



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

L.B. Reddy Nagar :: Mylavaram-521 230 :: NTR Dist. :: A.P
Approved by AICTE, New Delhi. Affiliated to JNTUK, Kakinada

B.Tech. (I Semester) (R17) Semester End Examinations (Supplementary) - April 2026 (2018 & 2019 Regular admitted batches only)

TIME TABLE

R17**TIME :10.00 AM to 01.00 PM****A.Y. 2025-26**

DATE	22-04-2026 (Wednesday)	23-04-2026 (Thursday)	24-04-2026 (Friday)	25-04-2026 (Saturday)	27-04-2026 (Monday)	28-04-2026 (Tuesday)
ASE	17FE01 - Professional Communication-I	17FE04 - Differential Equations and Linear Algebra	17FE13 - Engineering Physics	17CI01 - Computer Programming	17ME01-Engineering Graphics	---
CE	17FE01 - Professional Communication - I	17FE04 - Differential Equations and Linear Algebra	17FE13 - Engineering Physics	17CI01 - Computer Programming	17CE01 - Building Materials and Construction	---
CSE	17FE01 - Professional Communication-I	17FE05 - Differential Equations and Numerical Applications	17FE15 - Engineering Chemistry	17CI01 - Computer Programming	17EC02 - Electronic Devices and Circuits	---
ECE	17FE01 - Professional Communication-I	17FE04 - Differential Equations and Linear Algebra	17FE15 - Engineering Chemistry	---	17EC02 -Electronic Devices and Circuits	17EC01 - Electrical Circuits and Networks
EEE	17FE01 - Professional Communication-I	17FE04 - Differential Equations and Linear Algebra	17FE12 - Applied Physics	17CI01 - Computer Programming	17ME50 - Basic Engineering Mechanics	---
EIE	17FE01 - Professional Communication-I	17FE04 - Differential Equations and Linear Algebra	17FE15 - Engineering Chemistry	17CI01 - Computer Programming	---	17EC01 - Electrical Circuits and Networks
IT	17FE01 - Professional Communication - I	17FE04 - Differential Equations and Linear Algebra	17FE15 - Engineering Chemistry	17CI01 - Computer Programming	17EC02 - Electronic Devices and Circuits	---
ME	17FE01 - Professional Communication-I	17FE04 - Differential Equations and Linear Algebra	17FE13 - Engineering Physics	17CI01 - Computer Programming	17ME01 - Engineering Graphics	---

Note: Any omissions or clashes in the time table may please be informed to the Controller of Examinations immediately.


Date: 01 APR 2026


CONTROLLER OF EXAMINATIONS


PRINCIPAL

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3. Canteen, PD, Security & Hostels 4. Coordinator-Disciplinary 5. Notice Boards

**LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)**

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

B.Tech. (I Semester) Supplementary Examinations

17FE04-DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA

(ASE,CE,ECE,EEE,EIE,IT&ME)

Time : 3 hours

Max. Marks : 60

Answer one question from each unit.

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Solve $(y \cos x + \sin y + y)dx + (\sin x + x \cos y + x)dy = 0$.	6M	CO1	L3
(b)	A substance cools from 370K to 330K in 10 minutes, when the temperature of the surrounding air is 290K, find the temperature of the substance after 40 minutes.	6M	CO1	L3
(OR)				
2(a)	Investigate the integrating factor and hence find the general solution of $(1+xy)xdy + (1-xy)ydx = 0$.	6M	CO1	L3
(b)	Find the orthogonal trajectories of family of curves $r = a(1 - \cos \theta)$ where a is the parameter.	6M	CO1	L2
(OR)				
3(a)	Solve $(D^2 - D - 2)y = 3e^{2x}$	6M	CO2	L3
(b)	Solve $(D^2 + 9)y = \cos 3x + \sin 2x$.	6M	CO2	L3
(OR)				
4(a)	Find the general solution of $(D^2 - 2D - 3)y = x^3 e^{-3x}$.	6M	CO2	L3
(b)	Using method of variation of parameters solve $(D^2 + 4)y = \tan 2x$.	6M	CO2	L3
(OR)				
5(a)	Find the Taylor's series expansion of $e^x \sin y$ in the neighborhood of the point $(1, \frac{\pi}{4})$.	6M	CO3	L3
(b)	Form the partial differential Equation by eliminating the arbitrary constants a and b from the equation $2z = \frac{x^2}{a^2} + \frac{y^2}{b^2}$.	6M	CO3	L3
(OR)				
6(a)	If $u = \frac{yz}{x}$, $v = \frac{xz}{y}$, $w = \frac{xy}{z}$ find $\frac{\partial(u,v,w)}{\partial(x,y,z)}$.	6M	CO3	L2
(b)	Solve $x^2(y-z)p + y^2(z-x)q = z^2(x-y)$	6M	CO3	L3
(OR)				
7(a)	Define rank of a matrix. Reduce the matrix $A = \begin{bmatrix} 2 & 1 & 3 & 5 \\ 4 & 2 & 1 & 3 \\ 8 & 4 & 7 & 13 \\ 8 & 4 & -3 & -1 \end{bmatrix}$ to Echelon form and find its rank.	6M	CO4	L3

17FE04-DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA

(b)	Investigate for what values of λ and μ the simultaneous equations $x + y + z = 6$, $x + 2y + 3z = 10$, $x + 2y + \lambda z = \mu$ have (i) no solution (ii) a unique solution (iii) an infinite number of solutions.	6M	CO4	L3
(OR)				
8(a)	Find the rank of the matrix $\begin{bmatrix} 1 & 2 & -2 & 3 \\ 2 & 5 & -4 & 6 \\ -1 & -3 & 2 & -2 \\ 2 & 4 & -1 & 6 \end{bmatrix}$ by reducing it to normal form.	6M	CO4	L3
(b)	Solve the homogeneous system $x+3y-2z = 0$; $2x-y+4z = 0$ and $x-11y+14z = 0$.	6M	CO4	L3
(OR)				
9(a)	Evaluate the eigen values and the corresponding eigen vectors of $\begin{bmatrix} 2 & 2 & 0 \\ 2 & 5 & 0 \\ 0 & 0 & 3 \end{bmatrix}$	8M	CO5	L3
(b)	If $\lambda_1, \lambda_2, \lambda_3, \dots, \lambda_n$ are eigen values of a square matrix A of order 'n' then show that $\lambda_1^m, \lambda_2^m, \lambda_3^m, \dots, \lambda_n^m$ are the eigen values of the matrix A^m .	4M	CO5	L2
(OR)				
10.	Applying Cayley -Hamilton theorem to evaluate the matrix represented by $A^8 - 5A^7 + 7A^6 - 3A^5 + A^4 - 5A^3 + 8A^2 - 2A + I$, where $A = \begin{bmatrix} 2 & 1 & 1 \\ 0 & 1 & 0 \\ 1 & 1 & 2 \end{bmatrix}$ and also find its inverse and A^4 .	12M	CO5	L3

H.T.No

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**LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
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L.B. Reddy Nagar :: Mylavaram – 521 230 :: NTR Dist.: A.P.

B.Tech. (I Semester) Supplementary Examinations

17FE13-ENGINEERING PHYSICS

(ASE,CE&ME)

Time : 3 hours

Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Explain with neat sketch how the interference is formed in thin films by refraction and also give the necessary theory.	6M	CO1	L2
(b)	A soap film with a refractive index of 1.33 and thickness of $5000 \text{ \AA}$ is exposed to white light. What wavelengths in the visible region are reflected?	6M	CO1	L2
(OR)				
2(a)	Explain the formation of Newton's rings with suitable theory.	8M	CO1	L2
(b)	Mention applications of Newton's rings	4M	CO1	L1
(OR)				
3(a)	What is polarization? Explain.	4M	CO2	L2
(b)	State and explain Brewster's law.	8M	CO2	L2
(OR)				
4(a)	Outline the outstanding characteristics of LASERS	6M	CO2	L1
(b)	Interpret the relations between Einstein coefficients	6M	CO2	L2
(OR)				
5(a)	Derive time independent Schrodinger wave equation for a free particle.	8M	CO3	L3
(b)	Explain physical significance of the wave function.	4M	CO3	L2
(OR)				
6(a)	Illustrate Bravais lattices.	4M	CO3	L3
(b)	Mentions the distinct features of Miller indices?	8M	CO3	L1
(OR)				
7(a)	Distinguish between dia, para and ferromagnetic materials.	6M	CO4	L2
(b)	Mention important applications of magnetic materials.	6M	CO4	L1
(OR)				
8(a)	What are the magnetic domains?	4M	CO4	L1
(b)	Explain, with suitable sketches, the hysteresis property of a ferromagnetic material.	8M	CO4	L2
(OR)				
9(a)	What are Type-I and II superconductors?	6M	CO5	L1
(b)	What is meant by isotopic effect?	6M	CO5	L1
(OR)				
10(a)	Describe the applications of superconductors in various fields like superconducting magnets and SQUID.	8M	CO5	L1
(b)	Explain Meissner effect with a neat sketch.	4M	CO5	L2

**LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
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L.B. Reddy Nagar :: Mylavaram – 521230 :: Krishna Dist.: A.P.

B.Tech. (I Semester) Supplementary Examinations

17FE15-ENGINEERING CHEMISTRY

(CSE,ECE,EIE&IT)

Time : 3 hours

Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Justify the statement "calomel electrode is reversible with respect to chloride ions". Draw a neat diagram of calomel electrode.	6M	CO1	L4
(b)	Summarize applications of electro chemical series.	6M	CO1	L2
(OR)				
2(a)	Explain the construction of Nickel – Cadmium battery. Prove it's reversible nature by writing cell reactions. Draw a neat diagram.	6M	CO1	L2
(b)	How reserve battery is different from primary and secondary batteries? Explain the construction working of magnesium copper reserve battery.	6M	CO1	L2
3(a)	How the following factors influence rate of corrosion? (i) Purity (ii) Position in galvanic series (ii) Relative areas of cathode and anode.	6M	CO2	L2
(b)	Write a note on types of oxide layers formed over metallic surfaces.	6M	CO2	L1
(OR)				
4(a)	State the principle of cathodic protection. Explain impressed current method to control corrosion.	6M	CO2	L2
(b)	Illustrate the galvanic corrosion.	6M	CO2	L1
5(a)	What are conducting polymers? How conduction occurs in intrinsic conducting polymers?	6M	CO3	L2
(b)	Differentiate thermosets and thermoplasts.	6M	CO3	L2
(OR)				
6(a)	Discuss preparation properties and applications of BUNA-S rubber.	6M	CO3	L3
(b)	What are conducting polymers? Write about extrinsic conducting polymers.	6M	CO3	L2
7(a)	Differentiate thermal and photochemical reactions.	6M	CO4	L3
(b)	State the following laws (i) Groth's law (ii) Stark – Einstein law.	6M	CO4	L2
(OR)				
8(a)	Illustrate (i) Chemiluminescence (ii) Bio-luminescence with an example.	6M	CO4	L1
(b)	Define liquid crystal. Explain the characterization of liquid crystal phase.	6M	CO4	L2
9(a)	Discuss applications of I.R spectroscopy.	6M	CO5	L1
(b)	What is meant by (i) Chromophore (ii) Auxochrome.	6M	CO4	L3
10(a)	State the principle of conductometric titrations and give its advantages.	6M	CO5	L1
(b)	State the principle of potentiometry .Give its advantages.	6M	CO4	L3

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

B.Tech. (I Semester) Supplementary Examinations

17FE12-APPLIED PHYSICS

(EEE)

Time : 3 hours

Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No.	Questions	Marks	CO	BL
1(a)	How Newton's rings are formed?	4M	CO1	L2
(b)	Derive the radius of dark rings in case of Newton's rings system.	8M	CO1	L3
(OR)				
2(a)	Explain the construction and working of a diffraction grating.	6M	CO1	L2
(b)	What are maximum orders possible with Grating?	6M	CO1	L1
(OR)				
3(a)	Define Double refraction.	4M	CO2	L1
(b)	Explain double refraction in a calcite crystal.	8M	CO2	L2
(OR)				
4(a)	Outline the applications of Lasers.	6M	CO2	L1
(b)	Explain the working principle of laser.	6M	CO2	L2
(OR)				
5(a)	Discuss the variation of Fermi-Dirac distribution function with temperature for electrons in a metal.	6M	CO3	L2
(b)	Summarize the assumptions of classical free electron theory.	6M	CO3	L2
(OR)				
6(a)	Explain the salient features of classical free electron theory.	6M	CO3	L2
(b)	Derive the expression for conductivity of the metal in terms of mobility of the electrons.	6M	CO3	L3
(OR)				
7(a)	Derive the Einstein equation in terms of mobility and diffusion coefficient.	6M	CO4	L3
(b)	Write a short note on N type semiconductors.	6M	CO4	L1
(OR)				
8(a)	Write a short note on LED.	6M	CO4	L1
(b)	Discuss the applications of LED.	6M	CO4	L2
(OR)				
9(a)	Differentiate between piezo electric and Ferro electric crystals.	6M	CO5	L2
(b)	Derive an expression for Claussius - Mosotti equation.	6M	CO5	L3
(OR)				
10(a)	Differentiate between different types of polarizations in dielectric.	6M	CO5	L2
(b)	Explain in detail applications of dielectrics.	6M	CO5	L2

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L.B. Reddy Nagar :: Mylavaram – 521230 :: NTR Dist.:: A.P.

B.Tech. (I Semester) Supplementary Examinations

17CI01-COMPUTER PROGRAMMING

(ASE,CE,CSE,EEE,EIE,IT&ME)

Time : 3 hours

Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Outline the structure of a C program and explain.	6M	CO1	L1
(b)	Write a C program to print multiplication table for the given number.	6M	CO1	L2
(OR)				
2(a)	Write a C program to print the n terms in a Fibonacci series.	6M	CO1	L2
(b)	Design an algorithm to find the grade of a student, based on average marks of 3 subjects. Translate it into source code.	6M	CO1	L2
3(a)	Construct a C program to sort the elements of an integer array.	6M	CO2	L3
(b)	List out some important operations performed on arrays.	6M	CO2	L2
(OR)				
4(a)	Write a C program to print given integer array in reverse order.	6M	CO2	L2
(b)	Write a C program to display the length of a string without using any string handling function.	6M	CO2	L1
5(a)	Explain about call by value parameter passing with an example.	6M	CO3	L3
(b)	Write a C program to find sum of array elements using functions.	6M	CO3	L2
(OR)				
6(a)	Write a C program to solve the towers of Hanoi problem of 3 disks using recursion.	6M	CO3	L1
(b)	Differentiate formal parameters and actual parameters.	6M	CO3	L2
7(a)	Why structure is called heterogeneous data type? What are the valid data types for the fields of a structure?	6M	CO4	L2
(b)	How to compare structure variables? Give an example.	6M	CO4	L1
(OR)				
8(a)	"Structure variable declaration reserves memory for structure". Comment on this statement with valid justification.	6M	CO4	L2
(b)	Write a C program to read and display the information about the faculty of particular department using structure.	6M	CO4	L1
9(a)	How do you use error handling functions in files? Illustrate with an example.	6M	CO5	L2
(b)	Write a C program to append data to the existing text file.	6M	CO5	L3
(OR)				
10(a)	Write a C program to store N integers in text file.	6M	CO5	L2
(b)	Differentiate gets() and fgets() with suitable example.	6M	CO5	L3

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

B.Tech. (I Semester) Supplementary Examinations

17ME01-ENGINEERING GRAPHICS

(ASE&ME)

Time : 3 hours

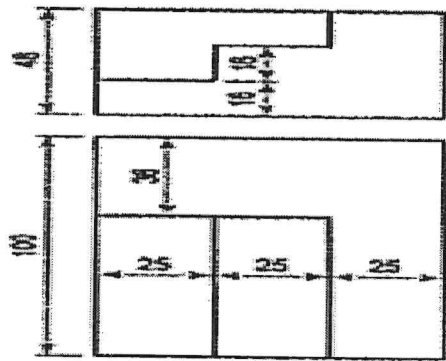
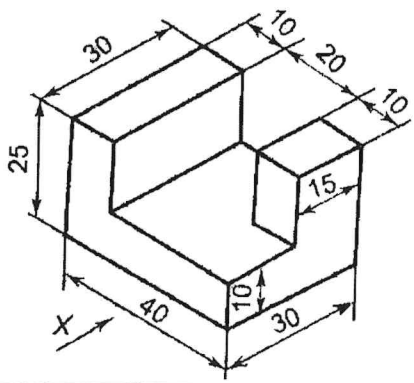
Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1(a)	Construct an ellipse through oblong method with major axis as 120 mm and minor axis as 80 mm.	6M	CO1	L2
(b)	Draw the involute of a circle of 40 mm diameter.	6M	CO1	L2
(OR)				
2(a)	A circle having a 50 mm diameter rolls within a circle with a 150 mm diameter with internal contact. Draw the locus of a point lying on the circumference of the rolling circle for its complete turn. Name the curve.	8M	CO1	L2
(b)	Also draw a tangent and a normal to the curve, at a point that is 40 mm from the centre of the bigger circle.	4M	CO1	L2
3(a)	A point A is 35 mm above the HP and 25 mm in front of the VP. Draw its projections. B, 40 mm above the H.P. and 25mm in front of the V.P. C, in the V.P. and 40 mm above the H.P.	4M	CO2	L2
(b)	The top view of 75 mm long line AB measures 65 mm, while the length of its front view is 50 mm. Its one end is A is in the HP and 12 mm in front of the VP. Draw the projections of AB and determine its inclinations with HP and the VP.	8M	CO2	L3
(OR)				
4(a)	State the position of the points (i) The top view of which lies on the reference line and the front view 50 mm below it. (ii) The front view of which lies on the reference line and the top view 50 mm above it.	4M	CO2	L2
(b)	A line AB of 60 mm long has its end 'A' 25 mm above HP and 20 mm in front of VP. The line is inclined at 30° to HP and 45° to VP Draw the projections.	8M	CO2	L2
5(a)	A square ABCD of 40 mm side has a corner on the H.P. and 20 mm in front of the V.P. All the sides of the square are equally inclined to the H.P. and parallel to the V.P. Draw its projections.	6M	CO3	L2
(b)	A regular pentagon of 25 mm side has one side on the ground. Its plane is inclined at 45° to the H.P and perpendicular to the V.P Draw its projections and show its traces.	6M	CO3	L2
(OR)				

17ME01-ENGINEERING GRAPHICS

6.	Draw the projections of a circle of 50 mm diameter having a point on the circumference of the circle in H.P, such that its surface makes an angle of 40° with H.P. and the top view of the diameter passing through that point makes an angle of 30° with V.P. Draw the projections.	12M	CO3	L3
7(a)	Draw the projections of a triangular prism, base 40 mm side and axis 50 mm long, resting on one of its bases on the H.P. with a vertical face perpendicular to the V.P	4M	CO4	L2
(b)	Draw the projections of a pentagonal pyramid, base 30 mm edge and axis 50 mm long, having its base on the H.P. and an edge of the base parallel to the V.P. Also draw its side view.	8M	CO4	L2
(OR)				
8(a)	A triangular prism base 40 mm side and height 65 mm is resting on the H.P. on one of its rectangular faces with the axis parallel to the V.P. Draw its projections.	4M	CO4	L3
(b)	A pentagonal pyramid, having a base with a 30 mm side and a 70 mm long axis, has a triangular face in the V.P. and a slant edge containing that face is parallel to the H.P. Draw its projections.	8M	CO4	L3
9.	The orthographic projections of the object is shown in figure below. Draw the isometric view of the object 	12M	CO5	L4
(OR)				
10.	Draw the elevation, top view and side view of the object shown in figure. All dimensions are in mm. 	12M	CO5	L4

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B.Tech. (I Semester) Supplementary Examinations

17ME50-BASIC ENGINEERING MECHANICS

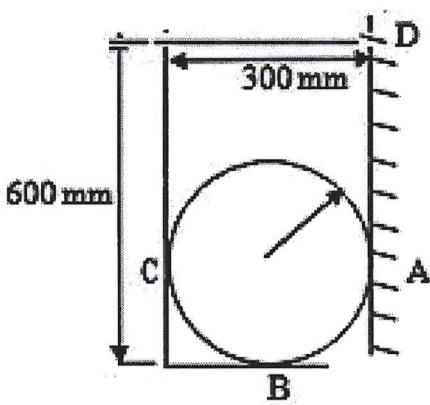
(EEE)

Time : 3 hours

Max. Marks : 60

Answer one question from each unit

All questions carry equal marks

Q.No	Questions	Marks	CO	BL
1.	A 600 N cylinder is supported by the frame BCD as shown in figure. The frame is hinged at D. Determine reactions at A, B, C and D. 	12M	CO1	L2
(OR)				
2(a)	State and prove Varignon's theorem.	6M	CO1	L3
(b)	Two forces equal to 2P and P respectively act on a particle. If first be doubled and the second increased by 12N the direction of the resultant is unaltered, find the value of 'P'.	6M	CO1	L2
3(a)	Define the following terms (i) Limiting friction (ii) Angle of repose (iii) Coefficient of friction.	6M	CO2	L1
(b)	A pull of 180N applied upwards at 30° to a rough horizontal plane was required to just move a body on the plane while a push of 220N applied along the same line of action was required to just move the same body downwards. Determine the weight of the body and coefficient of friction.	6M	CO2	L4
(OR)				
4(a)	A body is weighing 500N rests on a rough horizontal plane is subjected to a horizontal force P. Determine the frictional force developed in the surface if coefficient of friction is 0.3 and if P is applied at an angle of 20° with horizontal.	6M	CO2	L3
(b)	Define friction and write laws of friction.	6M	CO2	L2
5(a)	State and explain parallel axis theorem.	6M	CO3	L3
(b)	Determine the moment of inertia of a circular area about the centroidal axes.	6M	CO3	L2
(OR)				
6(a)	An isosceles triangle section ABC has a base of 100mm and 60mm height. Determine the moment of inertia of triangle about the base.	6M	CO3	L3

17ME50-BASIC ENGINEERING MECHANICS

(b)	Distinguish between Area moment of inertia and Polar moment of inertia.	6M	CO3	L2
7(a)	Differentiate the following (i) Centroid and center of gravity. (ii) Area moment of inertia and mass moment of inertia	6M	CO4	L2
(b)	A hemisphere of diameter 300mm is symmetrically placed on the top base of a cylinder of diameter 200mm and height 300mm. Locate the centre of gravity of the composite volume.	6M	CO4	L3
(OR)				
8.	Derive the expression for the mass moment of inertia of a solid sphere of radius R about its diametral axes.	12M	CO4	L2
9(a)	A particle travels along a straight line with a velocity of $v = (4t - 3t^2)$, where t is in seconds. Determine the position of the particle when $t = 4$ sec and $s = 0$ when $t = 0$.	6M	CO5	L3
(b)	Explain in brief about time of flight and range of projectile.	6M	CO5	L3
(OR)				
10(a)	Two trains start at same time from stations A and B (6 km apart) respectively in opposite tracks. Train A accelerates uniformly at the rate of 0.5m/s^2 until it reaches a speed of 54 kmph. While train B accelerates uniformly at the rate of 0.6 m/s^2 until it reaches a speed of 72 kmph and then travels at this speed. Determine when and where both will cross each other.	6M	CO5	L3
(b)	A car is moving with a velocity of 15m/sec . The car is brought to rest by applying brakes in 5 seconds. Determine (i) the retardation (ii) distance travelled by the car after applying brakes.	6M	CO5	L3
