AR20

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Supplementary Examinations, June-2022
ENGINEERING MECHANICS
(Common to CE & ME)

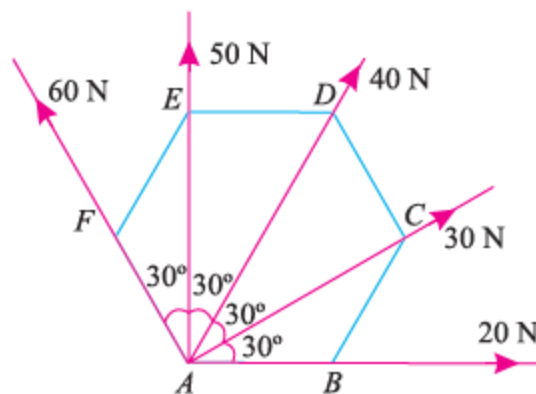**Time: 3 Hours**   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a)	Two forces of 100 N and 150 N are acting simultaneously at a point. What is the resultant of these two forces if the angle between them is 45^0?	4	CO1	L2
	b)	The following forces act at a point.	6	CO1	L3

        (i)   20 N inclined at 30^0 towards North of East.
        (ii) 25 N towards North.
        (iii) 30 N towards North West.
        (iv) 35 N inclined at 40^0 towards South of West.
Find the magnitude and direction of the resultant force.

(OR)

|			Marks	CO	Blooms Level
2.		The forces 20 N, 30 N, 40 N, 50 N and 60 N are acting at one of the angular points of a regular hexagon, towards the other five angular points, taken in order. Find the magnitude and direction of the resultant force.	10	CO1	L3

			Marks	CO	Blooms Level
		UNIT-II			
3.		Three forces of 2P, 3P and 4P act along the three sides of an equilateral triangle of side 100 mm taken in order. Find the magnitude and position of the resultant force.	10	CO2	L3

(OR)

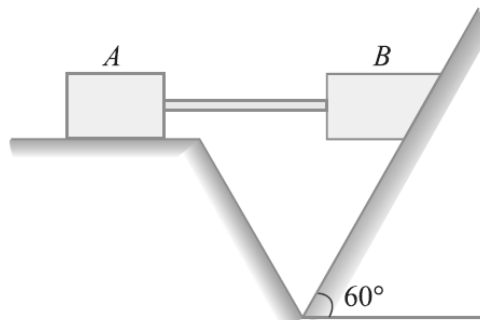|			Marks	CO	Blooms Level
4.	a	State and prove Varignon's theorem	5	CO2	L2
	b	Explain the concept of Free Body Diagram with example	5	CO2	L2

UNIT-III

5. A cantilever truss of 3 m span is loaded as shown in Figure. Determine the forces in the members of the framed truss, and tabulate the results.

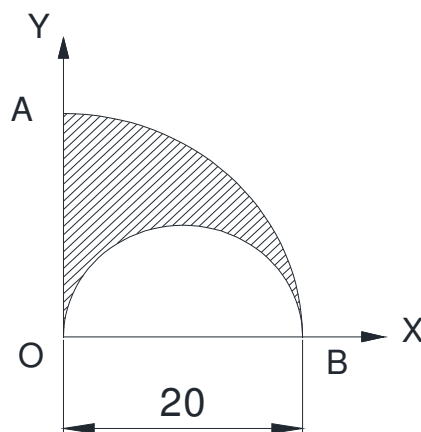|	Marks	CO	Blooms Level
	10	CO3	L5
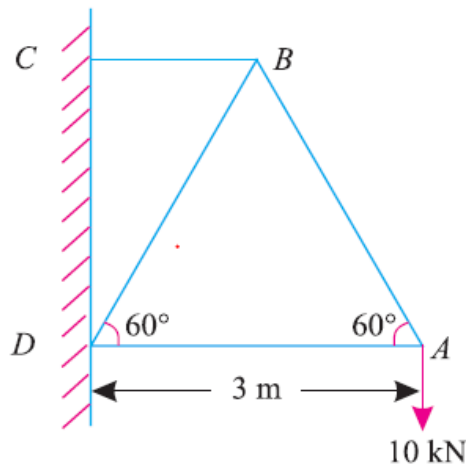
(OR)

6. Two blocks A and B, connected by a horizontal rod and are supported on two rough planes as shown in Figure. The coefficients of friction are 0.3 between block A and the horizontal surface, and 0.4 between block B and the inclined surface. If the block B weighs 100 N, what is the smallest weight of block A that will hold the system in equilibrium?

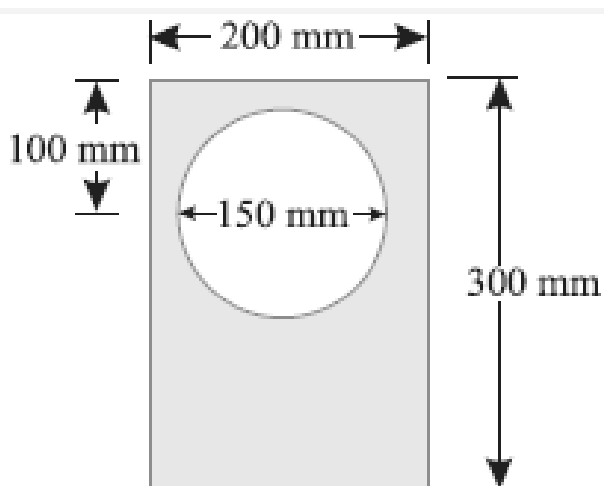|	Marks	CO	Blooms Level
	10	CO3	L4

UNIT-IV

7. Find the co-ordinates of the centroid of the area shown in figure.

	Marks	CO	Blooms Level
	10	CO4	L2

(OR)

8. Find the moment of inertia of a hollow section shown in Figure about an axis passing through its centre of gravity or parallel X-X axis.   10   CO4   L3
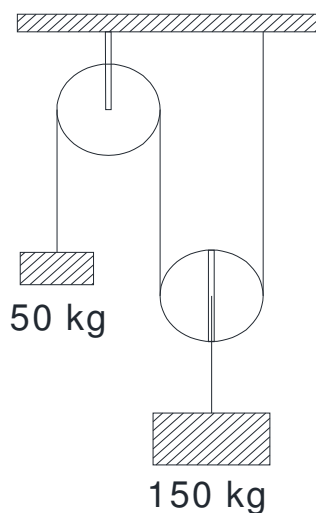

		Marks	CO	Blooms Level
UNIT-V				
9.	The acceleration of a particle in rectilinear motion is defined by the relation $a = 3t^2 + 2$. Given that the initial velocity and displacement are respectively 2 m/s and 3 m, write the equations of motion. Also, determine the position, velocity and acceleration at $t = 2s$.	10	CO5	L3
	(OR)			
10.	A particle is thrown with a velocity of 5 m/s at an elevation of 60° to the horizontal. Determine the velocity of another particle thrown at an elevation of 45° which will have (a) equal horizontal range, (b) equal maximum height, and (c) equal time of flight.	10	CO5	L3

			Marks	CO	Blooms Level
UNIT-VI					
11.	(a)	State the Work – Energy principle.	2	CO6	L1
	(b)	Derive the expression for Work – Energy principle	8	CO6	L3
		(OR)			
12.		Determine the tension in the strings and acceleration of two blocks of mass 150 kg and 50 kg connected by a string and a frictionless and weightless pulley as shown in figure.	10	CO6	L3

CODE: 20EET202   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Supplementary Examinations, June-2022
D.C MACHINES & TRANSFORMERS
(Electrical and Electronics Engineering)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

			Marks	CO	Blooms Level
1.	a)	Explain the working principle and constructional details of D.C. Generator with a neat sketch.	5	CO1	Understand
	b)	A 4 pole lap wound DC shunt generator has a useful flux per pole of 0.07Wb. The armature winding consists of 220 turns of each of 0.004Ω resistance. Calculate the terminal voltage when running at 900rpm.if the Armature current is 50A.	5	CO1	Apply

(OR)

2.	a)	Classify the generators based on its excitation with neat circuit diagram and with voltage equation.	5	CO1	Understand
	b)	A DC shunt generator is supplying load connected to a bus - bar voltage of 220 V. It has an armature resistance of 0.025 Ω and field resistance of 110 Ω. Calculate the value of load current and load power when it generates an E.M.F of 230 V. Neglect the effect of armature reaction.	5	CO1	Apply

UNIT-II

			Marks	CO	Blooms Level
3.	a)	Define commutation. Explain the process of commutation in dc generators with neat sketches.	5	CO2	Understand
	b)	A 10 KW, 250V, dc shunt generator having an armature resistance of 0.1 ohm and a field resistance of 250 ohms delivers full load at rated voltage and speed of 800 rpm. The machine is now run as a motor while taking 10 KW at 250 V. What is the speed of the motor? Neglect brush contact drop.	5	CO2	Apply

(OR)

4.	a)	Draw and explain the characteristics of compound generators.	5	CO2	Understand
	b)	Discuss the applications of Various DC generators.	5	CO2	Understand

UNIT-III

			Marks	CO	Blooms Level
5.	a)	Explain various types of DC motors?	5	CO3	Understand
	b)	A 440v, 14 pole lap wound dc shunt motor takes 1,550A from the supply. There are 280 conductors. The flux per pole is 0.0674wb. Calculate the value of torque developed and speed of the motor.	5	CO3	Apply

(OR)

6.	a)	Explain Speed- torque characteristics of various DC machines	5	CO3	Understand
	b)	A dc motor takes an armature current of 110A at 480V. The armature circuit resistance is 0.2ohm. The machine has 6-poles and the armature is lap-connected with 864conductors. The flux per pole is 0.05Wb. Calculate i) the speed ii) the gross torque development by the armature.	5	CO3	Apply

			Marks	CO	Blooms Level

UNIT-IV

			Marks	CO	Blooms Level
7.	a)	Explain the test by which a DC machine performance is predetermined as motor and generator.	5	CO4	Understand
	b)	The following readings are obtained when performing a brake test on DC shunt motor. Spring Balances are 8 Kgs and 30 Kgs. Diameter of the drum is 42 cm. Speed of the moto is 1000 rpm, applied voltage is 220 volts line current is 50A calculate output power and efficiency.	5	CO4	Apply

(OR)

8.	a)	What is the necessity of starter for a dc motor? Explain 4-point starter of DC machine.	5	CO4	Understand
	b)	A 500V Dc shunt motor takes a current of 5A on load. The resistance of the armature and field circuit are 0.2 Ω and 300 Ω respectively. Find the efficiency when loaded and taking a current of 125A and the percentage change of speed.	5	CO4	Apply

UNIT-V

			Marks	CO	Blooms Level
9.	a)	Draw the phasor diagram of a transformer on full load (capacitive and inductive).	5	CO5	Understand
	b)	A 200 kVA 1-phase transformer is in operation continuously. For 8hours in a day, the load is 160kW at 0.8 pf. For 6hours, the load is 80kW at unity pf and for remaining period of 24hours it runs on no load. Full load copper losses are 3.02kW and the iron losses are 1.6kW. Find all-day efficiency.	5	CO5	Apply

(OR)

10.	a)	Distinguish between core type and shell type transformers.	5	CO5	Understand
	b)	A 300KVA single-phase transformer has 500 primary turns and 30 secondary turns. The primary is connected to a 3300v, 50Hz supply. Calculate (i) the maximum flux in the core,(ii)the secondary emf (iii)the primary and secondary currents.	5	CO5	Apply

UNIT-VI

			Marks	CO	Blooms Level
11.	a)	Explain how core losses are separated in a transformer.	5	CO6	Understand
	b)	The efficiency of a 250 KVA, single phase transformer is 96% when delivering full load at 0.8 p.f lagging and 97.2% when delivering half full load at upf. Determine the efficiency at 75% of full load at 0.8p.f lagging.	5	CO6	Apply

(OR)

12.	a)	Explain the concept of three phase to two phase conversion with a neat circuit diagram.	5	CO6	Understand
	b)	Explain about the Delta-star, star-delta connections used in 3-phase connection of transformers. Write their advantages and disadvantages.	5	CO6	Understand

CODE: **20ESI204**   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Supplementary Examinations, June-2022
PYTHON PROGRAMMING
(Common to ECE, CSE & IT)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a)	Explain the Identifiers, Keywords, Statements, Expressions, and Variables in Python programming language with examples.	5M	1	2
	b)	How many different ways are there to run Python? Which do you prefer and why?	5M	1	3
		(OR)			
2.	a)	Describe Arithmetic Operators, Assignment Operators, Comparison Operators, and Logical Operators in detail with examples.	6M	1	2
	b)	State the difference between / operator and // operator.	4M	1	4
		UNIT-II	Marks	CO	Blooms Level
3.	a)	Explain the basic data types available in Python with examples.	6M	2	2
	b)	Write a python program that reads a list of integers and performs addition only on even numbers of the list.	4M	2	3
		(OR)			
4.	a)	List out the differences between List and Set Data Structures in Python.	6M	2	4
	b)	Discuss how to read a list of integer values from user at run time.	4M	2	2
		UNIT-III	Marks	CO	Blooms Level
5.	a)	Explain about default arguments in python. Write a python program to demonstrate keyword arguments in functions.	6M	3	2
	b)	Explain different modes of opening a file.	4M	3	2
		(OR)			
6.	a)	What are variable length arguments? Discuss with an example.	5M	3	2
	b)	Define a recursive function that returns sum of digits of a number passed as argument.	5M	3	3
		UNIT-IV	Marks	CO	Blooms Level
7.	a)	Explain the following methods of math module with syntax and example for each: (i) ceil() (ii) floor() (iii) exp()	6M	4	2
	b)	What are the advantages of using Modules?	4M	4	1
		(OR)			
8.	a)	List out the types of Modules and Explain any two types in detail.	5M	4	4
	b)	Write short notes on Python Packages?	5M	4	2
		UNIT-V	Marks	CO	Blooms Level
9.	a)	What is Inheritance? Discuss in short about various types of inheritance in python.	6M	5	2
	b)	Explain Class and object in Python with example program.	4M	5	2
		(OR)			
10.	a)	Demonstrate implementation of hierarchical inheritance in Python, with a program	5M	5	2
	b)	Explain a) method overriding and b) data hiding	5M	5	2
		UNIT-VI	Marks	CO	Blooms Level
11.	a)	Explain differences between matching and searching functions in python?	5M	6	4
	b)	Write a Python program to find the sequences of one upper case letter followed by lower case letters.	5M	6	4
		(OR)			
12.	a)	What are regular expressions? How to find whether an email id entered by user is valid or not using Python 're' module.	5M	6	2
	b)	Write a Python program to check that a string contains only a certain set of characters	5M	6	4

AR18

CODE: 18CET204   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Supplementary Examinations, June-2022
SURVEYING AND GEOMATICS
(Civil Engineering)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Explain in detail about the different chain corrections? (4M)
    b) Define the following: (8M)
       (i) Fore bearing and Back bearing   (ii) True bearing and Magnetic bearing
       (iii) True Meridian and Magnetic Meridian

(OR)

2. a) Sketch and Explain about salient features of prismatic compass and surveyors compass? (8M)
    b) The following bearings were observed with the compass. Calculate the interior angle? (4M)

Line	F.B
AB	140°30'
BC	80°30'
CA	340°00'
DE	290°30'
EA	230°30'

UNIT-II

3. a) The following staff readings were observed successfully with a level, the instrument having been shifted after 5th and 11th readings: 0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300, 1.795, 2.575, 3.375, 3.895, 1.735, 0.635, 1.605 meters. Enter the above readings in a page of level book and calculate the R.L of points by using Height of Instrument method, if the first reading was taken with a staff held on a benchmark of 136.440m. (6M)
    b) Write the characteristics and uses of contour maps? (6M)

(OR)

4. a) Describe about direct method of contouring with the help of a neat sketch? (4M)
    b) Explain about types of Direct levelling with a neat sketch? (8M)

UNIT-III

5. a) Describe the procedure to calculate horizontal angles by repetition and reiteration method with a neat sketch? (6M)
    b) Determine the ordinates of the points on a circular curve having a long chord of 100m and a versed sine (mid-ordinate) of 5 m. The ordinates are to be measured from the long chord at an interval of 10 m. (6M)

(OR)

6. a) Explain in detail about tacheometry as applied to subtense measurement? (6M)
    b) Explain briefly about setting out simple curve by means of tape or chain by using offsets from long chord method with neat sketch? (6M)

UNIT-IV

7. a) Describe briefly about Stereoscopy in Photogrammetry Surveying? (6M)
    b) Write down the advantages and disadvantages of photogrammetric surveying? (6M)

(OR)

8. a) Write about terrestrial photogrammetric surveying? (6M)
    b) Explain about flight planning with neat sketches? (6M)

UNIT-V

9. a) Explain about electromagnetic spectrum with neat sketches? (8M)
    b) Explain about remote sensing platforms? (4M)

(OR)

10. a) Write about visual image interpretation? (6M)
    b) Describe briefly about remote sensing data acquisition? (6M)

AR18

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Supplementary Examinations, June-2022
ELECTRO MAGNETIC FIELD THEORY
(Electrical and Electronics Engineering)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Define (i) Coulomb law (ii) Electric field intensity (iii) Electric flux density   6M
   b) The two points C(-3,2,1) and D(r=5,θ=20^0, $\emptyset$=-70^0) find (a) the spherical coordinates of C(b) the rectangular coordinates of D   6M

(OR)

2. a) Explain in brief the point form of Gauss law and it's applications   6M
   b) 4 equal, point charges of 10nc are located at x=2,3,4 and 6 cm. Determine the potential at the origin   6M

UNIT-II

3. Derive expressions for the Dielctric-Dielctric boundary condition?   12M

(OR)

4. a) Derive the expression for the continuity equation   6M
   b) What is the Capacitance of a Capacitor consisting of two parallel plates 60 cm by 80 cm, Separated by 4 mm in air. What is the energy stored by the capacitor if it is charged to a potential difference of 300 volts.   6M

UNIT-III

5. a) A hallow conducting cylinder has inner radius 'a' and outer radius 'b' and carries current 'I' along the positive z-direction. Find **H** everywhere.   6M
   b) A current filament carrying 15A in the **a**$_z$ direction lies along the entire z- axis. Find **H** in the rectangular coordinates at (i) P_A($\sqrt{20}$, 0, 4) (ii) P_B(2,-4,4)   6M

(OR)

6. a) State and explain Boit-Savart's Law   6M
   b) A steady current of ' I' amperes flows in a conductor bent in the form of a square loop of side ' 'a' metres. Find the magnetic field intensity at the centre of the square loop.   6M

UNIT-IV

7. a) Derive the expression for Force between two straight long and parallel conductors carrying current in the same direction with neat sketch   6M
   b) A rectangular filamentary current loop in the xy-plane has corners at (0,0,0),(1,0,0), (1, 2, 0) and (0,2,0). The loop carries a current of 1.5A in the a$_x$ direction on the X-axis. Find the total force on the current loop produced by the magnetic field **B** = 2i+4J -4k T   6M

(OR)

8. a) Derive the expression for the Lorentz's force equation   6M
   b) Find the magnitude of force exerted on a 0.2C point charge having velocity V= 4i-2j+3k m/s. in the field.
   a). **E**=10i+15k N/C   b). **B**=3i-5j-6k T   6M

UNIT-V

9. Derive an expression for pointing vector   12M

(OR)

10. a) Derive an expression for displacement current.   6M
    b) A parallel –plate capacitor with plate area of 5cm^{2}and plate separation of 3 mm has voltage 50sin10^{3}t V applied to its plates. Calculate the displacement current assuming ε= 2ε_0 6M

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Supplementary Examinations, June-2022
ENGINEERING MECHANICS
(Common to ECE & ME)

**Time: 3 Hours**   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Discuss the classification of couples and explain clearly the differences between a positive Couple and negative couple?   **4M**

   b) The forces 20 N, 30 N, 40 N, 50 N and 60 N are acting at one of the angular points of a regular hexagon, towards the other five angular points, taken in order. Find the magnitude and direction of the resultant force.   **8M**
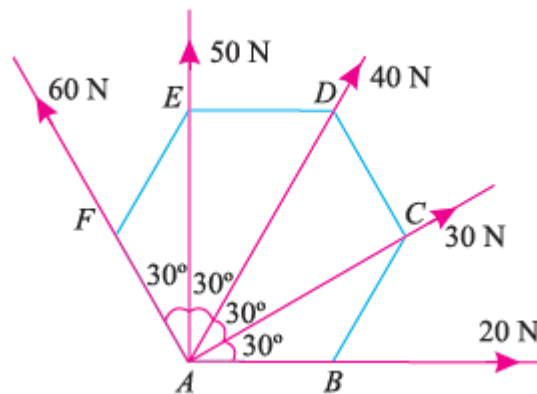
(OR)

2. a) Find the magnitude of the two forces, such that if they act at right angles, their resultant is 10 N . But if they Act at 60°, their resultant is 13 N   **6M**

   b) A horizontal line PQRS is 12 m long, where PQ = QR = RS = 4 m. Forces of 1000 N, 1500 N, 1000 N and 500 N act at P, Q, R and S respectively with downward direction. The lines of action of these forces make angles of 90°, 60°, 45° and 30° respectively with PS. Find the magnitude, direction and position of the resultant force   **6M**

UNIT-II

3. a) Define the term 'force'? What are the characteristics of a force? Explain clearly the procedure for finding out the resultant force analytically as well as graphically?   **4M**

   b) A uniform wheel of 600 mm diameter, weighing 5 kN rests against a rigid rectangular block of 150 mm height as shown in figure below Find the least pull, through the centre of the wheel, required just to turn the wheel over the corner A of the block. Also find the reaction on the block. Take all the surfaces to be smooth.   **8M**
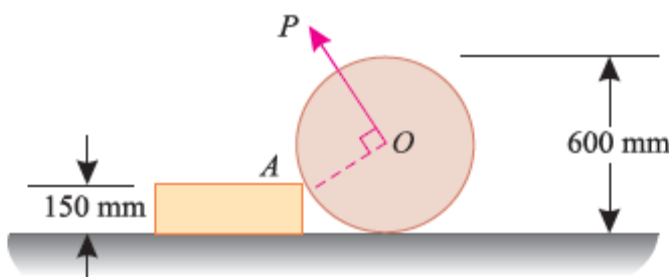
(OR)

4. a) State and prove Varignon's theorem   6M
   b) Explain the concept of Free Body Diagram with example   6M

UNIT-III

5. a) A body, resting on a rough horizontal plane, required a pull of 180 N inclined at   8M
      30° to the Plane just to move it. It was found that a push of 220 N inclined at 30° to
      the plane just Moved the body. Determine the weight of the body and the
      coefficient of friction
   b) Explain the concept of limiting friction   4M

(OR)

6.   A pin jointed truss is loaded and supported as shown in Fig Determine: 12M
      a) The forces in the members BD and CD by using method of sections.
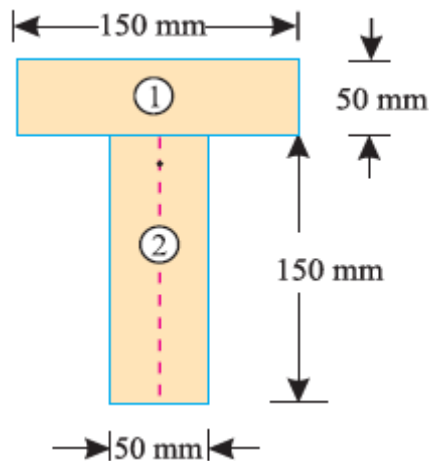   b) The forces in the member AB and BC   by using method of joints.
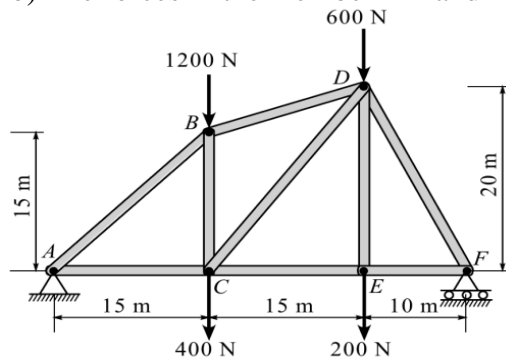
UNIT-IV

7. a) Find the Centre of gravity of a 100 mm × 150 mm × 30 mm T-section.   8M
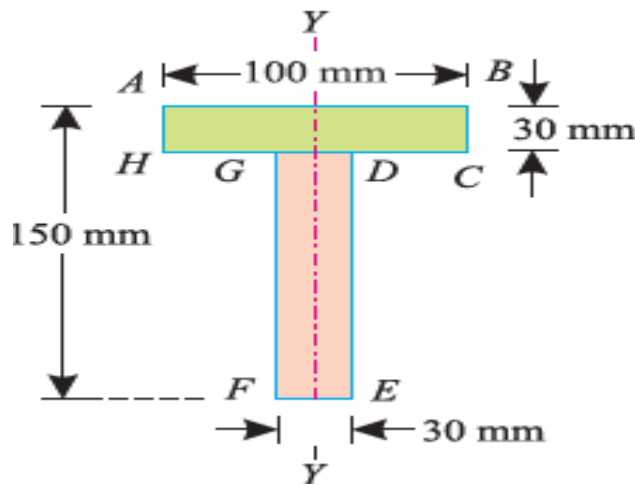
   b) Define centroid and centre of gravity, with examples   4M

(OR)

8. a) Find the moment of inertia of a T-section with flange as 150 mm × 50 mm and web   8M
      as 150 mm × 50 mm about X-X and Y-Y axes through the Centre of gravity of the
   Section

b) Find out the mass moment of inertia of a right circular cone of base radius R and mass M about the axis of the cone   4M

UNIT-V

9. a) A stone is dropped from the top of a tower 50m high. At the same time, another stone is thrown up from the foot of the tower with a velocity of 25m/s. At what distance from the top and after how much time the two stones cross each other   4M

   b) The x and y components of the displacement in meters of a point are given by the equation $x = 4t^2 - 3t$, $y = t^3 - 10$. Determine the velocity and acceleration of the point when $t = 2$ sec   8M

(OR)

10. a) Explain the concept of D'Alemberts principle   4M

    b) Two bodies weighing 25N and 20N are connected to the ends of an inextensible string, which passes over a smooth pulley as shown in figure. The weight 25N is placed on a 20° inclined plane while the weight 20N is hanging over the pulley. Determine (i) Acceleration of the system when 25N moves up (ii) Tension in the string.   8M
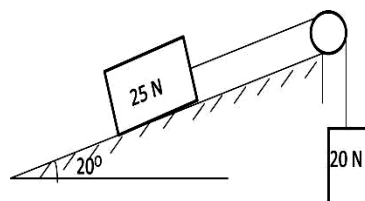
3 of 3

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AR16

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Classify the scales in surveying and explain any two with neat sketches. 7 M
   b) Explain about 20 seconds least count Vernier scale with a neat sketch. 7 M

(OR)

2. a) Define the following: 8 M
      (i) Fore bearing and Back bearing   (ii) True bearing and Magnetic bearing
      (iii) True Meridian and Magnetic Meridian (iv) Angle and Bearing
   b) Write about errors and corrections in chain surveying. 6 M

UNIT-II

3. The following consecutive readings were taken with a level and 5 metre levelling staff on continuously sloping ground at a common interval of 30 metres: 0.480, 1.060, 2.965, 3.425, 4.999, 0.456, 3.02, 3.650 and 5.0. The reduced level of the first point was 399.999 m. Rule out a page of a level field book and enter the above readings. Calculate the reduced levels of the points by rise and all method also the gradient of the line joining the first and the last point. 14 M

(OR)

4. a) Write about Elimination of Parallax in levelling. 4 M
   b) Explain the methods of levelling. 10 M

UNIT-III

5. a) Explain the temporary adjustments of a vernier theodolite. 6 M
   b) Explain the sources of errors in theodolite survey. 8 M

(OR)

6. a) Explain various systems of tacheometric measurements. 6 M
   b) Write about DGPS and its applications. 8 M

UNIT-IV

7. a) Explain the principal methods of plotting a traverse survey. 8 M
   b) Explain the process of locating the corners of a building using chain and compass. 6 M

(OR)

8. a) What are the methods of adjusting a traverse survey? Explain any two methods. 8 M
   b) Write about Gales traverse table. 6 M

UNIT-V

9. a) Derive an equation for distance and height for base of the object inaccessible and instrument stations at different levels. 10 M
   b) Determine the height of the building using the following data: 4 M
      (i) Distance between Instrument station and Building is 15 m
      (ii) Angle of elevation is $+15°00'$
      (iii) Staff reading at the bottom of the building is 1.58 m.

(OR)

10. a) Explain the elements of a simple circular curve with neat sketches. 10 M
    b) Explain the degree of curve with a neat sketch. 4 M

AR13

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Supplementary Examinations, June-2022
ELECTRO MAGNETIC FIELDS
(Electrical & Electronics Engineering)

Time: 3 Hours   Max Marks: 70

PART-A

ANSWER ALL QUESTIONS   **[1 x 10 = 10 M]**

1. a) Define Gradient.
   b) Define Coulombs law.
   c) Write Poisson's equation
   d) Define Capacitance.
   e) Define Curl.
   f) Define Amperes law.
   g) Write Lorenz Force Expression.
   h) Define Lenz's law.
   i) Define Mutual Inductance.
   j) Write Poynting Theorem.

PART-B

Answer one question from each unit   **[5x12=60M]**

UNIT-I

2. a) Find the area of a cylinder in a_r direction, where $0 \leq \Phi \leq \Pi/2$, $0 \leq z \leq 10$.   6M
   b) Find the Volume of a Sphere with $0 \leq r \leq R$, $0 \leq \Theta \leq \Pi/2$, $0 \leq \Phi \leq 2\Pi$.   6M

(OR)

3. a) Derive the expression for Electric Field Intensity due to infinite sheet of charge.   6M
   b) Derive the expression for potential due to circular line charge.   6M

UNIT-II

4. a) Derive the expression for Potential due to a Dipole.   6M
   b) Explain the behaviour of Conductors in electric field.   6M

(OR)

5. a) Explain about boundary conditions between Conductor and Dielectric.   6M
   b) A Parallel plate capacitor has a plate area of $1.5m^2$ and a plate separation of 5mm. There are two dielectrics in between the plates . The first dielectric has a thickness of 3mm with a relative permittivity of 6 and the second has a thickness of 2mm with a relative permittivity of 4. Fid he capacitance.   6M

UNIT-III

6. a) Magnetic Field intensity due to infinite sheet of current by using Amperes law.   8M
   b) State Amperes law and list the applications.   4M

(OR)

7. a) Derive the expression for H due to infinitely long straight conductor.   6M
   b) A radial field H= $(2.39*10^6 \cos \Phi)/r$ a_r A/m exist in free space. Find the magnetic flus crossing the surface defined by $0 \leq \Phi \leq \Pi/4$ and $0 \leq z \leq 1$ m. 7.42   6M

UNIT-IV

8. Derive the expression for Torque on a current loop in a Magnetic Field.   12M

(OR)

9. a) Derive the expression for self-inductance of a Torroid.   6M
   b) A coil of 500turns is wound on a closed iron ring of mean radius 10cm and cross section area of $3cm^2$. Find the self-inductance of the winding if the relative permeability of iron is 800.   6M

UNIT-V

10. a) Derive an expression for displacement current.   6M
    b) Write All Maxwell equations Static field.   6M

(OR)

11. a) Explain about modified Ampers law.   6M
    b) Write All Maxwell equations for time varying field.   6M