V Semester M.C.A. Examination Feb./March 2010
ADVANCED COMPUTER NETWORK AND SECURITY

Time : 3 Hours   Max. Marks: 100

PART – A

1. What do you mean by Computer Networks?

2. What is subnet ?

3. What do you mean by Routing ?

4. What is quality of service ?

5. What are the two protocols of transport layer ?

6. What is RPC ?

7. What is DNS ?

8. What is Ciphertext ?

9. What do you mean by Simplex, Half duplex and Full duplex communication ?

10. What are connection oriented and connectionless services? Give an example.

11. Explain multicast routing.

12. Give the format of IP Header.

13. Write a note on POP3.

14. What are services, mechanisms and attacks ?

PART – B

1. Explain flooding.

2. Explain general principles of congestion control.

3. What are the techniques for achieving good QoS ?

4. Explain MIME.

5. Explain model for Network Security with a neat figure.

6. Explain cryptanalysis.

7. Write a note on data encryption standard.

8. Write a note on e-mail security.

PART – C

1. Explain Bellman Ford Routing Algorithm for distance vector routing.

2. Explain :

   a) Leaky Bucket Algorithm   b) Token Bucket Algorithm.

3. Explain the elements of Transport Protocol in detail.

4. Explain Real Time Transport Protocol.

5. Explain OSI Security Architecture.

6. Explain RSA Algorithm with an example.

——————

V Semester M.C.A. Examination, Feb./ March 2010
INTERNET PROGRAMMING AND WEB DESIGNING

Time: 3 Hours   Max. Marks : 80

Instructions *: 1) Answer **all** questions in Part **A**, **5** out of **8** questions in Part **B** and **4** out of **6** questions in Part **C**.*
*2) Part **A** : Questions from **1** to **8** carry **1** mark **each** and **9** to **14** carry **2** marks **each**.*
*3) Part **B** : **Each** question carries **8** marks.*
*4) Part **C** : **Each** question carries **10** marks.*

PART – A

1. What is WWW?

2. What are proxy servers?

3. Name any 2 web browsers.

4. Expand WYSIWYG.

5. What is XML?

6. How do you write a multi-lined comment in java script?

7. What is an event?

8. What are PHP Superglobals?

9. What are Virtual Hosts?

10. What are heading tags? Give example.

11. Mention the attributes used in table tag supported by HTML.

12. List the levels of style sheets.

13. Explain any 2 empty tags.

14. Explain the use of '+' operator in java script?

PART – B

1. Explain the working and general characteristics of the servers.

2. Write a note on IIS server.

3. How does web works?

4. Explain Inline style sheet. Write its advantages and disadvantages.

5. Write the minimum required mandatory XHTML tags.

6. How do you create and access an array elements in java script ?

7. Explain PHP while statement with syntax and example.

8. Explain different data types available in java script.

PART – C

1. Explain general form of request and response phase.

2. Write a HTML program to create an application form using various controls.

3. Explain XML syntax rules with example.

4. Explain different functions available in Java script with syntax and example.

5. Explain different control statements available in PHP.

6. What is a cookie? How to create and retrieve a cookie value using PHP.

_____

V Semester M.C.A. Examination, Feb./March 2010
DATA MINING AND WAREHOUSING

Time 3 Hrs

Max. Marks : 100

Instructions *: 1) Answer **all** questions in Part **A**, **5** out of **8** questions in Part **B** and **4** out of **6** questions in Part **C**.*
*2) Part **A** : Questions from **1** to **8** carry **1** mark **each** and **9** to **14** carry **2** marks **each**.*
*3) Part **B** : **Each** question carries **8** marks.*
*4) Part **C** : **Each** question carries **10** marks*

PART – A

1. What is the different data mining functionalities?

2. Differentiate between operational database systems and data warehouses.

3. Describe five primitives for specifying data mining task**.**

4. What is classification?

5. Explain concept description characterization.

6. Explain the need of preprocessing.

7. Explain association rule mining with an example.

8. Explain classification by back propagation.

9. Discuss any four OLAP operations in multidimensional data model with examples.

10. With a neat diagram, explain three tire data warehousing architecture.

11. How do you choose a good data mining system?

12. Discuss on trends in data mining.

13. Write a note on analytical characterization.

14. Explain mining single dimensional boolean association rules from transactional databases.

PART – B

1. Explain the following concepts using an example :

   i) Snow flake schema

   ii) Fact constellation schema iii) Star schema.

2. Explain decision tree classifier.

3. Explain the terms data cleaning and data reduction methods.

4. Differentiate between OLAP and OLTP. Explain the different types of OLAP server Architectures.

5. Explain the four methods of presenting or visualizing the discovered patterns with an example.

6. Describe why concept hierarchies are useful in data mining. Discuss the DMQL syntax for concept hierarchy specification.

7. Explain association rule mining and write apriori algorithm for finding frequent item sets.

8. Explain the K-means and K-mediods classification and partitioning methods.

PART – C

1. Describe the generation of candidate item sets and frequent item sets where the minimum support is 2 for the following transactional data :

T ID	List of item-IDs
T100	l1,l2,l5
T200	l2,l4
T300	l2,l3
T400	l1,l2,l4
T500	l1,l3
T600	l2,l3
T700	l1,l3
T800	l1,l2,l3,l5
T900	l1,l2,l3

2. Discuss the Bayesian classification method with suitable example.

3. Give an account on the regression methods used in prediction.

4. a) Describe Linear regression method .

   b) Define Euclidean and Manhattan distance. What are the four requirements of a distance function? If V1= (10,5) and V2 = (8,9), Determine the Euclidean and Manhattan distance values.

5. Explain the terms agglomerative, decisive hierarchical clustering, BIRCH clustering techniques.

6. Give an account on the role of data mining in bio-medical and DNA analysis.

—————

V Semester M.C.A. Examination, Feb./March 2010
MOBILE COMPUTING AND COMMUNICATION

Time : 3 Hours
Max. Marks : 100

Instructions *:* 1) *Answer* **all** *questions in Part* **A, 5** *out of* **8** *questions in Part* **B** *and* **4** *out of* **6** *questions in Part* **C**.
2) *Part* **A** *: Questions from* **1** *to* **8** *carry* **1** *mark* **each** *and* **9** *to* **14** *carry* **2** *marks* **each**.
3) *Part* **B** *:* **Each** *question carries* **8** *marks*.
4) *Part* **C** *:* **Each** *question carries* **10** *marks*.

PART – A

1. Define Intermediate and End systems.

2. What is 1-persistence CSMA ?

3. What are Near Terminals ?

4. What is a Piconet ?

5. Define Asynchronous Connectionless Link.

6. What is Mobile IP ?

7. What is a Mobile Node ?

8. What is Direct Sequence Spread Spectrum (DSSS)?

9. Explain polling.

10. What is CSMA/CD ? How does it work ?

11. What are parked and stand-by devices in Bluetooth ?

12. What is meant by Agent Administration ?

13. What is the need for Protocol Architecture ?

14. What is a Beacon Frame ?

P.T.O.

PART – B

1. Explain Cellular System.

2. Discuss the advantages and disadvantages of WLAN.

3. Explain FDMA and TDMA.

4. Explain the components of Bluetooth in the base band layer

5. Briefly discuss I-TCP.

6. Discuss Fast Retransmission Concept.

7. Briefly explain Slotted Aloha.

8. What is Congestion Control?

PART – C

1. Explain the simplified reference model.

2. Explain how protocols can be configured for communication.

3. With a neat diagram explain TCP header format.

4. Explain the architecture of Infrastructure based on IEEE 802.11

5. Explain L2CAP.

6. How slow start decreases the efficiency of TCP if used with mobile senders and receivers?

————————

V Semester M.C.A. Examination, Feb./March 2010
COMPILER DESIGN

Time : 3 Hours   Max. Marks : 100

Instructions : 1) Answer **all** questions in Part **A, 5** out of **8** questions in Part **B** and **4** out of **6** questions in Part **C**.
2) Part **A :** Questions from **1** to **8** carry **1** mark **each** and **9** to **14** carry **2** marks **each.**
3) Part **B** : **Each** question carries **8** marks.
4) Part **C** : **Each** question carries **10** marks.

PART – A

1) Lexemes are found in Syntactic Analysis.   True / False

2) Sentinels are used in Input buffering.   True / False

3) FIRST of a terminal is a terminal.   True / False

4) FOLLOW computation requires FIRST.   True / False

5) Define item.

6) Define Viable prefix.

7) Zero or more occurrences of a symbol is denoted by _____

8) The Start symbol of a CFG is represented by _____

9) Explain the evolution of programming languages.

10) Explain the difference between call by value and call by reference.

11) What is Context Free Grammar ? Explain with an example.

12) Define L- attributed and S- attributed definitions.

13) What is Dependency graph ? Epxlain with an example.

14) What is Basic block ? Explain with an example.

P.T.O.

PART – B

1) Explain the different phases of a compiler.

2) Explain the role of parser with diagram.

3) What are transition diagrams ? Write the transition diagram for relational operator.

4) Explain the different error recovery strategies.

5) What is Annotated Parse Tree ? Write the annotated parse tree for the string $3 * 5 + 4n$.

6) What is Shift-Reduce conflict? Explain with an example.

7) Explain calling sequences with neat diagram.

8) Write the algorithm to compute the CLOSURE(I).

PART – C

1) How do you eliminate the ambiguity in the given grammar ? Explain with the dangling else grammar example.

2) Discuss the different error recovery techniques in Predictive Parsing.

3) Explain Shift-Reduce Parsing with an example.

4) Find the Canonical LR(0) collection for the Grammar

   $S \rightarrow L = R \mid R$

   $L \rightarrow *R \mid id$

   $R \rightarrow L$

5) Write the DAG for the expression $a + a * (b - c) + (b - c) * d$ and write the three address code and quadruple for the constructed DAG.

6) Explain the different techniques to optimize the Basic blocks.

_____

V Semester M.C.A. Degree Examination, Feb./March 2010
SYSTEM SIMULATION AND MODELING

Time: 3 Hours   Max. Marks : 100

Instructions *: 1) Answer **all** questions in Part **A**, **5** out of **8** questions in Part*
*   **B** and **4** out of **6** questions in Part **C**.*
*2) Part **A** : Questions from **1** to **8** carry **1** mark **each** and **9** to*
*   **14** carry **2** marks **each**.*
*3) Part **B** : **Each** question carries **8** marks.*
*4) Part **C** : **Each** question carries **10** marks.*

PART – A

1. What is an event in a system ?

2. What is endogenous and exogenous system ?

3. What is a lead time ?

4. Give an example for scheduled arrival process.

5. What is the mean E(X) of continuous random variable ?

6. What is a random number ?

7. Name a test conducted for testing the independence of random numbers.

8. What is verification ?

9. What is simulation ?

10. Bring out the difference between discrete and continuous systems.

11. What are the different queue disciplines ?

12. What is pmf of a random variable ?

13. Mention the tests for random numbers.

14. What are subjective and objective tests?

P.T.O.

PART – B

1. What are the advantages of simulation ?

2. Use linear congruential method to generate 5 random numbers. Given that initial value = 27, multiplier = 17, increment = 43 and modulus = 100.

3. Explain Poisson process.

4. A production process manufactures computer chips on the average at 2% non-conforming. Every day a random sample of size 50 is taken from the process. If the sample contains more than two non-conforming chips, the process will be stopped. Determine the probability that the process is stopped by the sampling scheme.

5. Construct a random variate generator for geometric distribution with pmf $p(x) = p (1 – p)^x$, $x = 0, 1, 2,...$ where $0 < p < 1$.

6. A sequence of 1000 three-digit numbers has been generated and an analysis indicates that 680 have three different digits, 289 contain exactly one pair of like digits, and 31 contain three like digits. Based on the poker test, are these numbers independent?

7. Explain data collection.

8. With a diagram explain model building, verification and validation process.

PART – C

1. With a flowchart explain the steps involved in simulation study.

2. Explain the characteristics of a queuing system.

3. Simulate an (M, N) inventory system over 3 cycles for the following specification: M = 11 units, N = 5 days. Start with 3 units in the inventory and 8 units ordered with a lead time of one day. Assume the lead time to be 1, 3, 1 days for 3 cycles respectively. The demand probability and random digits to be used are given below

Demand	Probability
0	0.10
1	0.25
2	0.35
3	0.21
4	0.09

Cycle	Random digits
1	24, 35, 65, 81, 54
2	03, 87, 27, 73, 70
3	47, 45, 48, 17, 09

4. Given the sequence of numbers, can the hypothesis that the numbers are independent be rejected on the basis of length of runs up and down at $\alpha = 0.05$?

0.30 0.48 0.36 0.01 0.54 0.34 0.96 0.06 0.61 0.85

0.48 0.86 0.14 0.86 0.89 0.37 0.49 0.60 0.04 0.83

0.42 0.83 0.37 0.21 0.90 0.89 0.91 0.79 0.57 0.99

0.95 0.27 0.41 0.81 0.96 0.31 0.09 0.06 0.23 0.77

0.73 0.47 0.13 0.55 0.11 0.75 0.36 0.25 0.23 0.72

0.60 0.84 0.70 0.30 0.26 0.38 0.05 0.19 0.73 0.44

5. Explain the inverse technique for exponential and uniform distributions.

6. Explain time-series input models.

_____