CS/IT 411

Hall Ticket Number:

IV/IV B.Tech (Regular) DEGREE EXAMINATION

October, 2016 — **Common to CSE & IT**

Seventh Semester — **Cyber 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 List the Different types of ciphers?
b What are the strengths of AES?
c Differentiate between Public key and private key.
d Avalanche effect Means.
e Write the use of NMAP.
f Define Steganography?
g State the difference between exploits and payload?
h How to find the file got malware or not?
i Why RSA Contains Two keys?
j Usage of Nessus
k Describe conventions of Snort Rule
l Identifying threats , weakness and vulnerabilities are called ----------

UNIT – I

2.a Explain about Security Attacks, Services and Mechanisms. 6M
2.b Describe any two substation ciphers 6M

(OR)

3.a What is DES .Draw and Explain the block diagram of DES, why DES contains 16 rounds 9M
3.b How to generate round key for DES. 3M

UNIT – II

4.a Explain about types of security metrics and usage of security metrics? 4M
4.b Draw the basic Structure of AES and Generation of key expansion process of AES? 8M

(OR)

5 Write a short notes on
a Static malware analysis 4M
b SETOLLKIT 4M
c Information Security Audit 4M

UNIT – III

6.a Write an algorithm for RSA and Explain RSA with block diagram? 8M
6.b For a given Plaintext of "**CYBER**" find the cipher text by using RSA 4M

(OR)

7.a List any six commands used in NMAP and write their purposes? 6M
7.b How to hack the other user who is using Windows-xp operating system using metaspolit. 6M

UNIT – IV

8.a Explain about Configuration Management? 6M
8.b Write a short notes on Iptables. 6M

(OR)

9.a Define snort and How it works? List and Explain How many ways to run a snort Write down any two rules regarding snort. 9M
9.b Why MBSA used for configuration Reviews. 3M

CS/IT 412

Hall Ticket Number:

IV/IV B.Tech (Regular) DEGREE EXAMINATION

October, 2016 — **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** **(12M)**

a. Describe the significance of t-test.
b. Write the R code for two sample t-test
c. What is Machine Learning?
d. Differentiate between Supervised learning, Unsupervised Learning
e. What HDFS contains?
f. Describe Map Reduce.
g. Significance of Secondary Name Node in HDFS
h. Write applications of Map Reduce
i. What Hadoop eco system contains
j. Significance of i)Job Tracker ii)Task Tracker
k. Describe Fail over and Fencing
l. What is YARN ?

UNIT-1

2 a. Explain the characteristics of Big Data **(8M)**

b. Describe the applications of Big Data **(4M)**

(OR)

3 What is Hypothesis Testing? Explain the following terms with examples
a)Null Hypothesis b)Alternative Hypothesis
c) Degrees of Freedom d) P value
e) How to calculate t test value? f)Type- 1 error & Type-2 error **(12M)**

UNIT-2

4 a. i) Apply the Hierarchical clustering using Single Linkage method for the following data, construct Hierarchical Tree.
ii) Write R code for Hierarchical clustering using single linkage method for the following

	BA	**FI**	**MI**	**NA**	**RM**	**TO**
BA	0	662	877	255	412	996
FI	662	0	295	468	268	400
MI	877	295	0	754	564	138
NA	255	468	754	0	219	869
RM	412	268	564	219	0	669
TO	996	400	138	869	669	0

(12 M)

(OR)

5	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)	**6M)**
	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)	**(6M)**
		UNIT-3	
6	a.	Explain HDFS concepts in detail	**(6M)**
	b.	Explain the anatomy of how data read from HDFS	**(6M)**
		(OR)	
7	a.	Explain the components of YARN.	**(4M)**
	b.	Explain how YARN runs an application on HDFS?	**(8M)**
		UNIT-4	
8		Explain how HDFS runs a MapReduce job?	**(12M)**
		(OR)	
9	a.	Explain the features of Map Reduce.	**(6M)**
	b.	How different failures are handled by HDFS eco system.	**(6M)**

CS/IT 413

Hall Ticket Number:

IV/IV B.Tech (Regular) DEGREE EXAMINATION

November, 2016 **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 an information system?
b Compare model and diagram?
c Define requirement?
d What are the three basic type of attributes?
e Define use case modelling?
f What is meant by system behaviour?
g Define pattern template?
h Define OCL?
i Define External event?
j Differentiate between state and event?
k Define Unified Process?
l Define legacy system.

UNIT – I

2.a What are the fact finding techniques for gathering requirements. Explain? 8M
2.b What the main advantages of object oriented development? 4M

(OR)

3.a Briefly explain use case relationships with suitable examples 6M
3.b Draw a use case diagram for Library management system? 6M

UNIT – II

4.a Draw a sequence diagram for student course registration system? 8M
4.b Differentiate between sequence diagram and collaboration diagram? 4M

(OR)

5.a Explain about state chart diagram with suitable examples? 4M
5.b Draw a state chart diagram for ATM system? 8M

UNIT – III

6.a Briefly discuss about different types of design. 6M
6.b Explain about the objectives of good design. 6M

(OR)

7.a Explain the criteria for good design. 6M
7.b Explain about singleton, structural and behavioral patterns. 6M

UNIT – IV

8.a Draw the component diagram for library management system? 6M
8.b Explain about DSDM and XP process models 6M

(OR)

9.a Explain about prototyping the user interface. 6M
9.b What is reuse? Explain the strategy planned for reuse. 6M

CS/IT 414

Hall Ticket Number:

IV/IV B.Tech (Regular/Supply) DEGREE EXAMINATION

November, 2016 **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 Give the characteristics of an Algorithm.
b Give the control abstraction of Divide and Conquer.
c Define Adjacency List.
d Differentiate Greedy and Dynamic Programming.
e What is Articulation point?
f Give two applications for DFS.
g Define E-node and live node.
h Define cycle in a graph.
i What is reliability and how reliability of a system increases?
j State sum of subsets problem.
k What is Branch and Bound technique?
l Define NP-hard problem.

UNIT – I

2.a Define the terms "Time complexity" and "Space complexity" of algorithms. Give a notation for expressing such a complexity and explain the features of such a notation. 6 M

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

(OR)

3.a Explain the pseudo code conventions for writing an algorithm. 6 M

3.b Explain Strassen's matrix multiplication technique. 6 M

UNIT – II

4.a Define minimum cost spanning tree. State and explain Prim's Minimum cost Spanning tree algorithm with an example. 6 M

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

(OR)

5.a Explain single source shortest path problem and give the Dijkstra's algorithm to solve single source shortest path problem. 6 M

5.b Explain Longest Common Subsequence problem with an example. 6 M

UNIT – III

6.a Give the Algorithm for DFS and explain with an example. 6 M

6.b Write an algorithm for N-Queens problem and solve the 4-Queens problem by using state space tree. 6 M

(OR)

7.a Explain with the help of an algorithm, the mechanism of identifying articulation points and Bi-Connected components in a graph. 6 M

7.b What is Backtracking? Explain how the knapsack problem is solved using Backtracking. 6 M

UNIT – IV

8.a	Draw the portion of the state space tree generated by LC Branch and Bound for the following knapsack.Problem: n=5 profits(10,15,6,8,4) and corresponding weights(4,6,3,4,2) and m=12.	8 M
8.b	Explain the principles of Control Abstractions for LC-search.	4 M

(OR)

9.a	Find an optimal solution for a travelling sales person problem using branch & bound technique by choosing an example.	8 M
9.b	Explain the principles of FIFO Branch and Bound.	4 M

IT 415(B)

Hall Ticket Number:

IV/IV B.Tech(Regular/Supplementary) DEGREE EXAMINATION

November, 2016 **Information Technology**

Seventh Semester **Distribution System**

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 distributed system.
   b) Define client and server.
   c) What are extended RPC models?
   d) What is object adaptor?
   e) Explain the significance of multithreading in DS
   f) Differentiate between stateless and state full server?
   g) What are logical clocks?
   h) Define Consistency
   i) What is process resilience?
   j) Short note on fault tolerance
   k) For what purpose CODA is used.
   l) Differentiate between physical clock and logical clock?

UNIT-I

2 a) what are the goals that are to be achieved in order to design a distributed system. 6M
   b) Explain in detail about Persistence and synchronicity in communication 6M

(OR)

3 a) Explain about RPC mechanism. 6M
   b) Explain about Message-Oriented Transient and Persistent Communication. 6M

UNIT-II

4 a) Explain in detail about locating mobile entities. 6M
   b) What are unreferenced entities? How they are removed? 6M

(OR)

5 a) Explain the concept of threads. 6M
   b) What is name space and name resolution; explain the implementation of name space? 6M

UNIT-III

6 a) What are Client centric consistency models? 6M
   b) Write the short notes Distributed mutual exclusion. 6M

(OR)

7 a) Explain about logical clocks. 4M
   b) Explain about distribution and Consistency protocols. 8M

UNIT-IV

8 a) what is meant by recovery? Explain Reliable Client-Server communication. 8M
   b) What is Auto mounting? Explain. 4M

(OR)

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

CS/IT 416

Hall Ticket Number:

IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION

November, 2016 **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. What is the function of DMA controlled in embedded system?
b.What is the purpose of using critical sections?
c.What is pipe lining?
d.Mention what are the essential components of embedded system?
e.Mention how I/O devices are classified for embedded system?
f.Why embedded system is useful?
g.Explain what is microcontroller?
h.Mention what is the difference between microprocessor and microcontroller?
i.Mention what are buses used for communication in embedded system**?**
j.List out various uses of timers in embedded system?
k.Explain what is pipes?
l.What is ISR?

UNIT I

2. a)Briefly discuss different application areas for Embedded systems. 6M

2. b)Define embedded system and compare embedded system and general computing system 6M

(OR)

3. a)Explain the characteristics of embedded system. 6M

3. b)Explain about IC technology in embedded system 6M

UNIT II

4. a) Write about PSMM indetail. 6M

4. b) Explain about FSM and FSMD. 6M

(OR)

5.a) Write briefly about Bluetooth technology. 6M

5. b) Explain about concurrent process model. 6M

UNIT III

6.a)Explain task & task scheduler with different algorithms. 8M

6.b) What is the difference between 'hard' and 'soft' real-time systems? give one example. 4M

(OR)

7.Write short notes on i) semaphores ii) Mutex iii) Message queues iv) event registers 12M

UNIT IV

8.a) What is the differences between a general purpose OS and a real time-time OS? 6M

8. b).Discuss about priority inversion problem. 6M

(OR)

9.a)What is the use of simulator in a development phase? 6M

9. b) What is H/W and S/W co-design? Explain the fundamental issues in co-design. 6M

CS/IT 412

Hall Ticket Number:

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

October, 2016 — **Common for CSE & IT**

Seventh Semester — **Distributed System**

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** **(12M)**

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