Registration no: | | | | | | | | | | |

Total Number of Pages --2

M.TECH
EIPE 201

2ND Sem Regular/Back Examination – 2015/16
VIRTUAL INSTRUMENTATION
Q.CODE:W888
Time: 3 Hours
Max marks: 70

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: (2x 10)

a) What Is Virtual instrument? Why LabVIEW is called data flow model?
b) Differentiate text based programming language verses LabVIEW.
c) Name some code debugging tools used in LabVIEW
d) What is role of coercion dot in LabVIEW?
e) Define color coding used for different data typse in LabVIEW.
f) Differentiate between crisp set and fuzzy set with suitable example.
g) What do you mean by membership function in fuzzy set and what is its importance?
h) What is the difference between graph and chart?
i) What is the difference between high level and low level file functions?
j) What is VISA? List its advantages.

Q2 a) Explain the Back propagation algorithm. (5)
b) Describe perceptron learning algorithm. (5)

Q3 a) Consider the fuzzy sets $\tilde{A}$ and $\tilde{B}$ defined on the interval X =[0,5] of real numbers, by the membership grade functions $\mu_{\tilde{A}}(x) = \frac{x}{x+1}$, $\mu_{\tilde{B}}(x) = 2^{-x}$ (5)
Determine the mathematical formulae and graphs og the membership grade,and functions of each of (i) A^c, B^c(ii) $(A \cup B)$(iii) $A \cap B$ (iv)) $(A \cup B)^c$.

b) Suppose $\tilde{R}$ is a fuzzy relation defined on $X \times Y$, and $\tilde{S}$ is a fuzzy relation defined on $X \times Z$, then find $\tilde{R} \circ \tilde{S}$ which define the fuzzy max-min composition. Given $X = \{x_1, x_2, x_3\}$ (5)

$Y = \{y_1, y_2\}$ $Z = \{z_1, z_2, z_3\}$

$\tilde{R}$ isanc

	y_1	y_2
x_1	0.5	0.1
x_2	0.2	0.9
x_3	0.8	0.6

.7
.9

	x_1	x_2	x_3
y_1			
y_2			

Q4		What is state machine? Explain state machine infrastructure. Illustrate a simple example.	(10)
Q5	a)	What is use of file I/O. Describe different file format used in LabVIEW? Write which format to use where	(5)
	b)	What is use of Local, global and shared variable in LabVIEW? White the difference. What is the disadvantage? How to overcome?	(5)
Q6	a)	What are the different structures used in LabVIEW? Explain three of them in detail.	(5)
	b)	Design a VI for 4-way traffic light controller.	(5)
Q7	a)	Design a VI for 4-Bit ADC.	(5)
	b)	What are different configurations available for DAQ? Explain which configuration should use where?	(5)
Q8		Write short notes on any two	(5 x 2)
	a)	Auto indexing	
	b)	VISA	
	c)	GPIB	
	d)	DAQ.	