VIT

Vellore Institute of Technology

School of Information Technology and Engineering

**Winter Semester 2022-2023 - Fresher**

**Continuous Assessment Test – II**

**Programme Name & Branch : MCA**

**Course Name & code: Soft Computing (ITA6004)**

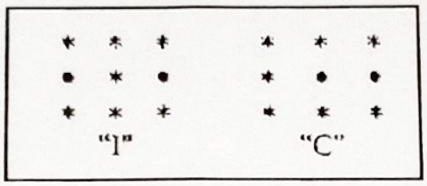
**Class Number (s): 0298**

**Slot: D2+TD2**

**Faculty Name (s) (Dr. Anitha A)**

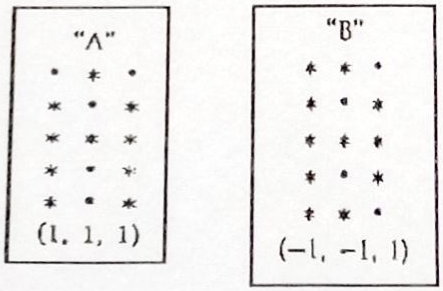
**Exam Duration: 90 Min.** **Maximum Marks: 50**

1. Construct a heteroassociative network for the pattern given below: (15)




The target of I and C are (1,-1) and (-1,1) respectively. Store the pattern and test the network with one missing entries in the test vector.

2. Construct and test BAM network for the given pattern "A" and B" with simple bipolar input-output vectors. The target output for "A" is (1,1,1) and "B" is (-1,-1,1). The **display matrix size** is 5 x 3 and the input pattern is as shown below. (10)




3. Consider an ART-1 network with four F1 units and three F2 units. After some training the weights are as follows. (15)

Bottom-up weights $b_{ij}$

$$\begin{bmatrix} 0.57 & 0 & 0.2 \\ 0 & 0 & 0.2 \\ 0 & 0.37 & 0.2 \\ 0 & 0.37 & 0.2 \end{bmatrix}$$

Top-down weights $t_{ji}$

$$\begin{bmatrix} 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 1 \\ 1 & 1 & 1 & 1 \end{bmatrix}$$

Determine the new weights matrices after the vector (0,0,1,1) is presented if

a. the vigilance parameter is 0.4

b. the vigilance parameter is 0.8

4 a. State the merits and demerits of Kohonen Self organizing maps. (7)

b. How are the initial weights determined for LVQ net? (3)