AR19

CODE: 19MCS1009 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

I M.Tech II Semester Regular/Supplementary Examinations, August, 2022

MACHINE LEARNING
(Computer Science and Engineering)

Time: 3 Hours Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Differentiate between supervised and unsupervised training. Explain with suitable examples.	6M
	b)	Explain base learning search control knowledge.	6M
2.	a)	Explain how Support Vector Machine can be used for classification of linearly separable data.	6M
	b)	What is S-algorithm? Explain the technique with an example.	6M
3.	a)	What is Machine learning? Explain different perspectives and issues in machine learning	6M
	b)	Use K-Means clustering to cluster the following data into two groups. Assume cluster centroid are m1=2 and m2=4. The distance function used is Euclidean distance.Dataset= { 2, 4, 10, 12, 3, 20, 30, 11, 25 }	6M
4.	a)	Explain sample error, true error, confidence intervals and Q-learning function?	6M
	b)	What are use weights in an algorithm? Explain Locally weighted algorithm	6M
5.	a)	How you will design learning systems explain with an example?	6M
	b)	How are machine learning algorithms evaluated? Discuss	6M
6.	a)	List and explain the features of Bayesian Learning methods?	6M
	b)	Explain about locally weighted linear regression?	6M
7.	a)	Describe the random forest algorithm to improve classifier accuracy.	6M
	b)	What are Learning set of rules? Explain.	6M
8.	a)	What is explanation-based learning give example?	6M
	b)	What do you mean by reinforcement learning? How reinforcement learning differs from other function approximation tasks?	6M

AR19

CODE: 19MSE1005 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular/Supplementary Examinations, August, 2022

FINITE ELEMENT ANALYSIS
(Structural Engineering)

Time: 3 Hours Max Marks: 60

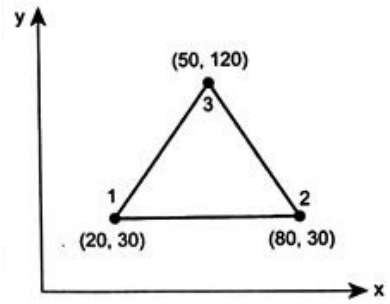
Answer any FIVE questions
All questions carry EQUAL marks

1. a) Explain the various methods of engineering analysis with suitable illustrations. 6M
   b) Describe the principle of stationary total potential energy. 6M

2. a) Describe the step-by-step procedure of solving FEA. 6M
   b) Explain in detail about Boundary value, Initial Value problems. 6M

3. Derivation of the displacement function u and shape function N for four nodded rectangular element. 12M

4. For the plane stress element shown in Fig, the nodal displacements are: U1=2.0mm; v1=1.0mm; U2=0.5mm; v2=0.0mm; U3=3.0mm; v3=1.0mm.
   Determine the element stresses σx, σy, σ1, and σ2 and the principal angle θp, let E=210 GPA, ν= 0.25 and t=10 mm. All coordinates are in millimetre. 12M



5. Determine the shape functions for a constant strain triangular (CST) element. 12M

6. a) Define a plane strain with suitable example. 6M
   b) Define a plane stress problem with a suitable example. 6M

7. Obtain equilibrium equations for a body subjected to stresses. 12M

8. Develop shape function for axisymmetric triangular elements. 12M

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CODE: 19MVL1009 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I M.Tech II Semester Regular/Supplementary Examinations, August, 2022

MIXED SIGNAL IC DESIGN

(VLSI System Design)

Time: 3 Hours Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Explain the non-ideal characteristics of a switched capacitor integrator.	6
	b)	Design a switched capacitor realization for a first order, high pass circuit with a high frequency gain of -10 and a -3dB frequency of 1 kHz using a clock of 100kHz	6
2.	a)	Explain the techniques that are adopted in a switched capacitor integrator circuit to minimize charge injection issues.	6
	b)	Explain the non-ideal characteristics of a switched capacitor integrator.	6
3.	a)	Explain the basic charge pump PLL and non-ideal effects in PLLs.	6
	b)	Explain the Jitter in PLLs and delay locked loops.	6
4.	a)	Design a decoder based DAC with a detailed explanation.	6
	b)	Design a 3-bit Flash ADC with quantization error centred about zero LSBs.	6
5.	a)	What is a flash converter? Explain the function of a 3 bit flash ADC.	6
	b)	Mention all kinds of medium speed and high speed ADC and explain the operation of a multiple- bit pipeline ADC.	6
6.	a)	Explain the block diagram of second order Delta-Sigma modulator.	6
	b)	Write a short note on 4 bit interpolating A/D converter.	6
7.	a)	Explain about the basic charge pump PLL with a neat figure.	6
	b)	With the help of necessary waveforms, explain about the non-ideal effects in PLLs.	6
8.	a)	Design a thermometer code charge redistribution D/A converter.	6
	b)	Discuss in detail about first order active RC filter	6