AR16

CODE: 16CE4026 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular Examinations, November-2019

ENVIRONMENTAL ENGINEERING-II

(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

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 factors affecting quantity of sanitary and storm sewages. Give an account on determination of storm Sewage	9
	b)	Determine the size of circular sewer and velocity of flow for a discharge of 0.7 cu m/sec running half full. i = 0.0001, n = 0.012 and velocity ratio from graph = 0.98.	5
		(OR)	
2.	a)	What are various types of decomposition of sewage? Describe the Nitrogen cycle of decomposition	9
	b)	The 5 Day BOD of a waste water sample at 20^{o} C is 210mg/l. Find its 2 day BOD at 15^{o}C. BOD rate constant K= 0.23/Day	5

UNIT-II

3.	a)	Design a circular clarifier to treat 4MLD of sewage. Allowable surface loading is 30000 lt/sq m/day	6
	b)	List the methods of aeration of ASP. Explain Simplex process with neat sketch.	8
		(OR)	
4.	a)	Explain about Recirculation in High Rate Trickling Filters. Mention its advantages	7
	b)	Explain the Activated sludge process with the help of a neat flow diagram	7

UNIT-III

5.	a)	Describe Self Purification process of water bodies? Explain the factors affecting it.	7
	b)	Explain the characteristics of zones of polluted streams.	7
		(OR)	
6.	a)	What is sludge digestion? Explain the factors affecting Sludge digestion?	8
	b)	Design a Septic tank for 80 persons with sewage flow of 110 lpcd. Also check the minimum spaces requirement.	6

UNIT-IV

7.	a)	Discuss the effects of Air Pollutants on the health of people	7
	b)	List different techniques of air pollution control. Describe any one.	7
		(OR)	
8.	a)	What is atmospheric stability? Explain it w.r.t dispersion of pollutants	6
	b)	Explain about working of ESP with the help of a neat sketch	8

UNIT-V

9.	a)	Discuss sources of noise and their typical levels.	7
	b)	Write a note on Noise Rating System.	7
		(OR)	
10.	a)	Enumerate different effects of Noise pollution	7
	b)	Discuss various techniques of abating Noise	7

AR16

CODE: 16HS4005 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular Examinations, November, 2019

MANAGERIAL ECONOMICS AND MANAGEMENT SCIENCES

(Electrical and Electronics Engineering)

Time: 3 Hours **Max Marks: 70**

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)	Briefly explain methods of forecasting for new products.	7M
	b)	What is Law of Demand? Explain its exceptions.	7M
		(OR)	
2.		Explain different types of elasticity of demand.	14M

UNIT-II

3.	a)	Define Production function. Explain the short run production function and long run production function.	7M
	b)	Differentiate between Internal Economies of Scale and External Economies of scale.	7M
		(OR)	
4.	a)	Derive the formula for Break Even analysis. Explain its limitations.	7M
	b)	A company produces a product; where as fixed cost is Rs 16,000. The average cost of the product is Rs 4 and the selling price of the product is Rs 8.Calculate Break even quantity.	7M

UNIT-III

5.		Explain the significance of market structures.	14M
		(OR)	
6.	a)	What is oligopoly? Explain the price output determination under oligopoly.	7M
	b)	How monopoly does maximise his profits during long run?	7M

UNIT-IV

7.	a)	Explain the functions of management.	7M
	b)	Outline the administrative principles of management.	7M
		(OR)	
8.	a)	Describe two motivational theories.	7M
	b)	Explain the role of management in maintaining the social responsibility of a business	7M

UNIT-V

9.	a)	Explain the functions of marketing.	7M
	b)	Illustrate the channels of Distribution.	7M
		(OR)	
10.	a)	Distinguish between HRM vs. PMIR.	7M
	b)	Discuss the methods of performance appraisal.	7M

AR16

CODE: 16ME4028 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular Examinations, November-2019

FINITE ELEMENT METHODS

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 70**

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

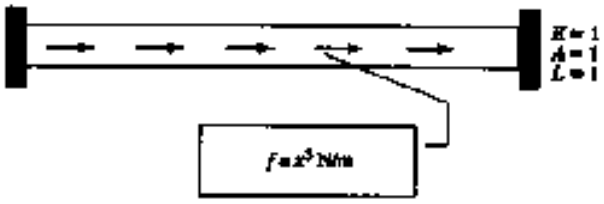
UNIT-I

1. a) Discus briefly the fundamental steps involved in FEM for solving a problem. Also mention the applications of FEM. (4M)

   b) Differentiate between Plane stress and Plane strain conditions with examples. Write the stress-strain relationship matrix for the both plane stress and plane strain problems. (10M)

(OR)

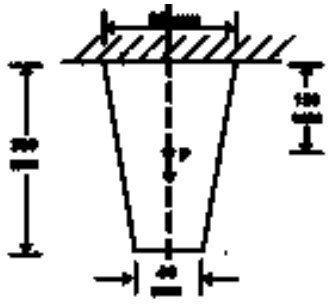
2 Determine the displacement and stress distribution across the element subjected to a body force 'f ' shown in figure using Rayleigh - Ritz method (14M)



UNIT-II

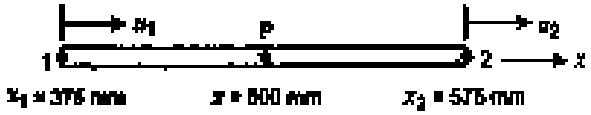
3. a) Derive element stiffness matrix for one dimensional bar element using potential energy approach. (6M)

   b) A tapered bar of uniform thickness t = 10 mm as shown in figure. Find the displacements at the nodes by forming into two element model. The bar has a mass density ρ = 7800 kg/m^3, the young's modulus E = 2 x10^5 MN/m^2. In addition to self weight, the bar is subjected to a point load P = 1 kN at its centre. Also determine the reaction forces at the support. (8M)



(OR)

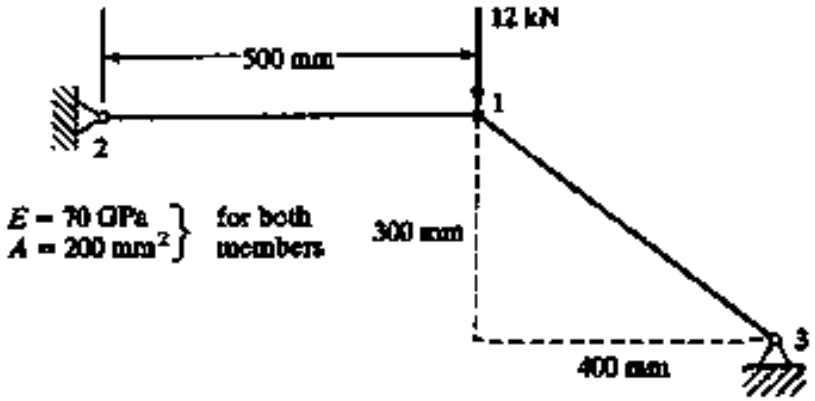
4. a) A two noded bar element is shown in figure. Cross sectional area of bar element is 750 mm^2 and Young's modulus is 200 GPa. If nodal displacements at node1 = 0.5 mm and node2 = 0.625 mm, calculate the following: i) Displacement at point 'P' ii) Strain iii) Stress iv) Element stiffness matrix and v) Strain energy. (10M)



b) Explain the shape functions and applications of quadratic bar element. (4M)

UNIT-III

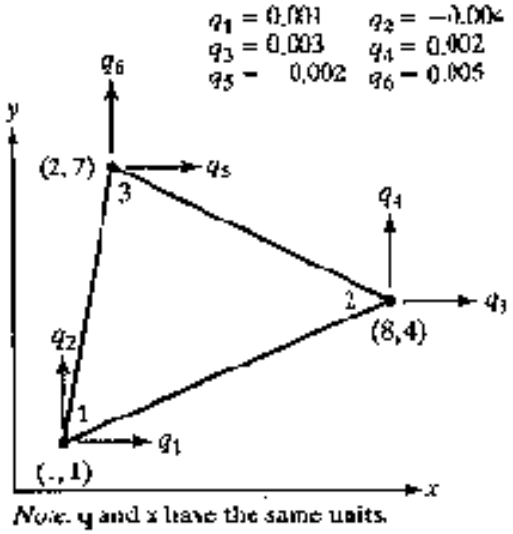
5. Determine the nodal displacements and elemental stresses for the truss shown in figure. (14M)



(OR)

6. a) Write the shape functions for CST element and explain them in area coordinate approach. (6M)

b) Obtain the strain-displacement relation matrix **[B]** and determine the strains ε_x, ε_y and γ_{xy} for the triangular element shown in figure. (8M)

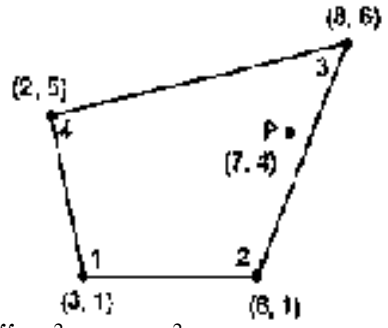


UNIT-IV

7 Derive element stiffness matrix for the beam element. (14M)

(OR)

8. a) For the isoparametric quadrilateral element shown in figure, determine the natural co-ordinates of the point P which has cartesian co-ordinates (7, 4). (7M)



b) Evaluate the integral $I = \iint(2x^2+3xy+4y^2)dxdy$ in the limits of –1 to +1 using gauss quadrature 1x1, 2x2 numerical integration. (7M)

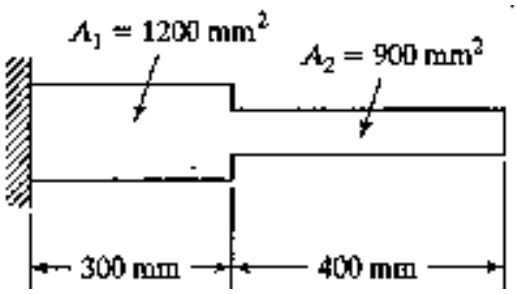
UNIT-V

9. a) Derive the mass matrix for 1D bar element. (7M)

b) Write the FEM procedure in finding the Eigen values and Eigen vectors. (7M)

(OR)

10. Determine the Eigen values and Eigen vectors for the stepped bar shown in figure. Take $\rho = 7830$ kg/m^3 and $E = 2.1 \times 10^{11}$ N/m^2. (14M)



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AR16

CODE: 16EC4029 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular Examinations, November-2019

VLSI DESIGN

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks

UNIT-I

1.	a)	With neat diagram explain the fabrication of CMOS using P-well?	7M
	b)	Draw circuit symbols for NMOS enhancement mode and NMOS depletion mode transistors and write the differences?	7M
		(OR)	
2.	a)	Explain the fabrication steps of NMOS with neat diagrams?	7M
	b)	Compare CMOS and bipolar technologies?	7M

UNIT-II

3.	a)	Derive the expression for drain current for NMOS transistor in non-saturation and saturation regions?	7M
	b)	Derive the expression for trans conductance, output conductance and figure of merit?	7M
		(OR)	
4.	a)	Derive the expression for pullup to pulldown ratio for an NMOS inverter driven by another NMOS inverter through pass transistor?	7M
	b)	What is latch-up condition in CMOS circuits and how to prevent it?	7M

UNIT-III

5.	a)	With a neat diagram explain VLSI design flow?	7M
	b)	Draw Stick diagram for two input NMOS NAND Gate?	7M
		(OR)	
6.	a)	Draw layout for CMOS inverter?	7M
	b)	Explain in detail about Lambda based design rules?	7M

UNIT-IV

7.	a)	Explain the following. (i) sheet resistance (ii) Delay unit	7M
	b)	Derive the expression for Rise time delay and fall time delay of CMOS inverter?	7M
		(OR)	
8.	a)	Write the scaling factors for the following device parameters. (i) Gate capacitance (ii) Q_{ON} (iii) Gate delay T_d (iv) Current density J (v) Power dissipation per gate p_g	7M
	b)	What are the limitations of Scaling?	7M

UNIT-V

9.	a)	Explain in detail about various design capture tools?	7M
	b)	Explain in detail about various design verification tools?	7M
		(OR)	
10.	a)	Write short notes on Built-in-self test?	7M
	b)	Write a note on Testability and testing?	7M

AR16

CODE: 16CS4026 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech I Semester Regular Examinations, November-2019

DATA ANALYTICS
(Common to CSE & IT)

Time: 3 Hours **Max Marks: 70**

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)	With an example explain the procedure in Getting Data into R?	7M
	b)	Discuss the Structure of Data Items	7M
		(OR)	
2.	a)	Summarize how the analytical scalability is handled in data analytics	7M
	b)	Explain in detail about viewing named objects.	7M

UNIT-II

3.	a)	How can you create and manage the **forms of data objects?**	7M
	b)	Explain briefly the procedure in Viewing Objects within Objects?	7M
		(OR)	
4.	a)	Point out the categories of Summary Commands	7M
	b)	Explain in detail the procedure for Constructing Data Objects?	7M

UNIT-III

5.	a)	List out and explain some of the applications of Scatter Plots	7M
	b)	Differentiate between Pie Charts and Bar Charts	7M
		(OR)	
6.	a)	Illustrate in detail about Correlation	7M
	b)	With an example explain the procedure for Copying Graphics to Other Applications	7M

UNIT-IV

7.	a)	Generalize with a neat sketch about processing of a job in Hadoop.	7M
	b)	List the core concepts of HADOOP	7M
		(OR)	
8.	a)	Define HDFS. Explain HDFS in detail.	7M
	b)	Recommend a procedure to find the number of occurrence of a word in a document.	7M

UNIT-V

9.	a)	Assess the difficulties faced by Driver code.	7M
	b)	Discuss about Combiner	7M
		(OR)	
10.		Summarize briefly on Understanding Hadoop API for MapReduce Framework (Old and New)	14M

AR13

CODE: 13CE4024 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, November-2019

ENVIRONMENTAL ENGINEERING

(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

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

1. a) Define per capita demand.
   b) Which metal's chloride in insoluble in water?
   c) What are the permissible limits of pH and total dissolved solids for domestic consumption?
   d) For flow of 15 mld with SOR 20 $m^3/m^2/d$, what is the surface area of sedimentation tank?
   e) Name the mechanisms of purification in filtration.
   f) What is sewage sickness?
   g) Which one is greater among COD & BOD and why?
   h) Where do you provide a manhole?
   i) What is meant by Aerobic and Anaerobic decomposition?
   j) What is meant by Sludge Digestion?

PART-B

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

UNIT-I

2. a) Describe in brief various tests conducted for physical examination of water. 6
   b) The population of a locality as obtained from census report is as follows: 6

Year	1981	1991	2001	2011
Population	41,000	43,500	47,100	50,000

Calculate the population in 2021, 2031, 2041 using Incremental Increase method.

(OR)

3. a) Name the different sources of water and explain their quality. 6
   b) What are intakes? Explain any one type with a neat sketch. 6

UNIT-II

4. a) Explain the layout of a conventional water treatment plant. 6
   b) Design a rectangular plain sedimentation tank for a population of 1 lakh and per capita demand of 135 lpcd. 6

(OR)

5. a) What is meant by coagulation and flocculation? Explain jar test procedure of coagulation. 6
   b) What are the various forms of chlorination? Discuss in detail. 6

UNIT-III

6. a) Discuss various types of layouts of distribution system. 6
   b) What factors are required to be considered in the selection of type of pump? Explain in detail. 6

(OR)

7.	a)	Write short notes on Sluice valve and Air valves with neat sketches.	6
	b)	Discuss about the design aspects of pipe lines.	6

UNIT-IV

8.	a)	Define sewer appurtenances and explain any one in detail with neat sketch.	6
	b)	A 2% dilution of sewage sample is incubated for 5 days at 20^oC. The depletion of oxygen was found to be 4 ppm. Determine the BOD5 of sewage at 20^oC. Calculate ultimate BOD and 2 day BOD at 35^oC	6

(OR)

9.	a)	What is a Pump? Classify the pumps based on mechanical principles indicating merits and demerits of each type of pump.	6
	b)	Determine the size of a circular sewer for a discharge of 500 lit/s running half full. Assume a slope of 1 in 10,000 and N = 0.015.	6

UNIT-V

10.	a)	Write short notes on Oxidation pond.	6
	b)	Design a high rate Trickling Filter to treat 30 MLD of sewage. Assume suitable design data.	6

(OR)

11.	a)	Discuss the significance of sludge Digestion in Activated sludge Process and Trickling filter. Also explain the principle of anaerobic process.	6
	b)	Determine the settling velocity of grit particle of diameter 0.15mm, given the temperature of waste water as 30^oC, density of the particle 2.40g/cc. Also calculate the surface loading rate for the grit chamber. Assume data if needed.	6

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AR13

CODE: 13EC4019 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, November-2019

MICROPROCESSOR AND MICROCONTROLLERS

(Elective-II)

(Electrical & Electronics Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

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

1. a) What is micro processor and BIU ?
   b) Expand AAA, AAM.
   c) What is the difference between JMP and LOOP instructions?
   d) What is minimum mode operation?
   e) Explain INTR, INTA pins in 8086?
   f) What is a port ?what is the need for port?
   g) Write about PCON, and TMOD registers in 8051 controller.
   h) What is the purpose of SBUF register in 8051 controller?
   i) What is 2-key lock out?
   j) What is the importance of data buffer of 8279A ?

PART-B

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

UNIT-I

2. a. Draw the internal block diagram of 8086MP explain pipe line concept. 8M
   b. Explain the concept of segmented memory? What are its advantages? 4M

(OR)

3. a. Explain the following assembler directives. 6M

   EQU, ORG, ASSUME, DB, ENDS, END, END LABEL, EXTRN, PUBLIC.

   b. Explain the addressing modes of 8086 mp with examples? 6M

UNIT-II

4. a. What is an interrupt? What is the difference between software and hardware interrupts& explain INT 0,1,2,3,4 with vector table. 8M
   b. Write an ALP to convert packed BCD to unpacked BCD. 4M

(OR)

5. a Write logical and arithmetic instructions and explain ? 6M
   b. Write a assembly language program for sorting of numbers in ascending order. 6M

AR13

CODE: 13EC4019 **SET-1**

UNIT-III

6.		Explain register set of 80386 processor.	12M
		(OR)	
7.	a.	Explain modes of 80386 processor.	6M
	b.	Explain paging mechanism of 80386 processor.	6M

UNIT-IV

8.		Draw the functional block diagram of DMA controller. Explain the steps involved in DMA data transfer.	12M
		(OR)	
9.		Draw the block diagram of 8255 and explain working &modes of operation.	12M

UNIT-V

10.	a.	Explain the parallel I/O ports of 8051 micro controller	6M
	b.	Write a program for multiplication two numbers using 8051 Micro controller.	6M
		(OR)	
11.		With a neat sketch explain the architecture of 8051 micro controller	12M

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AR13

CODE: 13ME4027 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, November-2019

FINITE ELEMENT METHODS

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

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

1. a) Explain the terms body force and traction force
   b) Write the equilibrium equation in x-direction of a body subjected to body force.
   c) What is a formula to compute half band width of a stiffness matrix for 1D bar?
   d) Write the shape functions of 2-noded axial bar element
   e) Write the expression for calculating stress in an element in terms of direction cosines of a 2-noded plane truss element.
   f) What is the total sum of the values of shape functions at a point in any element?
   g) Write the element load vector of 2-noded beam element subjected to UDL of intensity p N/m.
   h) Write the Gauss points to integrate a function between -1 and +1 using two-point formula.
   i) What is the relationship between eigen values and frequencies in a dynamic problem
   j) Write the conductivity matrix of a 2-noded axial element of length 'l' and coefficient of thermal conductivity 'k'

PART-B

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

UNIT-I

2. a) Distinguish between plane stress condition and plane strain condition. Derive respective material matrices. 10M
   b) In a plane strain problem σ_x= 200 MPa, σ_y=-100 MPa, E = 200 GPa and υ=0.3 determine the value of σ_z. 2M

(OR)

3. a) A vertical bar of length 2 units is fixed at both ends and is under the action of gravity. Determine the displacement at the centre of the bar using Raleigh-Ritz method. Take E = A =ρg = 1. 9M
   b) Write the strain-displacement relations for a 3-D problem. 3M

UNIT-II

4. a) The structure shown in figure 1 is subjected to a temperature raise of 80^0C. Determine nodal displacements. 9M

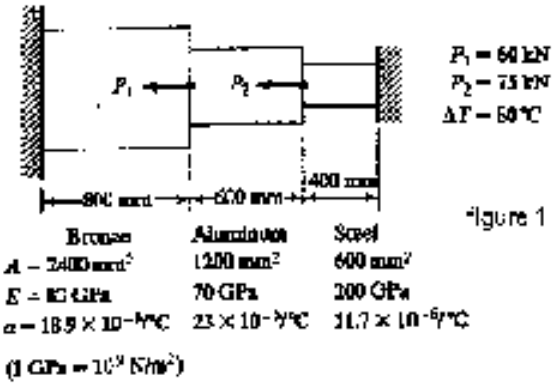

Figure 1

   b) Write the shape functions of a 3-noded quadratic bar element. 3M

(OR)

5. a) Explain potential energy approach with an example 6M
   b) Derive the element stiffness matrix of 2-noded axial bar element. 6M

UNIT-III

6. a) Determine the nodal displacements of the two bar truss shown in below figure 2. 8M

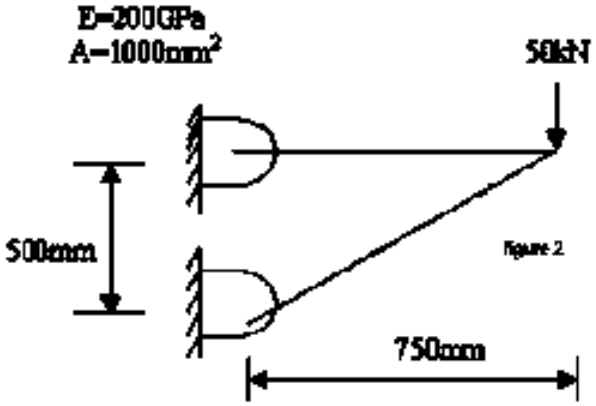

Figure 2

   b) Write the element stiffness matrix of 2-noded plane truss element using potential energy approach 4M

(OR)

7. a) The three nodes of a CST element are 1(1, 1), 2(8, 4) and 3(2, 7) mm. Find the strain-displacement matrix 4M
   b) Derive an expression to compute element thermal load vector of a CST element 8M

UNIT-IV

8. a) A cantilever beam with a span is 2.5 m is loaded with a uniformly distributed load 4 kN/m. Determine the displacement at the free end of the beam. Assume E = 210 GPa and I = $4x10^{-5}$ m^4 8M
   b) Sketch shear force and bending moment diagram of loading specified in problem 8(a) 4M

(OR)

9. a) Derive the shape functions of a 4-noded quadrilateral element 6M
   b) Solve $I = \int_{-1}^{1} \left[3e^x + 2x^2 + \frac{1}{(3x+4)} \right] dx$ using numerical integration 6M

UNIT-V

10. Find the natural frequencies of stepped bar for axial vibrations shown in the figure 3. Take E = 200 GPa and density = 7200 kg/m^3. 12M

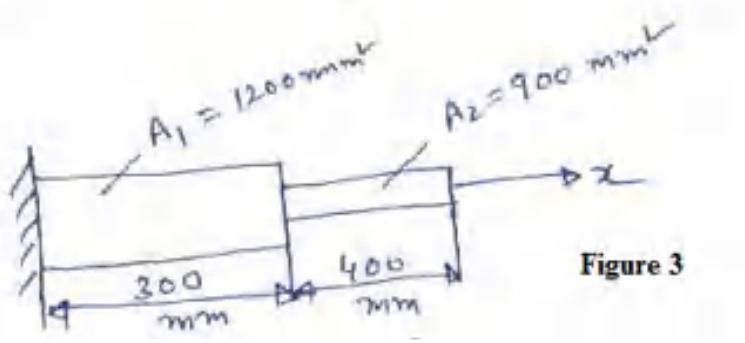

Figure 3

(OR)

11. a) The thicknesses and coefficients of thermal conductivity of a composite wall are 0.3 m, 0.2 m and 0.1 m and 20 W/mK, 30 W/mK and 50 W/mK respectively. The thickest wall is exposed to a convective environment of h = 25 W/m^2K and T_∞= 800 ^{0}C and the thinnest wall is maintained at 20 ^{0}C. Determine the temperature distribution within the wall using FEM. 8M
   b) Explain post processing operations in structural analysis using FE packages. 4M

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AR13

CODE: 13EC4028 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, November-2019

RADAR ENGINEERING

(Electronics & Communication Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

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

1. a) Write about the need of radar displays.
   b) Write the functions of STAO and COHO.
   c) Define integration efficiency of radar.
   d) What is meant by monopulse tracking?
   e) What is pulse radar?
   f) Write about noise temperature.
   g) Write the need of staggered PRF in MTI radar.
   h) Write the applications of radar.
   i) Explain tracking principle.
   j) Derive Doppler frequency shift.

PART-B

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

UNIT-I

2. a) Draw and explain the radar block diagram. 6
   b) Radar mounted on an automobile is to be used to determine the distance to a vehicle travelling directly in front of it. The radar operates at a frequency of 9.375GHz with a pulse width of 10nsec. The maximum range is to be 500ft. find the P_{avg} required to detect $10m^2$ radar cross section vehicle if the maximum detectable signal is $5X10^{-13}$watts. Antenna size= 1ftX1ft and ρ_a=0.6. 6

(OR)

3. a) Derive radar range equation in relation with the signal to noise ratio. 8
   b) How the ambiguity in the range can be avoided. 4

UNIT-II

4. a) Draw and explain the block diagram of CW Doppler radar with non zero IF receiver. 6
   b) Differentiate the operation of pulse radar from simple CW radar. 6

(OR)

5. a) Explain how the noise signals are limiting the performance of FM altimeter. 6
   b) The transmitted power is 1kW and safe value of power which might be applied to a receiver is 10mW. Find the isolation between the transmitter and receiver in dB. Suggest the appropriate isolator. 6

UNIT-III

6. a) Explain the principle of operation of MTI radar with power oscillator transmitter with neat block diagram. 8
   b) Write the differences between MTI and pulse Doppler radar. 4

(OR)

7.	a)	Explain the frequency response of single delay line canceller.	6
	b)	A C-band (fr=5000MHz) Doppler Radar is to detect all target with radial velocities greater than 5 miles per hour and less than 60 miles per hour. What are the minimum and maximum Doppler frequencies which Radar must detect?	6

UNIT-IV

8.	a)	Compare the performance of simultaneous lobbing technique with conical scanning technique.	6
	b)	Explain about phase comparison monopulse tracking.	6
		(OR)	
9.	a)	Explain how the tracking is achieved using radar?	6
	b)	Explain the technique which employs only single pulse for extracting error information.	6

UNIT-V

10.	a)	Draw the block diagram of a correlation receiver and explain its operation with necessary equations.	6
	b)	Describe the operation of matched filter with non white noise	6
		(OR)	
11.	a)	Explain the operation of branch type duplexer with neat sketch	6
	b)	Explain visual displays to view radar echo signals in all types of radar systems.	6

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AR13

CODE: 13CS4022 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, November-2019

OPEN SOURCE SOFTWARE

(Computer Science & Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS [1 x 10 = 10 M]

1. a) Write any two applications of open source software.
   b) What is the use of Arrow operator in PERL?
   c) How to sort results in MySQL?
   d) Write if statement syntax in PERL?
   e) What are the two distinct modes of operation of the CPU in Linux?
   f) Mention any 5 open source software?
   g) What is subroutine in PERL.
   h) Write MySQL commands to display the table structure and empty the table?
   i) Tell whether PHP variable and keywords are case sensitive?
   j) What is Linux's Open-Source License?

PART-B

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

UNIT-I

2. Explain the process management in LINUX with suitable system call? 12 M

(OR)

3. a) Explain Scheduling in detail? 6 M
   b) Describe the development with Linux. 6 M

UNIT-II

4. a) Explain Record selection Technology 6 M
   b) Define Metadata and explain it with example. 6 M

(OR)

5. Describe about MYSQL string function with its syntax and example. 12 M

UNIT-III

6. a) How Security and Templates can be implemented using PHP 6 M
   b) Explain Operators , Statements, Functions and Array in PHP 6 M

(OR)

7. a) Explain File handling and Data storage. 6 M
   b) Mention the scalar data-types provided by PHP? Explain with Examples 6 M

UNIT-IV

8. a) Explain Files –Input/output in python 6 M
   b) Explain the Errors and Exception Handling in PYTHON programming. 6 M

(OR)

9. a) Explain lists, tuples, dictionaries in python. 6 M
   b) Explain Execution Environment in python. 6 M

UNIT-V

10 Explain File handling in Perl 12 M

(OR)

11. a) Explain Array, Hash, List in Perl 6 M
    b) Summarize the execution process of PERL Script. 6 M

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AR13

CODE: 13IT4010 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, November-2019

NETWORK SECURITY AND CRYPTOGRAPHY

(Information Technology)

Time: 3 Hours **Max Marks: 70**

PART-A

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

1. a) Define security mechanism.
   b) Define authentication.
   c) Write the encryption and decryption formulas of Triple DES with three keys.
   d) Define digital signature.
   e) Mention the header fields of MIME.
   f) Write the requirements of Kerberos.
   g) Mention various SSL fatal alert messages.
   h) List various password guessing strategies.
   i) Define Logic Bomb.
   j) Write the types of firewalls.

PART-B

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

UNIT-I

2. a) Write the classification of security attacks with neat sketches. 6M
   b) Explain X.800 security services. 6M

(OR)

3. a) Define vulnerability. List and explain non-cryptographic protocol vulnerabilities. 6M
   b) Write about transposition techniques. 6M

UNIT-II

4. a) With suitable sketches explain AES algorithm encryption and decryption. 8M
   b) Explain CBC and CFB block cipher modes. 4M

(OR)

5. a) Write about SHA-512 algorithm. 6M
   b) With an example explain RSA algorithm. 6M

UNIT-III

6. a) List and explain Kerberos V5 messages. 6M
   b) Draw and explain the fields of X.509 V3 certificate. 6M

(OR)

7. a) Explain PGP message generation and reception. 7M
   b) Describe about S/MIME content types and certificate processing. 5M

UNIT-IV

8. a) Draw the IPSec ESP header. Explain transport and tunnel mode ESP services. 8M
   b) Explain the features of Oakley key determination protocol. 4M

(OR)

9. a) Differentiate SSL and TLS protocols. 5M
   b) What is dual signature? Explain the calculation and verification of dual signature. 7M

UNIT-V

10. a) Write about password selection strategies. 6M
    b) List and explain various malicious programs. 6M

(OR)

11. a) Write about firewall configurations. 5M
    b) What is IDS? Explain in detail about Intrusion detection techniques. 7M