Tribhuvan University
Institute of Science and Technology
Central Department of Computer Science and IT
Mid Term -2080

Program: Masters
Subject: Object Oriented Software Engineering
Code: C.Sc.539

Year/ Sem: I/ I
Time: 1 Hr.
FM/ PM: 15/7.5

Attempt all questions   [3x5=15]

1. Discuss the process to develop the requirement model from the user requirements.
2. Differentiate between function/data oriented method and object -oriented method.
3. Discuss the software quality attributes.

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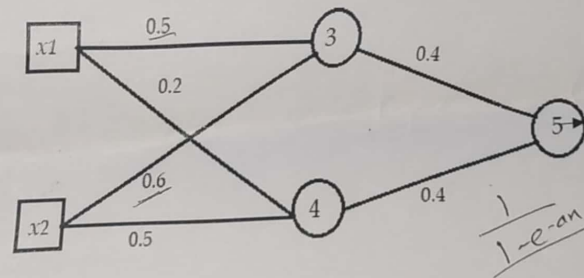**Program**: Masters
Subject: Neural Networks
Code: C.Sc.543

Year/ Sem: I/ I
Time: 1 Hr.
FM/ PM: 15/7.5

Attempt all questions   [3x5=15]

1. Discuss different learning rate annealing techniques.   [5]
2. Discuss deterministic model of neuron with suitable block diagram.   [5]
3. Consider a MLP given below. Let the learning rate be 1. The initial [5]
    weights of the network are given in the figure. Assume that first
    training tuple is (0.8, 0.7) and its target output is 1. Calculate weight
    updates by using back-propagation algorithm. Assume general sigmoid
    activation function and a=2.

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Program: Masters
Subject: Advanced Operating System
Code: C.Sc.538

Year/ Sem: I/ I
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Attempt all questions   [3x5=15]

1. What are the different types of scheduler? Explain with respect to states of the process.

2. What is Time sharing operating system? Write down its goal and advantages.

3. What is Banker's Algorithm? Consider a system with the total number of resources for A = 10, B= 5 and C = 7 , find available and need of resources. Also determine the sequence of safe states if there exists.

Process	Allocation			Max		
	A	B	C	A	B	C
P0	0	1	0	7	5	3
P1	2	0	0	3	2	2
P2	3	0	2	9	0	2
P3	2	1	1	4	2	2
P4	0	0	2	5	3	3

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Program: Masters

Subject: Algorithms and Complexity

Code: C.Sc.540

$C_i - C_i \geq 0$

Year/ Sem: I/ 1

Time: 1 Hr.

FM/ PM: 15/7.5

Attempt all questions   [3x5=15]

1. Differentiate between Las Vegas and Monte Carlo approach. Explain potential   [1+4]
    method of amortized cost analysis on a table doubling concept.

2. Let K1, K2, K3, K4 be the keys provided such that K1< K2 <K3 <K4.   [5]
    Assume dummy keys yourself. Their success (p_i) and failure probabilities (q_i)
    are as follows:

i	0	1	2	3	4
p_i		0.20	0.15	0.05	0.20
q_i	0.10	0.05	0.10	0.10	0.05

3. Explain n-processor odd even merge sort with an example. Calculate its T(n,   [5]
    p) and check whether n-processor is work optimal or not.

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Program: Masters
Subject: Parallel and Distributed Computing
Code: C.Sc.544

Year/ Sem: I/ I
Time: 1 Hr.
FM/ PM: 15/7.5

Attempt all questions [3x5=15]

1. Describe the formal definition of generalized BSR model. [5]
2. Using one criterion BSR model, find the pairs of matching parenthesis in the sequence (()). [5]
3. Sort the array {3, 7, 5, 4} using one criterion BSR model. [5]