M.Tech. Computer Engineering – IInd Semester, 2018

Second Sessional Test

Subject: Mobile Computing

Time: 1 Hour Max. Marks: 15

Note: Attempt all questions.

Q1. Explain the concept of CDMA with its architecture block diagram.. Also give a list of channels used in CDMA. 4

Q2. What is PN sequence generator in CDMA? Explain. If the CDMA demux received the code (-1,-1,-3, +1), find the bits sent by the different stations. 4

Q3. What do you mean by Adhoc mobile network protocol? Explain and differentiate between AODV and DSR routing algorithm. 4

Q4. What is mobile payment system? Explain its properties and security issues with suitable example. 3

Second Sessional Examination 2018

M.Tech(Computer Engg.) II Sem. Parallel Computing

Max Marks:-15 Time-One Hour

Attempt all questions. All questions carry equal marks.

Q1. Three enhancements with the following speed ups are proposed for a new architecture: Speedup1=30 . speedup2= 20 , and peedup3 =15. Only one enhancement is usable at a time. Assume the enhacements can be used 25% , 35% and 10% of the time for enhancements 1, 2 and 3 respectively. For what fraction of the reduced execution time is no enhancement in use ?
If only two enhancements are to be used then which two enhancements should be used .

Q2. Let a be the percentage of program code that can be executed simultaneously by n computers in a cluster, each computer using a different set of parameters or initial conditions. Assume that the remaining code must be executed simultaneously by a single processor. Each processor has an execution rate of x MIPS. Determine an expression for the effective MIPS rate when using the system for exclusive execution of this program in terms of a. n and x.

Q3. An application program is executed on a nine computer cluster. A benchmark program takes time T on this cluster. Further 25% of T is time in which the application is run simultaneously on all nine computers. The remaining time, the application has to run on a single computer. Calculate the effective speedup under the aforementioned condition as compared to executing the program on a single computer. Also calculate the percentage of code that has been parallelized in the preceding program.

Q4. Write an Open - MP program for finding the value of N!

Q5. Explain the following MPI functions with help of examples after writing their correct syntax

(i) MPI reduce

(ii)MPI Broadcast

(iii)MPI Scatter

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M. Tech. (Computer Engineering) II Semester

Second Sessional Test 2018

INTELLIGENT SYSTEMS

MM: 15 (15) Time: 1 Hour

Note: Attempt any three questions.

Q 1: Draw the search tree for the query p(X). The knowledge base in mentioned below.

```
p(X):- a(X).
p(X):- b(X), c(X), d(X), e(X).
p(X):- f(X).
a(1).
b(1).  b(2).
c(1).  c(2).
d(2).
e(2).
f(3).
```

Q 2: Differentiate between STRIPS and ADL.

Q3: Give an ADL solution for Spare Tire Problem.

Q4: What is negation as failure predicate? Explain and give an example.

2nd Sessional M.Tech (Computer Engineering), 2018

Data Mining & Analytics

Max Marks: 15 Time: 1 hour

Q.1. Explain Bayes theorem and show how it is used in Naïve Bayes Classifier. How do you avoid the zero probability problem in Naïve Bayes Classifier?

Q.2 Using decision tree classifier what should be the root of the decision tree for the following data whose classifying attribute is "Class".

Number	Outlook	Temperature	Humidity	Windy	Class
1	Sunny	Hot	High	False	N
2	Sunny	Hot	High	True	N
3	Overcast	Hot	High	False	P
4	Rain	Mild	High	False	P
5	Rain	Cool	Normal	False	P
6	Rain	Cool	Normal	True	N
7	Overcast	Cool	Normal	True	P
8	Sunny	Mild	High	False	N
9	Sunny	Cool	Normal	False	P
10	Rain	Mild	Normal	False	P
11	Sunny	Mild	Normal	True	P
12	Overcast	Mild	High	True	P
13	Overcast	Hot	Normal	False	P
14	Rain	Mild	High	True	N

Q.3. Consider the database shown below. Let minsup = 4. Find all frequent sequences.

Id	Sequence
S1	AATACAAGAAC
S2	GTATGGTGAT
S3	AACATGGCCAA
S4	AAGCGTGGTCAA

Shilpi

Dated: 23/04/18 **2nd Sessional Test** **Max Marks:**

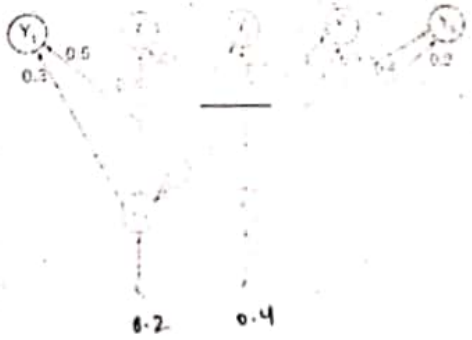
Soft Computing Techniques

M.Tech Comp 2nd Sem, JMI

Q1) State the various heuristics for improving the performance of the back propagation algorithm. (3) 2.5

Q2) Construct a discrete Hopfield network to store the pattern [-1 1 1 -1]. Also test your Hopfield network with correct and multiple missing values of the stored data. (2) 2

Q3) Explain the Kohonen SOMs in details. Find the new weights of the SOM shown in the figure. The input vector is [0.2, 0.4] & learning rate as 0.2 and the neighborhood is of one node on either sides. (3) 4.5



2+3

Q4) Consider the following given fuzzy sets

$$\tilde{X} = \left\{\frac{0.1}{A}, \frac{0.9}{B}, \frac{0.6}{C}, \frac{0.2}{E}\right\} \qquad \tilde{Y} = \left\{\frac{0.01}{A}, \frac{0.8}{C}, \frac{0.6}{F}, \frac{1}{D}\right\}$$ (2) 2

Now perform the following operations & also describe the results graphically

i) $\tilde{X} \oplus \tilde{Y}$

ii) $\overline{\tilde{X} \cup \tilde{Y}}$

2.5

Q5) What do you understand by fuzzification. Explain the neural network based method of fuzzification using suitable eg. (3)