M.C.A. III Semester Supplementary Examinations May 2017
Computer Communications

Max. Marks: 60   Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)
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UNIT–I

1. a) Explain about the various layers in the TCP/IP model   6M
    b) Distinguish between Frequency division Multiplexing and Time-division multiplexing   6M

OR

2. a) Describe the various design issues for Network layers   6M
    b) Compare the connection oriented networks- X.25 and Frame Relay   6M

UNIT–II

3. a) Explain with an example the CRC polynomial method used for error detection   6M
    b) Write briefly about the wireless LAN protocols MACA, and MACAW   6M

OR

4. a) Summarize the various collision free protocols   6M
    b) Illustrate Link state routing with an example   6M

UNIT–III

5. a) Explain about the distance vector routing algorithm. What is count to infinity problem   6M
    b) Describe briefly the concepts of tunneling and Fragmentation in Networks   6M

OR

6. a) Write about the Link state routing with example   6M
    b) Distinguish between Leaky bucket and token bucket algorithms   6M

UNIT–IV

7. a) Illustrate with diagrams, the 3-protocol scenarios for connection establishment in transport layer   6M
    b) Show the data frame structure for 802.11 wireless LAN and explain.   6M

OR

8. a) Explain the process of TCP connection establishment   6M
    b) Write brief notes on IP protocol   6M

UNIT–V

9. a) Explain about the RSA algorithm used for public key cryptography   6M
    b) Compare PGP and PEM algorithms for E-mail security   6M

OR

10. a) Describe the AES algorithm for encryption   6M
    b) Discuss briefly about digital signatures   6M

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Code: 5P2B34

M.C.A. III Semester Supplementary Examinations May 2017
Design and Analysis of Algorithms

Max. Marks: 60   Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)
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UNIT–I

1. a) What are the different mathematical notations for computing time and space complexities? 6M
   b) Differentiate between Profiling and debugging? 6M

OR

2. a) Write about Recurrence concept and Recurrence Evaluators solving process in detail? 8M
   b) Explain about Linear Search Process and its Algorithm? 4M

UNIT–II

3. a) Explain about the Control Abstraction of Divide and conquer Method? 8M
   b) Write briefly about Merge sort with an Example? 4M

OR

4. a) Analyze the complexity of Quick sort on 1,2,3,4,5,6,7? 8M
   b) Write briefly about Binary Search? 4M

UNIT–III

5. a) Write about Optimal Binary search Tree? 6M
   b) Discuss about Travelling Sales person Problem? 6M

OR

6. a) Write the Greedy algorithm to generate the Shortest path? 6M
   b) Explain the Kruskal's algorithm with an example? 6M

UNIT–IV

7. a) Write an Algorithm of M-Coloring Problem? 6M
   b) Solve the 8-Queen's problem using back tracking? 6M

OR

8. a) Given an Algorithm for finding all Hamilton Cycles in a given graph? 8M
   b) Write about 0/1 Knapsack problem? 4M

UNIT–V

9. a) Give a deterministic and Non Deterministic algorithm for sorting a set of integers? 6M
   b) Differentiate between NP-COMPLETE AND NP-HARD PROBLEMS? 6M

OR

10. a) Write about Graph Traversals in detail? 6M
    b) Discuss about COOK' S Theorem? 6M

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R-15

Code: 5P2B34

M C A III Semester Supplementary Examinations May 2017
Java Programming

Max. Marks: 60   Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)
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UNIT–I

1. a) Discuss how encapsulation provides data security.   5M
   b) What is constructor overloading, why this is an important programming feature in Java? Illustrate.   7M

OR

2. a) Write a full Java program, which creates String object, store a numerical value in that object, and display the value stored in words. Ex; 100 should be displayed as ONE ZERO ZERO   9M
   b) Discuss the role of Generic Classes in Java.   3M

UNIT–II

3. a) What are the important features in Java Inheritance?   5M
   b) Write a Java Program, which demonstrates the use of super and this keywords. Discuss the same.   7M

OR

4. a) Illustrate the concept and need of method overriding by considering any example.   5M
   b) What are inner classes? Discuss various types of inner classes.   7M

UNIT–III

5. a) Discuss the need for CLASSPATH in Java Development Environment.   3M
   b) Differentiate classes and interfaces. Write a sample Java program which demonstrates the use of interface in the place of class.   9M

OR

6. a) Compare interfaces and abstract classes.   3M
   b) Write a note on java.util package and its significance in Java programming.   9M

UNIT–IV

7. a) What are the important benefits of Exception handling?   5M
   b) Write a Java program which demonstrates the use of try-catch and finally.   7M

OR

8. a) Why multithreading is an essential programming feature?   5M
   b) Write a Java program which demonstrates the use of user-defined exception.   7M

UNIT–V

9. a) How Byte Streams and Character Streams are created in Java?   5M
   b) What are sockets? Illustrate with the necessary syntax the use of sockets in Java.   7M

OR

10. a) Discuss important file operations in Java.   5M
    b) Write a simple client-server application to demonstrate the use of java sockets.   7M

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