



**MANIPAL INSTITUTE OF TECHNOLOGY**  
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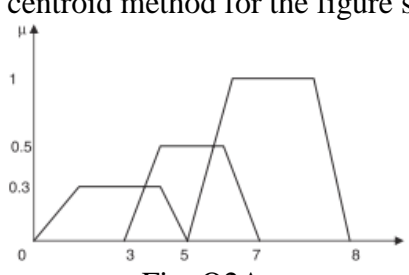
**SEVENTH SEMESTER B. TECH (ELECTRONICS AND INSTRUMENTATION)**  
**PROCTORED ONLINE MAKE-UP EXAMINATION - Feb/March. 2022**  
**SUBJECT: Neural Network and Fuzzy Logic (ICE 4014)**

**TIME: 2.20-3:35 PM**

**DATE: 17/02/2022**

**MAX MARKS 20**

**Note: Answer All questions**

1	A	i) Explain the training algorithm used in a network which consists of a single linear unit ii) How is a Madaline network formed? Explain with the diagram	4M
	B	What is the purpose of LVQ net? With architecture describe how LVQ nets are trained? List the variations of LVQ net.	3M
	C	What is winner-takes-all or clustering principle or competitive learning? Construct a Maxnet with four neurons and inhibitory weight $\varepsilon = 0.2$ , given the initial activations as follows: $a_1(0) = 0.3, a_2(0) = 0.5, a_3(0) = 0.7, a_4(0) = 0.9$	3M
2	A	What is defuzzification? List different defuzzification methods. Find the defuzzified value using centroid method for the figure shown in Fig.Q2A  <p style="text-align: center;">Fig. Q2A</p>	4M
	B	Write the block diagram of Fuzzy logic control system and design a fuzzy logic controller to simulate Aircraft landing problem.	4M
	C	Write short notes on assignment of membership value by inference approach	2M