Hall Ticket Number :										

R-15

Code: 5P2B31

M.C.A. III Semester Regular Examinations November 2016

Database Management Systems

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 the advantages of DBMS over file processing system 6M

   b) Discuss the three schema architecture of DBMS 6M

OR

2. a) Discuss the various functions of a DBA 6M

   b) Discuss E-R model 6M

UNIT–II

3. a) Explain the terms: attribute, tuple, instance of a relation, schema of a relation 6M

   b) Distinguish primary key, secondary key, and super key 6M

OR

4. Write the structure or syntax of a tuple relational calculus and explain it with an example. 12M

UNIT–III

5. Discuss join, natural join, equi-join, left-outer join and right-outer join 12M

OR

6. What is normalization? What are functional decencies? Explain 2^{nd} normal form with an Example? 12M

UNIT–IV

7. a) What is a transaction? Explain its ACID properties. 6M

   b) Explain strict two-phase locking protocol. 6M

OR

8. Discuss how Serializability can be tested? 12M

UNIT–V

9. Discuss RAID level 0 to RAID level 6 12M

OR

10. Discuss insertion and deletion operations on B+ tress 12M

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Hall Ticket Number :										

Code: 5P2B32

R-15

M.C.A. III Semester Regular Examinations November 2016

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) With a neat sketch explain about the various layers in OSI reference network model 6M
   b) Distinguish between circuit switching and packet switching networks 6M

OR

2. a) Write briefly about ATM virtual circuits 6M
   b) Classify and write briefly on various types of computer networks 6M

UNIT–II

3. a) Describe with an example, the one-bit sliding window protocol 6M
   b) Compare pure ALOHA and Slotted ALOHA protocols 6M

OR

4. a) Distinguish between error control and flow control 6M
   b) Explain the Binary exponential Backoff algorithm 6M

UNIT–III

5. a) Write briefly about the congestion control algorithms used in datagram subnets 6M
   b) Illustrate with a diagram the ARP protocol in Internet 6M

OR

6. a) Explain about the shortest path routing algorithm 6M
   b) Give an example and describe the Multicast routing algorithm 6M

UNIT–IV

7. a) Summarize the four protocol scenarios for releasing a connection in transport layer 6M
   b) Describe with diagrams, the architecture of Bluetooth 6M

OR

8. a) Write notes on TCP congestion control 6M
   b) Describe about the 802.11 MAC sub layer protocol 6M

UNIT–V

9. a) Compare substitution ciphers and transposition ciphers 6M
   b) With a neat sketch explain the DES algorithm for symmetric key cryptography 6M

OR

10. a) Draw the diagram and explain the operation of KERBEROS authentication protocol 6M
    b) Write briefly about the various cipher modes 6M

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Hall Ticket Number :										

R-15

Code: 5P2B33

MCA III Semester Regular & Supplementary Examinations November 2016

Network 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) Explain the architecture of UNIX OS. 8M
   b) Describe the features of LINUX. 4M

OR

2. a) Discuss about navigating file names and the relative file path names 8M
   b) Write about filters. 4M

UNIT–II

3. a) Write about Shell meta characters and responsibilities. 6M
   b) Write a Shell Program to generate Fibonacci sequence up to a given number. 6M

OR

4. a) Discuss about System calls in Files. 6M
   b) Write about Standard I/O and Formatted I/O functions in C. 6M

UNIT–III

5. a) What are the different ways of process termination? Explain. 6M
   b) Why do we need exec()? Explain different types of exec() functions with suitable program. 6M

OR

6. a) Define process identifier? Explain the operation on fork function. List out the similarities and differences between parent and child process 8M
   b) Write a short note on controlling terminals. 4M

UNIT–IV

7. a) Explain various types of signals. 8M
   b) Write short note on signal handling. 4M

OR

8. What are signals? Explain any four conditions that can generate a signal. Explain are the actions that are associated with signals. 12M

UNIT–V

9. Write short notes on the following
   (i)Pipes (ii) FIFO's (iii) Shared Memory 12M

OR

10. a) Explain in detail about Socket System calls for Connection Oriented Protocol and Connection less Protocol. 8M
    b) How are semaphores useful? Explain. 4M

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Hall Ticket Number :										

R-15 / R-14

Code: 5P2B34

M C A III Semester Regular & Supplementary Examinations November 2016

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) Illustrate the need for object oriented programming by considering a suitable example. 7M
   b) Discuss the purpose of constructors, with the syntax of declaring default constructor in Java. 5M

OR

2. a) Create two String objects in Java, and generate the third String object which contains the concatenated version of the data belongs to first two objects. Write full Java program. 9M
   b) Discuss the role of GC in Java. 3M

UNIT–II

3. a) Explain some of the benefits of Inheritance. 5M
   b) Write a Java Program, which demonstrates the use of Inheritance in developing application pertaining to any Game. Imagine your own class structure. 7M

OR

4. a) Explain some of the benefits of Overriding in OOP. 3M
   b) Write a Java Program, which demonstrates the use of Inheritance in developing application pertaining to Electronic Commerce. Imagine your own class structure. 9M

UNIT–III

5. a) Discuss the need for Java Packages. 5M
   b) Demonstrate the use of Interface in adding two numerical values. Write full Java program 7M

OR

6. a) With suitable syntax explain the definition, creation, and use of Java Packages. 5M
   b) Demonstrate the use of Interface in displaying the text messages. Write full Java program 7M

UNIT–IV

7. a) What do you mean by Exception handling? 5M
   b) Write a Java program which demonstrates the use of ArithmeticException. 7M

OR

8. a) Why Exception handling is an important programming feature? 5M
   b) Write a Java program which demonstrates the use of ArrayIndexOutofBoundsException. 7M

UNIT–V

9. a) How Byte Streams are different from Character Streams? 5M
   b) Illustrate the use of java.io package by considering a suitable example. 7M

OR

10. a) Discuss the essential basics to do Network Programming in Java. 5M
    b) Illustrate the use of java.net package by considering a suitable example. 7M

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Hall Ticket Number :										

R-15 / R-14

Code: 5P2B35 / 4P2B35

M.C.A. III Semester Regular & Supplementary Examinations November 2016

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) Explain about various Asymptotic Notations used in Algorithmic Analysis ? 8M
   b) Analyze the Linear Search concept in detail? 4M

OR

2. a) Write a Non Recursive Algorithm for finding the Fibonacci Sequence & Derive its time Complexity? 7M
   b) Write and explain about Pseudo code for expressing algorithms? 5M

UNIT–II

3. a) Analyze the Time complexity of 1,2,3,4,5,6,7 using Quick Sort? 6M
   b) Compute the average Time Complexity of Quick sort on data set size of n? 6M

OR

4. a) Explain the set Representation using Trees? 4M
   b) Explain about Binary Tree Traversals and its related issues? 8M

UNIT–III

5. a) What is Articulation Point and Devise an Algorithm that identifies all that articulation points of a given Graph? 12M

OR

6. Write about
   a) Prim's Algorithm in detail.
   b) Kruskal's Algorithm in detail. 12M

UNIT–IV

7. a) Draw the state space tree for M-Coloring Problem where n=3 and m=3 6M
   b) Solve the 8-Queens problem using back tracking? 6M

OR

8. a) Explain how the Hamilton circuit Problem is solved by using back tracking concept? 6M
   b) Write an Algorithm of FIFO branch and Bound? 6M

UNIT–V

9. a) Write briefly about Graph traversals? 8M
   b) Explain about COOK'S THEORM? 4M

OR

10. Explain about NP-HARD and NP-COMPLETE problems in detail with examples? 12M

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Hall Ticket Number :										

R-15 / R-14

Code: 5P2B36 / 4P2B36

M.C.A. III Semester Regular & Supplementary Examinations November 2016

Operating Systems

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 is System Call? Explain different types of System Calls. 6M
   b) Describe about different features of Distributed OS? 6M

OR

2. a) Define Operating System? Discuss about the differences between multi Programmed and Time Shared Operating Systems. 6M
   b) Explain about Operating System services. 6M

UNIT–II

3. a) Define
      i) Scheduler
      ii) Thread
      iii) Grant Chart 6M
   b) What is Critical Section? List out the conditions that a solution to Critical Section problem must satisfy. 6M

OR

4. a) Define Process State? With a neat sketch, explain process state diagram? 4M
   b) Discuss and Compare the performance of Round Robin and Short Job First Scheduling Methods with the help of an example. 8M

UNIT–III

5. a) Why the deadlock happens in a System? Discuss about the techniques recover from Deadlock. 6M
   b) Explain about Deadlock Prevention Technique. 6M

OR

6. a) Define is Deadlock? It is possible to have a deadlock involving only a single process? Explain 6M
   b) Explain, how avoidance differ from prevention? Discuss about deadlock avoidance algorithm. 6M

UNIT–IV

7. a) How to provide protection to File System? Explain 6M
   b) Discuss briefly about the File Allocation Methods 6M

OR

8. a) What is page fault? Explain steps involved in handling a page fault. 6M
   b) Explain LFU page replacement algorithm with an example. 6M

UNIT–V

9. a) Define protection? Explain goals of protection? 4M
   b) What is firewall? Discuss how the firewall can be used to protect the network. 8M

OR

10. a) What is access matrix? Explain implementation of access matrix. 6M
    b) What are the differences between authorization and authentication? Briefly explain about authentication 6M

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Hall Ticket Number :										

Code: 4P2B52

R-14

M C A III Semester Regular Examinations NOV/DEC 2016

.Net Technologies

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 .NET platform 7M
   b) Write short notes on Just In Time compiler. 5M

OR

2. a) Explain in detail about Common Language Runtime (CLR). 6M
   b) Explain about Automatic Memory Management. 6M

UNIT–II

3. a) Write short notes on C# Classes. 5M
   b) Explain about Exception Handling. 7M

OR

4. a) Explain about Operator Overloading with example. 6M
   b) Explain about Inheritance with example. 6M

UNIT–III

5. a) Explain the Architecture of ADO.NET 7M
   b) Write short notes on Data Set. 5M

OR

6. a) Write short notes on Command Object. 6M
   b) Write short notes on Data-Binding. 6M

UNIT–IV

7. a) Explain about Cookies with example. 4M
   b) Describe briefly about Crystal Reports. 8M

OR

8. a) Write short notes on Session in ASP.NET. 4M
   b) Describe briefly about Web User Controls 8M

UNIT–V

9. a) What is UDDI? Write differences between WSDL and UDDI. 6M
   b) Write the steps involved to call a Web Service from a browser. 6M

OR

10. a) What is Web Service? Explain about different types of Web Services. 8M
    b) Write short notes on AJAX. 4M

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Hall Ticket Number :										

Code: 4P2B51

R-14

M C A III Semester Regular Examinations NOV/DEC 2016

Research Methodology

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. Distinguish between basic and applied research. Give examples

OR

2. What are the different types of Research? Explain them in brief.

UNIT–II

3. What are the essential differences among nominal, ordinal, interval and ratio scales? How do these differences affect the statistical analysis techniques we can use?

OR

4. You have been asked to develop an index of student morale in your department.
   a. What constructs or concepts might you employ?
   b. Choose several of the major concepts, and specify their dimensions
   c. Select observable indicators that you might use to measure these dimensions
   d. How would you compile these various dimensions into a single index?
   e. How would you judge the reliability and/or validity of these measurements?

UNIT–III

5. Define data and give some examples of data. Distinguish between primary and secondary data.

OR

6. Your task is to interview a representative sample of attendees for the large concert venue where you work. The new season schedule includes 200 life concerts featuring all types of musicians and musical groups. Since neither the number of attendees nor the descriptive characteristics are known in advance, you decide on non-probability sampling. Based on past seating configurations, you can calculate the number of tickets that will be available for each of the 200 concerts. Thus collectively, you will know the number of possible attendees for each type of music. From attendance research conducted at concerts held by Glacier Symphony during the previous two years, you can obtain gender data on attendees by type of music. How would you conduct a reasonably reliable non probability sample?

UNIT–IV

7. Discriminant analysis is a statistical technique useful in situations where individuals are objects in a sample are to be classified into two or more mutually exclusive and exhaustive groups on the basis of a set of predictor variables. Elucidate the statement and identify the situations where discriminant analysis can be used. Give the limitations of discriminant analysis

OR

8. What is correlation coefficient? Discuss the role of Correlation Coefficient in management decision making?

UNIT–V

9. There is a special challenge to presenting statistical data while some of these data may be incorporated in the text, most statistics should be placed in tables, charts or graphs. The choice of a table, chart or graph depends on the specific data and presentation purpose.

OR

10. Assume a research topic of your choice and give the complete format of its research report

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