AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular Examinations, November, 2018

Fundamentals of Fuzzy Logic

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. For two fuzzy sets given by $A = \left\{\frac{0.2}{p_1}, \frac{0.6}{p_2}, \frac{0.5}{p_3}, \frac{0.9}{p_4}\right\}$ and $B = \left\{\frac{0.4}{g_1}, \frac{0.7}{g_2}, \frac{0.8}{g_3}\right\}$ find   **14 M**
   1. A^c 2. B^c 3. $A \cup B$ 4. $A \cap B$ 5. Show that $(A \cap B)^c = A^c \cup B^c$

   (OR)

                                                          14 M

2. Let R be a relation defined on $X \times Y$ and S be defined on $Y \times Z$ as $X = \{x_1, x_2\}, Y = \{y_1, y_2\}$ and $Z = \{z_1, z_2, z_3\}$ and $R = \begin{array}{c} x_1 \\ x_2 \end{array}\begin{bmatrix} y_1 & y_2 \\ 0.7 & 0.5 \\ 0.8 & 0.4 \end{bmatrix}$ and $S = \begin{array}{c} y_1 \\ y_2 \end{array}\begin{bmatrix} z_1 & z_2 & z_3 \\ 0.9 & 0.6 & 0.2 \\ 0.1 & 0.7 & 0.5 \end{bmatrix}$. Find the relation T which relates the elements of universe X to Z that is $X \times Z$, using $max - min\ composition.$

UNIT-II

3. For $A = \left\{\frac{1}{x_1}, \frac{0.5}{x_2}, \frac{0.7}{x_3}\right\}$, $B = \left\{\frac{0.6}{y_1}, \frac{1}{y_2}\right\}$, $A' = \left\{\frac{0.9}{x_1}, \frac{0.6}{x_2}, \frac{0.7}{x_3}\right\}$ over the universal sets $X = \{x_1, x_2, x_3\}$ and $Y = \{y_1, y_2\}$. Suppose we have fuzzy proposition P as a rule expressed as p: If x is A then y is B, given a fact q: x is A'. Then find the conclusion B' using generalized Modus Ponens rule.   **14 M**

   (OR)

4. Let $X = Universe\ of\ temperatures\ (degree\ Fahrenheit) = \{160, 165,$ **14 M** $170, 175, 180, 185, 190, 195\}$. Y= $Universe\ of\ distillate\ fractions\ (percentage) = \{77,\ 80, 83, 86, 89, 92, 95, 98\}$. We define fuzzy sets A & B on X & Y respectively as $A = temperature\ of\ input\ steam\ is\ hot = \left\{\frac{0}{175}, \frac{0.7}{180}, \frac{1}{185}, \frac{0.4}{190}\right\}$, $B = Seperation\ of\ mixture\ is\ good = \left\{\frac{0}{89}, \frac{0.5}{92}, \frac{0.8}{95}, \frac{1}{98}\right\}$ 1. Find fuzzy relation for $A \rightarrow B$ 2. $A' = \left\{\frac{1}{170}, \frac{0.8}{175}, \frac{0.5}{180}, \frac{0.2}{185}\right\}$ find B', using max- min composition.

UNIT-III

5. a) Explain the method of construction of fuzzy set. Given an example.   **7 M**
   b) Explain the "Direct method with one expert" in construction of a fuzzy set. Give an example.   **7 M**

   (OR)

6. Find a fuzzy set using Lagranges Interpolation for the following data {(0,0), (4, 0.4), (10,1), (14,0.6), (17,0.3), (20,0)}.   **14 M**

7. a) Explain Fuzzy Controllers with diagram and given an example.   **7 M**
    b) Explain the working of "Fuzzy Rule Base".   **7 M**

(OR)

8. a) Explain the working of "Fuzzy Inference Engine".   **7 M**
    b) Explain the process of Fuzzification.   **7 M**
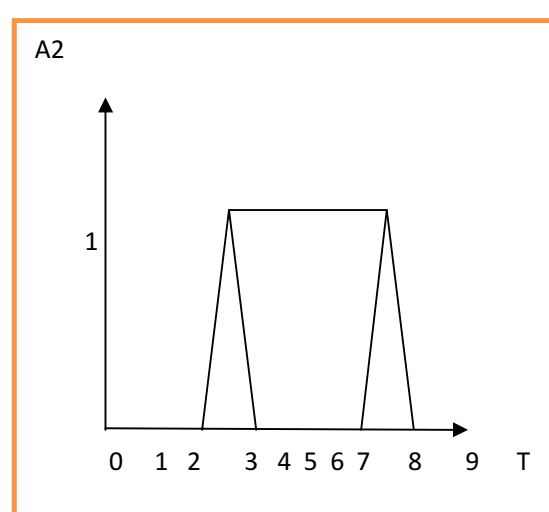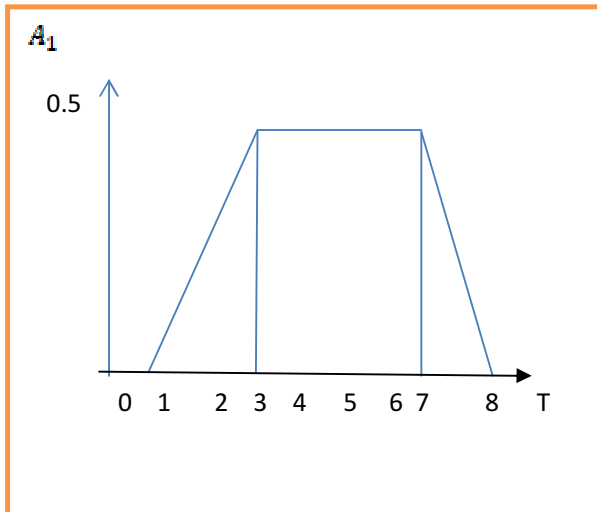
UNIT-V

9. Given two fuzzy sets A_1 & A_2 as shown below, Calculate the defuzzified avalue of T^* **14 M**
    using 1. Centroid Method   2. Mean of Maxima method
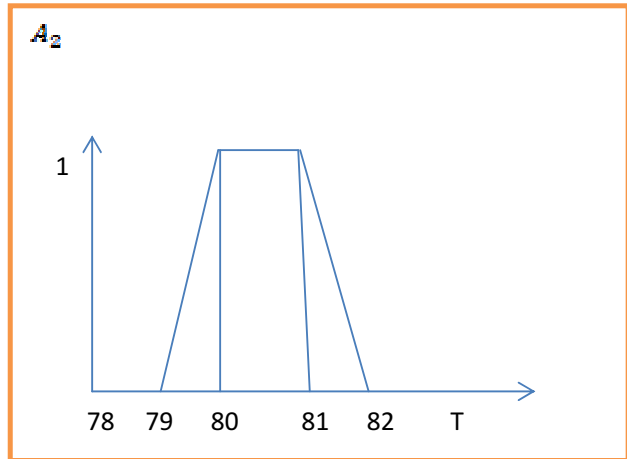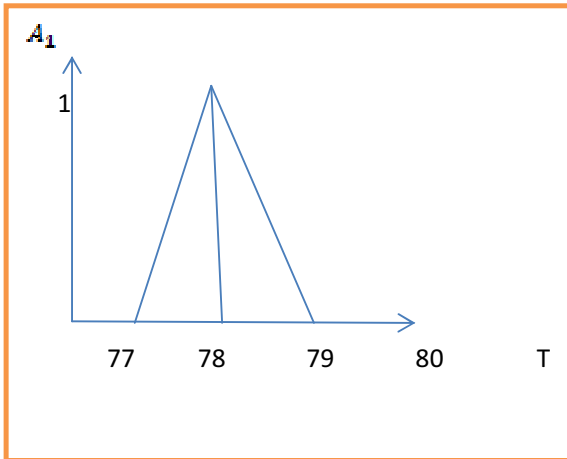
(OR)

10 a   Explain the Centroid method.   **4 M**

Given two fuzzy sets A_1 & A_2 as shown below, Find the defuzzified avalue of T^* **10 M**
using 1. Center of Sums method 2. Mean of Maxima method

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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) Interpret the key parameters considered during impact evaluation and analysis of a proposed hydroelectric project. | 7 M
   b) Define EIA, explain when EIA is required. | 7 M

(OR)

2. a) Examine the main issues taken into consideration during the preparation of final EIS report. | 7 M
   b) Illustrate the main guiding principles of EIA. | 7 M

UNIT-II

3. a) Demonstrate how impact interpretation and evaluation will be done in criteria for the selection of EIA methodology. | 8 M
   b) Evaluate how first order, second order, third order and higher order problems will be identified in execution of a rural road project with a process flow chart. | 6 M

(OR)

4. a) Explain the major advantages and their applications of Matrix method. | 7 M
   b) Discuss in detail about the map overlay analysis. | 7 M

UNIT-III

5. a) Demonstrate diverse environmental problems occurring by the recent expansion of National Highway-16. | 7 M
   b) Discuss the main parameters required to evaluate the vegetation and wildlife for impact assessment in mining projects. | 7 M

(OR)

6. a) Illustrate on how LCA's are responsible for the loss of wildlife. | 6 M
   b) Discover various general problems to be occurring by deforestation. | 8 M

UNIT-IV

7. a) Develop an environmental audit report for a chemical industry. | 7 M
   b) Define environmental audit, explain about post audit activities. | 7 M

(OR)

8. a) Examine the environmental audit protocol with a flow chart. | 7 M
   b) Explain the key issues to be covered for auditing during detailed site inspection at an industry. | 7 M

UNIT-V

9. a) Elaborate the main objectives and important provisions of Environmental (Protection) Act-1986. | 8 M
   b) Develop an EIA report for a sand mining activity by considering Nagavali River as a case study. | 6 M

(OR)

10. a) Enumerate the functions of state pollution control boards under Air (Prevention and Control of Pollution) Act-1981. | 8 M
    b) Develop an EIA report for a thermal power plant. | 6 M

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CODE: 16OE3034   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular Examinations, November- 2018

ELEMENTS OF WORKSHOP TECHNOLOGY

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)	Classify manufacturing processes.	4M
	b)	Briefly explain casting process.	10M

(OR)

2.	a)	What are the metal joining operations?	2M
	b)	Explaining any tow metal joining operations.	12M

UNIT-II

3.	What are the carpentry joints? And briefly explain half lap joint and , mortise and tenon joint.	14M

(OR)

4.	a)	List out marking tools and measuring tools in carpentry.	6M
	b)	Briefly explain some marking tools and measuring tools in carpentry.	8M

UNIT-III

5.	a)	Explain about holding devices and some cutting tools in fitting.	7M
	b)	What are the files used in fitting and explain them with neat sketch?	7M

(OR)

6.	What are the chisels used in fitting and explain them with neat sketch?	14M

UNIT-IV

7.	Briefly explain following hand tools in smith forging.	14M

    I.   Fullers
    II.   Flatters
   III.   Swage block

(OR)

8.	a)	What are the smith forging operations?	2M
	b)	Briefly explain any four smith forging operations.	12M

UNIT-V

9.	a)	What are the metals used in sheet metal work and explain shortly?	7M
	b)	Briefly explain about snips and stakes.	7M

(OR)

10.	What are the sheet metal operations and briefly explain some sheet metal operations?	14M

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CODE: 16OE3035   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular Examinations, November, 2018

INTRODUCTION TO SIGNAL PROCESSING

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) Test the stability of the system whose impulse response   6M
$h(n)=(1/5)^n u(n)$
   b) Explain the classification of discrete time signals with   8M
examples.

(OR)

2. a) State and prove any three properties of Z transform..   8M
   b) Explain about auto correlation and cross correlation. Find the   6M
cross correlation of x(n)={1,2,1,1};y(n)={1,1,2,1}.

UNIT-II

3. a) State all properties of DFT.   6M
   b) Compute the linear convolution of two sequences   8M
x(n)={1,-1,1,0,0};h(n)={2,2,1,0,0} using DFT method.

(OR)

4. a) Find DFT of the sequence x(n)=1 for $0 \leq n \leq 2$ 10M
=0 otherwise
for N=4 Plot |X(k)| and <X(k).
   b) Write the advantages of FFT over Direct evaluation of DFT.   4M

UNIT-III

5. a) Compute the 8-point DFT of the sequence   8M
x[n]={0.5,0.5,0.5,0.5,0,0,0,0} using DIF algorithm.
   b) Develop a radix-2 DIT FFT algorithm for evaluating the DFT   6M
for N=8.

(OR)

6. a) Compute the 4-point DFT of the sequence x[n]={0,1,2,3}   7M
using DIT,DIF algorithm
   b) Compute IDFT of the sequence X(k)={7,-0.707-j0.707,-   7M
j,0.707-j0.707,1,0.707+j0.707,j,-0.707+j0.707}.

UNIT-IV

7. a) Compare Butterworth filter and Chebyshev filter.   6M
   b) Design a Chebyshev Low pass filter to meet the following   8M
specifications $α_{p=}$ 3dB,$α_s$ =16dB,f_p =1kHz,f_s =2kHz.
   (OR)
8. a) Obtain the Direct form-I realization for the system described   8M
by difference equation y(n)=0.5 y(n-1)-0.25y(n-
2)+x(n)+0.4x(n-1)
   b) Convert the following analog transfer function in to digital   6M
using bilinear transform method with T=1sec
H(s)=s/(s+3)(s+9)

UNIT-V

9. a) Compare Hanning and Hamming windows   6M
   b) The desired frequency response of a low pass filter is   8M
$H_d(e^{jw})$ =1 for $(π/4) \le |ω| \le π$.=0 otherwise.
Determine $H(e^{jw})$ for N =11 using a Hanning window
   (OR)
10. a) What is a Hanning window function? Obtain its frequency   6M
domain characteristics.
   b) The desired frequency response of a low pass filter is   8M
$H_d(e^{jw})$ =1 for $(π/4) \le |ω| \le (3π/4)$. =0 otherwise.
Determine $H(e^{jw})$ for N =11 using a Hamming window

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CODE: 16OE3036   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular Examinations, November, 2018

SOCIAL NETWORKS

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)	How Social Network involved in day to day life?	7M
	b)	What are the Attributes of Social Web?	7M

(OR)

2.	a)	Explain the Development of Semantic Web?	7M
	b)	What are the limitations of the current web?	7M

UNIT-II

3.	a)	What is Network Analysis? Explain with examples.	7M
	b)	Discuss development of Social Network Analysis?	7M

(OR)

4.	a)	Write a notes on : concepts of Network Analysis, Measure in Networks ?	7M
	b)	Explain the following	
		i) C/P Structure	4M
		ii) group	3M

UNIT-III

5.	a)	Discuss Electronic Discussion of Network Analysis?	7M
	b)	Explain Blogs and Online Communities?	7M

(OR)

6.	a)	Explain Web based networks?	7M
	b)	Compare web data and blogs?	7M

UNIT-IV

7.	a)	Discuss RDF VS RDF SCHEMA?	7M
	b)	Explain ontology based knowledge representation?	7M

OR

8.	a)	Write short notes on E/R Model Vs Relational Model?	7M
	b)	Discuss ontology Language for semantic web?	7M

UNIT-V

9.	a)	Discuss storage and reasoning of social networks?	7M
	b)	Compare visualization and analysis of social network analysis?	7M

(OR)

10.	a)	Explain the techniques of data acquisition?	7M
	b)	Explain Methodologies of SNA.	7M

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CODE: 16OE3037   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular Examinations, November- 2018

FUNDAMENTALS OF COMPUTER GRAPHICS

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)	Write short notes on Colour CRT (i) beam penetration (ii) Shadow Mask	7M
	b)	Write about Raster-Scan Display and Random-Scan Display.	7M

(OR)

2.		Write about applications of computer graphics.	14M

UNIT-II

3.	a)	Explain Bresenhams Line Generation Algorithm and Digitize the line with end points (10,10) and (16,14) using Bresenhams Line Drawing Algorithm.	7M
	b)	Write the algorithm for Boundary fill technique.	7M

(OR)

4.	a)	Write Difference between DDA and Bresenhams Line Drawing Algorithms	4M
	b)	Write a line drawing algorithm (DDA) using end point Coordinates as (5,2) and (10,6). Find between points	10M

UNIT-III

5.		Explain 2D transformations with examples.	14M

(OR)

6.	a)	Write about general scaling directions.	7M
	b)	A diamond with vertices A(10,0), B(0,10), C(-10,0) and D(0,-10) and origin at the midpoint is scaled twice uniformly w.r.t origin (0,0). Find the coordinates of transformed diamond and sketch the transformed diamond.	7M

UNIT-IV

7.	a)	Write short note on Bezier Curves	4M
	b)	Explain about 3-D basic transformations with examples.	10M

(OR)

8.	a)	Explain different parallel projections.	7M
	b)	Explain briefly Sutherland-Hodgeman polygon clipping algorithm.	7M

UNIT-V

9.	a)	Explain about Depth-Buffer Method.	7M
	b)	Write about general computer-animation functions..	7M

(OR)

10.	a)	Write about Back-Face Detection method.	7M
	b)	Explain the design of animation sequence.	7M

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CODE: 13EC3017   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, November, 2018
PULSE AND DIGITAL CIRCUITS
(Electrical and Electronics Engineering)

Time: 3 Hours   Max Marks: 70

PART-A

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

1. a) Name the testing signals which are commonly used in pulse circuits?
    b) What is the condition for low pass RC circuit is used as an integrator
    c) Define the term clipping
    d) A clamping network must have ____   [   ]
       a) a capacitor b) a diode   c) a resistive element   d) All of the above
    e) Define reverse recovery time of a diode
    f) What is the function of commutating capacitors in multivibrators.
    g) For the Astable multivibrator, if R1 = 20 KΩ, R2= 8KΩ, C1=0.02μF and C2=0.01μF, find the frequency of oscillation of the output waveform.
    h) What are the applications of monostable multivibrator
    i) Compare Miller and bootstrap sweep generators.
    j) Compare unidirectional and bidirectional sampling gates

PART-B

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

UNIT-I

2. a) Explain how a high pass RC circuit acts as differentiator   5M
    b) A symmetrical square wave whose peak-to-peak amplitude is 2V and whose average value is zero is applied to an RC integrating circuit. The time constant of the circuit is equal to half the period of the square wave. Find the peak-to-peak value of the output amplitude.   7M

(OR)

3.   Derive the expressions for output voltage when RC low pass circuit was excited by a symmetrical square wave and also draw the output waveforms for different time constants.   12M

UNIT-II

4. a) Draw the basic circuit diagram of two level diode clipper and explain its operation with neat sketches?   6M
    b) Draw the basic circuit diagram of negative clamper circuit and explain its operation with neat waveforms   6M

(OR)

5. a) Explain the operation of basic transistor clipper with neat sketches   6M
    b) What is a positive clamper? Explain its output characteristics.   6M

UNIT-III

6. a) Design a transistor switch with the following data: V_{CC}=15V, V_{BB}=7V; Ic(sat)=12mA; $h_{(FE)min}$=100. Assume the Vbe(sat)= 0.7V and Vce(sat)=0.2V   6M

   b) Explain the operation of Schmitt trigger circuit   6M

(OR)

7. a) Explain various switching times of a diode   5M

   b) Draw the Bi-stable Multivibrator circuit. Explain the operation of stable states.   7M

UNIT-IV

8. a) Draw collector and base wave forms for collector coupled monostable multivibrator and explain its operation   6M

   b) Derive an expression for the frequency of oscillation of an astable multivibrator with neat circuit diagram   6M

(OR)

9. Design an Astable Multivibrator to generate 5 kHz square wave. The supply voltage V_{CC}=10V, $I_{C(sat)}$=10mA, hFE(min)=50 and assume Si transistors.   12M

UNIT-V

10. a) Explain the working of a transistor bootstrap time-base generator with neat sketches   6M

    b) Explain the working of Bi-directional sampling gate operation.   6M

(OR)

11. a) Explain the basic principle of Miller and Bootstrap time base generators.   6M

    b) Draw the block diagram of sampling oscilloscope and explain its operation.   6M

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CODE: 13CS3008   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, November, 2018
COMPUTER ORGANIZATION AND ARCHITECTURE
(Electronics and Communication Engineering)

Time: 3 Hours   Max Marks: 70

PART-A

ANSWER ALL QUESTIONS   [1 x 10 = 10 M]

1. a) List out system buses.
    b) Perform the following subtraction in the binary number system, using 2's
        complement: 1111 – 110.
    c) Draw the circuit diagram for Full adder.
    d) Explain the basic structure of cache memory.
    e) Define synchronous modes of data transfer.
    f) What is the purpose of RISC pipeline?
    g) List the phases of instruction cycle.
    h) Explain about the memory hierarchy.
    i) What is circular shift micro operation?
    j) What is the need of I/O interface module?

PART-B

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

UNIT-I

2. a) What is bus? Draw the figure to show how functional units are interconnected   4M
        using a bus and explain it.
    b) Differentiate between fixed point and floating point representation   8M
                                    (OR)
3. a) Explain briefly with a neat sketch   6M
        i)Shared bus ii)Multiple bus   iii)Cross bar switch
    b) Compare and contrast single precision and double precision format.   6M

UNIT-II

4.   Discuss about Booth's multiplication algorithm with example.   12M
                                    (OR)
5.   Design and explain BCD adder with an example.   12M

UNIT-III

6.   Define Instruction formats. Explain various instruction formats.   12M
                                    (OR)
7. a) What is register transfer language? Explain the basic symbols used in register   6M
        transfer.
    b) Explain Logic Microoperation with example.   6M

UNIT-IV

8.   What is virtual memory? Explain with the help of neat sketch in detail.   12M
                                    (OR)
9.   Draw the block diagram of a DMA controller and explain its functioning?   12M

UNIT-V

10. a) What is parallel processing? Explain any parallel processing mechanism.   6M
    b) Discuss about Arithmetic pipeline.   6M
                                    (OR)
11. a) Explain parallel arbitration logic in inter processor arbitration.   6M
    b) Explain multi-port memory.   6M