1, x, x^2\}$ and $\beta = \{1, 2x, 4x^2 - 2\}$ for $P_2(R)$. Find the associated matrix of D with respect to α and the associated matrix of D with respect to β. Are they similar?	10M	4	4

Q.6(A)	Let $v_1 = (1,1,-1,-2)$, $v_2 = (5,8,-2,-3)$, $v_3 = (3,9,3,8)$ be the basis in the Euclidean space. Construct the orthogonal basis using Gram-Schmidt orthogonalization process	10M	5	3

OR

Q.6(B)	Find all the least square solutions to $Ax = b$, where $A = \begin{bmatrix} 1 & -2 & 1 \\ 2 & -3 & -1 \\ -1 & 1 & 2 \\ 3 & -5 & 0 \end{bmatrix}, b = \begin{bmatrix} 1 \\ 0 \\ 1 \\ 0 \end{bmatrix}$	10M	5	3

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
B. Tech I Year I & II Semesters (R20) Supplementary End Semester Examinations, January– 2025
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

Q.No		Question	Marks	CO	BL
Q.1	i.	What is a variable?	1M	1	1
	ii.	Outline the difference between while and do-while.	1M	1	2
	iii.	What is meant by Function?	1M	2	2
	iv	What is the precondition for Binary Search?	1M	2	1
	v.	How would you compare actual and formal parameter?	1M	3	2
	vi	Define Null pointers.	1M	3	2
	vii.	What is union in C Language?	1M	4	1
	viii.	Can you list the different modes in opening a file?	1M	4	1
	ix.	Outline the operations of Queue.	1M	5	2
	x.	State the applications of stack.	1M	5	1
Q.2(A)		Explain the structure of C program and write the various steps involved in executing a C program.	10M	1	2
		OR			
Q.2(B)		Explain the different types of looping statements with examples.	10M	1	2
Q.3(A)		Elaborate on different storage classes available in C. Provide a suitable example for the use of each class.	10M	2	3
		OR			
Q.3(B)		Build a C code to sort 'n' numbers using Bubble Sort. Trace the algorithm for the numbers 44, 33, 11, 55, 77, 90, 40, 60, 99, 22, 88, 66 and show the order in which they are processed.	10M	2	3
Q.4(A)		Discuss on dynamic memory allocation and its related function with example.	10M	3	3
		OR			
Q.4(B)		Compare Character Array and String. Write a program to find length of a string without using strlen() and string reverse without using strrev().	10M	3	4
Q.5(A)		Define Structure in C. Develop a C code to print employee details using Structure.	10M	4	5
		OR			
Q.5(B)		Define file? List the different file opening modes in C? Develop a C program to count no of lines, words and characters in a file.	10M	4	5
Q.6(A)		List out operations on stack? Develop C program with functions to implement them.	10M	5	5
		OR			
Q.6(B)		Explain the concept of insertion, deletion and display operations in a single linked list with a neat diagram.	10M	5	3

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B. Tech I Year I & II Semesters (R20) Supplementary End Semester Examinations, January – 2025

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

Q.No		Question	Marks	CO	BL
Q.1	i.	Reframe the sentence into past simple. *"They break the window"*	1M	1	2
	ii.	Write a prefix for the following word and use it in your own sentence. *Happy*	1M	1	2
	iii.	What is a topic sentence?	1M	2	1
	iv	Define Skimming.	1M	2	1
	v.	Write a WH question for the following statement. *My favourite colour is black*	1M	3	2
	vi	How do you overcome stage fright while giving presentations?	1M	3	2
	vii.	What is the difference between formal and informal conversation?	1M	4	2
	viii.	How do you introduce yourself to others. Write one expression	1M	4	2
	ix.	Define Memo.	1M	5	1
	x.	How important are Recommendations in a report?	1M	5	1
Q.2(A)		**Fill in the blanks by identifying appropriate verb forms:**	10M	1	2
	i.	My friend-----------------(like) sweets very much.			
	ii.	*He _____(watch) TV, when Rohan _____(arrive).*			
	iii.	I ---------- (read) since morning.			
	iv.	They----------------(play)cricket yesterday.			
	v.	If it _____ (snow) tomorrow, we _____ (go) skiing near Vesuvis.			
	vi.	The train----------------(leave)before the passenger------------(arrive)			
	vii.	Hey... Be quiet! The boss _____ (come).			

OR

Q.2(B)	**(i)Write the synonyms for the following words:** (a) Enquire (b) Awful (c) Amazing (d) Furious (e) Destroy **(ii) Write the antonyms for the following words:** (a) Capable (b) Generous (c) Narrow (d) Accurate (e) Conceal	10 M	1	2

Q.3(A)	**Connect the outlines to form a Readable story** Ship of pirate becalmed near rocky coast – pirate sees bell fastened to dangerous submerged rock-asks what it is- is told it was placed there to warn sailors in storms-thinks it would be a joke to take the bell-rows across in boat to rock-they cut the chain and sink the bell- wind rises and they sail away-years after pirate returns to same coast- sea covered with fog and storm rising- pirate does not know where he is – a terrible crash- ship strikes on the same rock -as they go down the pirate realizes his ship wrecked on the same rock-wishes he had left the bell alone.	10M	2	3

OR

Q.3(B) **Read the following passage and answer the questions given below:** 2 2

It is bad to have food stuck between your teeth for long periods of time. This is because food attracts germs, germs produce acid, and acid hurts your teeth and gums. Flossing helps to remove the food that gets stuck between your teeth. This explains why flossing helps to keep your mouth healthy, but some doctors say that flossing can be also good for your heart.

It may seem strange that something you do for your teeth can have any effect on your heart. Doctors have come up with a few ideas about how flossing works to keep your heart healthy. One idea is that the germs that **10M** hurt your teeth can leave the mouth and travel into your blood. Germs that get into the blood can then attack your heart. Another idea is based on the fact that when there are too many germs in your mouth, the body tries to fight against these germs. For some reason, the way the body fights these mouth germs may end up weakening the heart over time.

Not every doctor agrees with these ideas. Some doctors think that the link between good flossing habits and good heart health is only a coincidence. A coincidence is the occurrence of two or more events at one time apparently by mere chance. The incidence of these events is completely random, as they do not admit of any reliable cause and effect relationship between them. For example, every time I wash my car, it rains. This does not mean that when I wash my car, I somehow change the weather. This is only a coincidence. Likewise, some doctors think that people who have bad flossing habits just happen to also have heart problems, and people who have good flossing habits just happen to have healthy hearts. The theory that flossing your teeth helps to keep your heart healthy might not be true. But every doctor agrees that flossing is a great way to keep your teeth healthy. So even if flossing does not help your heart, it is sure to help your teeth. This is enough of a reason for everyone to floss their teeth every day.

Questions

1) Which of the following would be the best title for this passage?
(a) Why Doctors Disagree about Flossing (b) How to Keep Your Teeth Healthy (c) Flossing Your Way to a Healthy Heart (d) Flossing by Coincidence.

2) Flossing effectively helps to keep your mouth healthy by preventing
(a) germs from producing acid (b) food from entering your body (c) germs from entering your blood D. acid from contacting your teeth and gums.

3) In paragraph 3 the author writes, "Not every doctor agrees about these ideas." The author's purpose in writing this sentence is to
(a) provide an example (b) introduce a new topic (c) change a previous statement (d) clarify an earlier assertion

4) Based on its use in the final paragraph, it can be inferred that theory belongs to which of the following word groups?
(a) query, question, interrogation (b) assertion, declaration, affirmation
(c) hypothesis, supposition, belief (d) idea, thought, notion

5) Which of the following best states the main idea of the final paragraph?
(a) Because doctors do not agree that flossing will help your heart, it is useless to floss (b) It is a fact that flossing can help your heart as well as your teeth. (c) Even if flossing is only good for your teeth, you should still do it every day (d) There is no good reason to believe that flossing will help your heart, but it is still a good idea to do it every day.

Q.4(A)	**(i)** Prepare the questions for the following statements:
	    i. I am studying B. Tech First year.
	    ii. My friend gifted this ring to me.
	    iii. He can speak German.
	    iv. She will arrive at ten o'clock
	    v. They lived in Manchester.
	(ii)Develop a conversation with the given situation.
	Your friend wants to take coaching for competitive exams.
	He inquires with you to help him in finding best coaching Centre.
		10M	3	2

<div align="center">OR</div>

Q.4(B)	Explain the importance of Nonverbal communication in day-to-day life.	10M	3	2

Q.5(A)	Write suitable dialogues for the following situation with a minimum of 10 exchanges. Request the receptionist to fix an appointment to meet the Municipal Commissioner to register a complaint about irregular supply of drinking water.	10M	4	3

<div align="center">OR</div>

Q.5(B)	Assume you are the coordinator for arranging a tour of your class. You are supposed to make hotel arrangements for all the students. Write down a telephone conversation between you and the hotel manager. You may use the following points:
	   • Charges for two nights
	   • Discounts if any
	   • Breakfast and dinner
	   • Travel facilities
	Any other facilities
		10M	4	3

Q.6(A)	Anandeshwar Textiles, Kanpur, manufactures several kinds of cotton and synthetic clothes. For the last five years there has been a gradual decline in profits owing to various causes including fall in sales. The Managing Director has asked the Marketing Manager to investigate the causes, make suitable recommendations and submit a report. Assuming yourself to be the Marketing Manager, write a report.	10M	5	4

<div align="center">OR</div>

Q.6(B)	You are the manager of a company. You have to go to Hyderabad for five days to negotiate an important business deal. Write an email to your personal assistant using the following points: · Ask him/her to make the travel and accommodation arrangement. · Tell the dates of your travelling. · Ask him/her to postpone the official work during these days. · Ask him/her to arrange a meeting with the staff members.	10M	5	3

<div align="center">*** END***</div>