

**M.Sc. (MATHEMATICS WITH APPLICATIONS IN COMPUTER SCIENCE)  
M.Sc. (MACS)**

**Term-End Practical Examination**

00362

**June, 2017**

**MMTE-007(P) : SOFT COMPUTING AND ITS APPLICATIONS**

*Time :  $1\frac{1}{2}$  Hours*

*Maximum Marks : 40*

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- Note :** (i) *There are two questions in this paper, totalling 30 marks. Answer **both** of them.*  
(ii) *Remaining 10 marks are for viva-voce.*
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1. Write a program in 'C' language to find the modified weights for Kohonen Networks. Also test your program on the input patterns as given below :

$$I_1 = [-1 \ 0]^t, I_2 = [0 \ 1]^t \text{ and } I_3 = \left[ \sqrt{2} \quad \frac{1}{\sqrt{2}} \right]^t$$

Given that the initial values of three weight vectors are  $[0 \ -1]^t$ ,  $\left[ -\frac{2}{\sqrt{5}} \quad \frac{1}{\sqrt{5}} \right]^t$

and  $\left[ -\frac{1}{\sqrt{5}} \quad \frac{2}{\sqrt{5}} \right]^t$  and learning rate  $\alpha = 0.5$ .

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2. Write a program in 'C' language to maximize  $f(x) = \sqrt{x}$ , subject to  $1 \leq x \leq 625$  by considering the string length 10 using Genetic Algorithm.

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