CS IT-411

Hall Ticket Number:

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

March, 2017 **Common for CSE & IT**

Seventh Semester **Cryptography & Network Security**

Time: Three Hours **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1. Answer all questions (1X12=12 Marks)

a. Define 'Confusion' and 'Diffusion' terms.
b. Distinguish between Stream Cipher and Block Cipher.
c. Distinguish between Asymmetric Encryption and symmetric Encryption?
d. Define Ceaser Cipher?
e. Who is an intruder?
f. Differentiate Steganography and Cryptography.
g. Define Auditing.
h. Modes of snort.
i. What is vulnerability management?
j. Write any two differences between Firewell and Ip tables
k. Purpose of MBSA
l. What is configuration management?

UNIT – I

2.a Explain OSI security architecture services and mechanisms? 6M

2.b Explain in detail about transposition techniques with suitable examples. 6M

(OR)

3.a Explain about Triple DES. 4M

3.b Explain in detail DES encryption and decryption with neat sketch. 8M

UNIT – II

4.a Differentiate metric and measurement. Explain types of security metrics. 6M

4.b Explain chains, options of Iptables. Write rules for accepting incoming connections and blocking a domain. 6M

(OR)

5.a Discuss Risk analysis and internal controls. 4M

5.b Explain in detail AES encryption and decryption with neat sketch. 8M

UNIT – III

6.a Describe RSA algorithm? Perform encryption/decryption using RSA algorithm with instances: p=3; q=11,e=7;m=5 6M

6.b Explain vulnerability management life cycle procedure. 6M

(OR)

7.a What is metasploit. Explain procedure for creating and injecting payload into victims machine? 6M

7.b Discuss about Nmap scanner and how to scan the active ports in the network and version of operating systems. 6M

UNIT – IV

8.a Explain testing for configuration management. 6M

8.b Write short notes on identifying the configurations. 6M

(OR)

9.a Write installation procedure for snort. What are the different modes of snort and explain the parts of a snort rule. 6M

9.b Write short notes on MBSA 6M

CS IT412

Hall Ticket Number:

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

March, 2017 **Common for CSE & IT**

Seventh Semester **DATA ANALYTICS-I**

Time: Three Hours **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1 Answer all questions (1X12=12 Marks)

a) Describe the significance of t-test.
b) What is Machine Learning
c) Define types of Machine Learning?
d) Define Big Data?
e) Explain Hadoop ecosystems?
f) Define Degree of freedom?
g) Differ Type- 1 error & Type-2 error
h) State decision rule?
i) Difference between Data Node and Name node
j) Define YARN
k) Define Hadoop Common
l) Explain the functionalities of Map Reduce.

UNIT I

2. Explain the characteristics of Big Data 12M

(OR)

3. a) Advantages and disadvantages of Big Data? 6M
   b) Describe the applications of Big Data? 6M

UNIT II

4. a) What is Null Hypothesis and Alternative Hypothesis with T-Test? 8M
   b) How to calculate t test value? How to calculate t test value? 4M

(OR)

5. a) Apply the Hierarchical clustering using Single Linkage method for the following data, construct Hierarchical Tree. 8M
   b) Write R code for Hierarchical clustering using single linkage method 4M

UNIT III

6. a) Write the R code for cluster analysis on iris data set using K-means algorithm iris dataset(Sepal Length, Sepal Width, Petal Length, Petal Width, Species) 7M
   b) Write the R code for cluster analysis on Lung Capacity data set using K-medoids algorithm. LungCapacity data set (Gender, Height, Smoker, Exercise, Age, Lung Capacity) 5M

(OR)

7. a) Explain HDFS concepts in detail 6M
   b) Explain the components of Hadoop 6M

UNIT IV

8. a) Explain about Data Node,Name Node . 6M
   b) Explain the components of YARN 6M

(OR)

9. a) Explain the anatomy of how data read from HDFS 6M
   b) Explain how YARN runs an application on HDFS? 6M

CS IT412

Hall Ticket Number:

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

March, 2017 **Common for CSE & IT**

Seventh Semester **DISTRIBUTED SYSTEMS**

Time: Three Hours **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1 Answer all questions (1X12=12 Marks)

a) Define the distributed systems.
b) Distinguish between distributed operating system and network operating system.
c) What is the meaning of openness?
d) What is the meaning of parameter marshalling?
e) What is a concurrent server?
f) What is an object adapter?
g) Define reliability.
h) What are full-stop failures?
i) Define a Byzantine general problem.
j) What is triple modular redundancy?
k) Define two-phase commit protocol.
l) Define intermittent fault, given an example.

UNIT I

2 a) Define and explain distribution transparency & give examples of different types of transparency. 6M
b) Discuss about monolithic kernel and micro kernel. 6M

(OR)

3 a) Explain the implementation of RPC. 6M
b) Explain about client- server model. 6M

UNIT II

4 a) Explain the design issues of thread package. 6M
b) Discuss the general design issues of servers. 6M

(OR)

5 a) Explain the process of name space implementation. 6M
b) Explain the working of DNS. 6M

UNIT III

6 a) Explain the need for clock synchronization & Berkeley algorithm of clock synchronization. 7M
b) What is the need for replication? Discuss the problems with replication. 5M

(OR)

7 a) What are logical clocks? Explain Happens-Before relation. 7M
b) What is client-centric consistency model? How it is used for replication? 5M

UNIT IV

8 a) Explain various component failures with example. 6M
b) How do you achieve fault tolerance using failure masking redundancy? 6M

(OR)

9 a) What is Recovery and explain different recovery systems. 6M
b) Briefly explain the implementation of CODA system. 6M

CS/IT 413

Hall Ticket Number:

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

March, 2017 — **Computer science and Engineering**

Seventh Semester — **Object Oriented Analysis And Design**

Time: Three Hours — **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1. Answer all questions (1X12=12 Marks)

a. What is Object Orientation?
b. What is the difference between class and object?
c. Define activity diagram?
d. Define actor?
e. List the levels of object oriented testing?
f. Define Association?
g. Differentiate between logical and physical design?
h. Define guard condition?
i. Define internal event?
j. What is meant by SBI of an object?
k. Define Unified Process?
l. What is the difference between include and extend relationship?

UNIT – I

2.a. Explain briefly the origins of object orientation? 6M
2.b. Explain the advantages of OO approach? 6M

(OR)

3.a. Explain in detail about use cases 4M
3.b. Draw a class diagram for Airline reservation system? 8M

UNIT – II

4.a. Draw a collaboration diagram for Railway reservation system? 6M
4.b. Explain briefly about OCL? 6M

(OR)

5.a. Explain about different types of states and events? 4M
5.b. Draw a state chart diagram for Library management system? 8M

UNIT – III

6.a. Briefly discuss about the qualities and objectives of analysis. 6M
6.b. Explain about major elements of system design. 6M

(OR)

7.a. Explain about processor allocation. 6M
7.b. Explain about data management issues. 6M

UNIT – IV

8.a. Draw the deployment diagram for library management system? 6M
8.b. Explain about resource allocation and planning 6M

(OR)

9.a. Explain about different types of implementation strategies. 6M
9.b. Explain about software metrics. 6M

CS IT414

Hall Ticket Number:

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

March, 2017 **Common for CSE & IT**

Seventh Semester **Design and Analysis of Algorithms**

Time: Three Hours **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1 Answer all questions (1X12=12 Marks)

a. What is an Asymptotic Notation?
b. Define Control Abstraction.
c. Define Adjacency Matrix.
d. Define Minimum Cost Spanning Tree.
e. Define Longest Common Subsequence problem
f. What is strongly connected component?
g. Define minimum spanning tree.
h. Give the differences between DFS and BFS.
i. Differentiate Dynamic Programming and Backtracking.
j. What is Dead node?
k. What is Branch and Bound Technique?
l. What is a state space tree?

UNIT I

2.a What is time complexity and space complexity? Explain with examples the usage of step count method to find the time complexity of an algorithm. 6 M

2.b Briefly explain Merge Sort Algorithm with suitable example and Derive its Time Complexity 6 M

(OR)

3.a Define an algorithm and explain the characteristics of an algorithm. 4 M

3.b Write an algorithm for finding Strassen's matrix multiplication using DAC and find the time complexity of an algorithm. 8 M

UNIT II

4.a Define Greedy Method. Explain about Knapsack Problem with an example. 6 M

4.b Explain multi-stage graph using forward approach with an example. 6 M

(OR)

5.a State and explain Kruskal's Minimum cost Spanning tree algorithm with an example. 6 M

5.b What is Travelling Salesman Problem? Apply Dynamic Programming to solve Travelling Salesman problem. 6 M

UNIT III

6.a Give the algorithm for BFS and explain with an example. 6 M

6.b Briefly explain n-queens problem using Backtracking. Explain its applications 6 M

(OR)

7.a What is a strongly connected component? Explain the procedure for finding SCC for a given directed graph 6 M

7.b What is Backtracking? Explain how sum of subsets problem is solved using backtracking. 6 M

UNIT IV

8.a State and explain how 0/1 knapsack problem can be solved using Branch and Bound Technique. 8 M

8.b Explain the principles of Control Abstractions for LC-search. 4 M

(OR)

9.a Explain the principles of FIFO Branch and Bound. 6 M

9.b Explain about NP-hard and NP-complete problems and explain the relationship between them. 6 M

IT 415

Hall Ticket Number:

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

April, 2017 — **Information Technology**

Seventh Semester — **Advanced Database Management Systems**

Time: Three Hours — **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1. Define the following (1X12=12 Marks)

a) What is a query Execution plan?
b) Difference between pipelining and materialization?
c) Define Distributed database.
d) Define Query Tree?
e) What is the use of Vertical Fragmentation?
f) What is Query Processing?
g) Define OODBMS?
h) Define Persistence programming language?
i) Define Orthogonal Persistence?
j) Define OODM?
k) What are the three persistence schemes in OODBMS?
l) Write any four advanced database applications.

UNIT I

2. Discuss the different Algorithms for implementing Union, Intersection, Set difference and External sorting? 5M

(OR)

3. a) Explain the difference between centralized dbms and client-server architecture with a neat diagram? 6M
b) What are the three different view categories for catalog information in ORACLE? 6M

UNIT II

4 .a) Discuss the advantages and disadvantages of DDBMS? 6M
b) Explain the Functions & Architecture of a DDBMS with a diagram? 6M

(OR)

5 .a) Explain the component architecture for a DDBMS with a diagram? 6M
b) Discuss the types of Tranparencies in DDBMS? 6M

UNIT III

6. Explain in detail about the types of Fragmentation with examples and correctness of fragmentation? 12M

(OR)

7.a) Describe the different architectures for an OODBMS and different approaches for Storing and executing methods with a neat diagram? 8M
b) Explain the alternative strategies for developing OODBMS? 6M

UNIT IV

8. a) Discuss about the Geographical Information System? 6M
b) Explain the nature of Multimedia data and categories? 6M

(OR)

9.Explain the nature of Multimedia data and categories? Discuss the data management issues and multimedia database applications? 12M

IT415 (B)

Hall Ticket Number:

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

March, 2017 — **Information Technology**

Seventh Semester — **Distributed Systems**

Time: Three Hours — **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1 Answer all questions (1X12=12 Marks)

a) Define RPC
b) Define middleware.
c) What is Transient communication?
d) What is object adaptor?
e) What are mobile entities?
f) Differentiate between stateless and state full server?
g) Define synchronization.
h) What is a distribution protocol?
i) Define Resilence
j) Short note on fault tolerance
k) Define Recovery.
l) Differentiate between physical clock and logical clock?

UNIT I

2 a) Discuss about various types of Client-Server architectures. 6M
b) What is the importance of Parameter Passing in Remote Object Invocation 6M

(OR)

3 a) Explain about static and dynamic remote method invocations. 6M
b) Explain about Persistence and Synchronicity in communication. 6M

UNIT II

4 a) Discuss about usage of threads in DS 6M
b) Write about methods to remove unreferenced entities. 6M

(OR)

5 a) Define the terms: Identifiers, name space and name resolution 6M
b) Explain the concept of code migration. 6M

UNIT III

6 a) Explain about Election algorithms. 6M
b) What are Client centric consistency models? 6M

(OR)

7 a) Explain about Data centric consistency models and Distributed protocols. 6M
b) Explain the concept of Mutual Exclusion. 6M

UNIT IV

8 a) Explain about Client-Server and Reliable group communication. 8M
b) What is fault tolerance? 4M

(OR)

9 a) Explain CODA file system. 6M
b) Explain NFS architecture and implementation. 6M

CS/IT416

Hall Ticket Number:

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

April, 2017 **Common for CSE & IT**

Seventh Semester **Embedded Systems**

Time: Three Hours **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)

Answer ONE question from each unit. (4X12=48 Marks)

1.Answer all questions (1X12=12 Marks)

a.Define Embedded systems?
b.What is the need for DMAC in ES?
c.How to create a child process in Linux?
d.how isRTOSdifferentfrom otherOS?
e.Differentiate between mutexes vs semaphores.
f.What are the commonly found errors in Embedded Systems?
g.What is the difference between Hardware design and Software Design?
h.What are the functional requirements that are used in the embedded systems?
i.What are the different types of system involved in embedded system?
j.Hard Real-Time Systems
k.Hybrid Real-Time Systems
l.What are the different types of Buses used by the embedded systems?

UNIT1

2. a Explain important characteristics of an embedded system. 6M
2. b Briefly discusses different application areas for embedded systems. 6M

(OR)

3. a What are Embedded systems? Give the classification of embedded systems. 6M
3. b Explain various interfaces for external communication. 6M

UNIT II

4.aIllustrate how program and data memory fetches can be overlapped in a Harvardarchitecture. 6M
4.b Explain the various purposes of embedded systems in detail. 6M

(OR)

5. a Explain any two types of communication interfaces. 6M
5. b Create a table listing the address spaces for the following address sizes: (i) 8-bit, (ii) 16-bit 6M
(iii) 24-bit, (iv) 32-bit, (v) 64-bit.

UNIT III

6.aWhat are the functional and non-functional requirements to choose an RTOS? 6M
6.bWhat is multitasking? Explain types of multitasking. 6M

(OR)

7. aWhat is an Operating system?Where is it used and what are its primary functions? 6M
7. bExplain how Thread and processes are related?What are common to process and Threads? 6M

UNIT IV

8. aExplain the Fundamental issues in Hardware Software codesign. 6M
8. bExplain the important Hardware Software Tradeoffsin Hardware Software Partitioning. 6M

(OR)

9. aIllustrate how program and data memory fetches can be overlapped in a Harvardarchitecture. 6M
9. b Explain the fundamental issues in H/W and S/W co-design. 6M