Hall Ticket Number :

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Code: 5G161

III B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

Cryptography and Network Security

(Common to CSE & IT)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) What do you understand by information security? Explain three Security goals in information security?   7M

   b) Determine the security services required to counter various types of Active and Passive attacks. What are the common C-functions that give raise to buffer overflow?   7M

OR

2. a) Discuss the security mechanisms recommended by ITU-T (X.800) to provide the security services.   7M

   b) Write briefly about ARP attack and session hijacking.   7M

UNIT–II

3. a) Compare and contrast a conventional signature and a digital signature. Discuss the possible types of forgery in digital signatures.   7M

   b) Describe the steps in finding the message digest using SHA-512 algorithm. What is the order of finding two messages having the same message digest?   7M

OR

4. a) When modern ciphers are used for encryption in real life applications, different modes of cipher operations are used. Justify the need of different modes of operation. Describe the encryption operation using any one of the modes of operation.   7M

   b) Explain the benefits/advantages of HMAC over other hash based schemes.   7M

UNIT–III

5. a) Describe the architecture of an E-mail. How does a PGP can be used to create a secure e-mail message?   7M

   b) What are the content types provided by S/MIME? How does a receiver find out what cryptographic algorithms the sender has used when receives an S/MIME message?   7M

OR

6. a) Explain the authentication procedures defined by X.509 certificate. Illustrate the concept of 'certificate chain' for verification of digital signature on X.509 certificate.   7M

   b) Explain about the trust mechanism and certificates used by PGP and S/MIME.   7M

UNIT–IV

7. a) Discuss steps involved in the SSL Record Protocol transmission? 7M

b) Describe the architecture of IPSec. Briefly explain Encapsulating IP Security Payload? 7M

OR

8. a) Suppose an attacker records the entire SSL session between a bank and its customer. Can the attacker replay the session to the bank and potentially cause the customer to pay the bill twice? If yes, explain why? If not, what prevents this form of replay in SSL? 7M

b) Explain about Host based Intrusion Detection Systems in brief. 7M

UNIT–V

9. a) Most of the popular host operating systems come with the TCP/IP Suite and are amenable to SNMP management. The current networks management systems, however, suffer from several limitations. Describe them. 7M

b) Write briefly about techniques used for Statistical anomaly detection. 7M

OR

10. a) What is the purpose of a firewall? Where is it located? What are the benefits of implementing a firewall? 7M

b) What is an audit record? What is the use of audit record in intrusion detection? 7M

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Code: 5G16C

III B.Tech. II Semester Supplementary Examinations Nov/Dec 2019
Internet of Things
(Common to CSE & IT)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)
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UNIT–I

1. a) Discuss about the principle of RFID.   7M

    b) Explain about various components of RFID system.   7M

OR

2. a) What are current enabling technologies in IoT? Explain.   7M

    b) Explain about Internet in IoT in detail.   7M

UNIT–II

3. a) What is meant by IoT stack? Discuss in detail.   7M

    b) Explain about device and communication layers in IoT stack.   7M

OR

4. a) Write short notes on IoT security and management.   7M

    b) Explain about core platform layer for IoT stack.   7M

UNIT–III

5. a) With an example explain the general connectivity pattern which allows devices to
       communicate to the core platform?   7M

    b) Explain about the role of IoT in connected car solutions?   7M

OR

6. a) What is meant by Predictive Based Maintenance? Explain.   7M

    b) Briefly explain about Asset Management.   7M

UNIT–IV

7. a) Distinguish between IP and 6LoWPAN protocol stacks.   7M

    b) Write the basic 6LoWPAN format in detail.   7M

OR

8. a) Discuss about 6LoWPAN architecture in detail.   7M

    b) Explain about Wireless RFID infrastructure.   7M

UNIT–V

9. a) What are the different types of platforms for choosing Internet of Things? Explain. 7M

    b) Discuss in detail about System-on-Chips.   7M

OR

10. a) Explain in detail about Arduino board.   7M

    b) What are microcontrollers? Explain briefly.   7M

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R-15

Code: 5G468

III B.Tech. II Semester Supplementary Examinations Nov/Dec 2019
Python Programming
(Information Technology)

Max. Marks: 70   Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)
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UNIT–I

1. a) What is computational problem? Describe the process and techniques used to solve these problems? Explain why and how python programming is considered for solving these problems?   8M

   b) Define variable and describe its types? Write a python program to find sum of product of consecutive digits of a 4 digit number without using looping? Suppose no=1234. Then output is 1*2+2*3+3*4   6M

OR

2. a) What do you mean by program, algorithm and flowchart? How these are related to each other? Why Algorithm and flowchart is required to write any program?   6M

   b) What do you mean by data type? Describe different types of data types in python with example?   8M

UNIT–II

3. a) Define List? Describe built in functions of list with example?   6M

   b) Write a python program to compute result of following series and take a number num from user?

   $$R = 1 - x^2/2! + x^3/3! - x^4/4! + x^5/5! - x^6/6! + -------- + x^n/n!$$

   x=sum of all even digits of a number num

   n= sum of all odd digits of a number num   8M

OR

4. a) Write a python program to do following
   - I. Create a list of list of 10 user defined numbers
   - II. Access 5th and 7th number, add these numbers and store it as 9th number
   - III. Delete 5th number from the list
   - IV. Display the content of list
   - V. Find the avg of smallest and largest element of list   10M

   b) Write a python program to find square root of a number without using built in function?   4M

UNIT–III

5. a) What is the difference between call by value and call by reference? Write a python program to swap two numbers without using third variable and use call by value and call by reference? Explain the difference using this example?   9M

   b) Write a python program to find area and perimeter of rectangle using function?   5M

OR

6   Describe horse race simulation problem?   14M

UNIT–IV

7. a) Define Module? How is it created and accessed in python? Explain with suitable example?   6M

    b) Describe top down design of python?   8M

OR

8.   i) What is File? How it is opened and closed? Mention different modes in files?

        ii) Write a python program to copy contents of one text file then reverse the contents and write it to another file and display the content of both the files?   14M

UNIT–V

9. a) What do you mean by operator overloading? Write a python program to overload + operator?   5M

    b) Write a program to implement an stack and perform following function using class

        I.   Insert 10 elements into stack and check overflow condition

        II.   Pop 3 elements from stack and check underflow condition

        III. Display the rest item of stack   9M

OR

10.   Write short notes on any *two* of the following **(2 X 7M = 14M)**

    a) Inheritance

    b) Software objects

    c) Literals

    d) List vs dictionary

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Hall Ticket Number :

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R-15

III B.Tech. II Semester Supplementary Examinations Nov/Dec 2019
Unix and Shell Programming
(Information Technology)

Max. Marks: 70   Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)
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UNIT–I

1. a) What are various types of securities provided in UNIX?   6M

   b)   i.   Write a command to remove multiple files in UNIX
         ii.   Write sequence of steps to delete 5 lines in vi editor?
         iii. write about UNIX command who
         iv.   write about UNIX command rmdir   8M

OR

2. a) Write about Unix kernel?   6M

   b) The output of ls –l is   - 8m
      -rwx rw-r- - 2 memo proj1 19514 may 10 13:45 chap01
      Explain each component in the above output   8M

UNIT–II

3. a) write about the following commands in UNIX   8M

        i) diff   ii)   cal   iii)   sort   iv) tail

   b) Write about redirection of UNIX streams <, >, >>   6M

OR

4. a) Write a shell program to count number of lines and spaces in a given file   8M
   b) What is meant by pipe in UNIX? Explain any two commands with pipe   6M

UNIT–III

5. a) Write a shell script to find and delete all files with the word "good" (use grep
      command)   8M

   b) Explain about positional parameters in UNIX with a shell script   6M

OR

6. a) What are various types of editors available in Unix and explain them -   8M

   b) Explain grep command with various options   6M

UNIT–IV

7. a) Write about a history command in KORN shell   6M

   b) Write about environment variables in KORNSHELL   8M

OR

8. a) Write about conditional statements in KORN SHELL   6M

   b) write a KORN shell script to Take 3 numbers input and find out largest number   8M

UNIT–V

9. a) Explain floating point arithmetic expressions in C shell   8M

   b) Explain null values in interactive C Shell?   6M

OR

10. a) What is an on-off variable? List some of these variables and their use in C Shell?   6M

    b) Explain Decision Making commands in C shell   8M

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III B.Tech. II Semester Supplementary Examinations Nov/Dec 2019
Web Technologies
(Information Technology)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) Describe different methods for implementing cascading style sheets?   6M

    b) Design a web page for displaying the grocery items in a table for a grocery shop   5M

    c) What types of lists can be created in HTML?   3M

OR

2. a) Define table. Explain table attributes and table tags with example   7M

    b) Write a Java script for Registration form email validation   7M

UNIT–II

3. Define a JavaBean? Write the advantages of JavaBeans   14M

OR

4. a) What is XML? Explain the various features of XML.   7M

    b) Design an XML schema for hospital information management. Include every
       feature available with schema.   7M

UNIT–III

5. a) What is servlet? Explain the life cycle of a servlet with skeleton   7M

    b) Explain in detail about handling HTTPRequest and HTTPResponse with examples   7M

OR

6. a) Generate a session tracker that tracks the number of accesses and last access
       data of a particular web page.   9M

    b) What are the basic steps in building and testing a simple servlet?   5M

UNIT–IV

7. a) Why do we need JSP technology if I already have servlets? And explain the
       features of JSP over servlet   7M

    b) Compare JSP and Servlets. Describe how to set up the JSP environment.   7M

OR

8. a) Explain the installation process of tomcat server.   7M

    b) Describe various steps involved in JSP application design with a suitable example   7M

UNIT–V

9. a) How do you generate data dynamically using JSP? Explain   9M

    b) Discuss the JSP standard actions.   5M

OR

10. a) How to access a database from a JSP page? Explain with a program.   9M

    b) Describe how data is shared between JSP pages   5M

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