UG/5th Sem/Comp(H)/Pr/19

2019

B.Sc. (Honours)

5th Semester Examination

COMPUTER SCIENCE

Paper - DSE-1P

Set - I

Full Marks : 20   Time : 3 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.

[Information Security Lab]

Answer any *one* question (Lottery Basis).

$15×1=15$

1. Perform encription and decryption of a Rail fence cipher.

2. Demonstrate use of steganographic scheme using LSB.

[Turn Over]

6/22-1400

3. Write a script to perform caesar cipher.

4. Write a script to perform Authentication scheme using digital signature.

5. Write a script to demonstrate word document protection.

[Laboratory Note Book : 2   Viva-Voce : 3]

[Microprocessor Lab]

Answer any *one* question from the following.

15×1=15

1. Write a program in assembly language to find the largest between two 8 bit numbers.   15

2. Write an assembly language program to multiply two 16 bit numbers.   15

3. Write an assembly language program to check whether a number is even or not.   15

(3)

4. Write a program to find the largest number in an array.   15

5. Write a program to convert a hexadecimal number to its ASCII equivalent.   15

6. Write a program to generate all the even numbers in a range.   15

7. Write an assembly language program to display the keyboard status using 8086.   15

8. Write a program to search the character in a string using 8086.   15

9. Demonstrate keyboard interfacing.   15

10. Write a program to find the average of two numbers.   15

[Laboratory Note Book : 2 Viva-Voce : 3]

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[Turn Over]

(4)

[Operational Research]

1. Write a C program to solve the following linear programming problem graphically :

   Maximize $Z = 4x + y$

   Subject to the constraints

   $$x + y \leq 50$$

   $$3x + y \leq 90$$

   $$x \geq 0, \ y \geq 0$$

2. Write a C program to solve the following linear programming problem using simplex method

   Maximize $Z = 200x + 500y$

   Subject to the constraints :

   $$x + 2y \geq 10$$

   $$3x + 4y \leq 24$$

   $$x \geq 0, \ y \geq 0$$

3. Write a C program to solve the following Linear programming problem using M-charnes method.

Minimize $Z = 3x + 9y$

Subject to the constraints :

$$x + 3y \leq 60$$

$$x + y \geq 10$$

$$x \leq y$$

$$x \geq 0, \ y \geq 0$$

4. Write a C program to determine the minimum value of the objective function using two phase method :

$$Z = -50x + 20y$$

Subject to the constraints :

$$2x - y \geq -5$$
$$3x + y \geq 3$$
$$2x - 3y \leq 12$$
$$x \geq 0, \ y \geq 0$$

5. Write a C program to solve the following LPP using simplex method

Minimize $Z = 3x + 2y$

Subject to constraints :

$$x + y \geq 8$$
$$3x + 5y \leq 15$$
$$x \geq 0, \ y \geq 0$$

[Laboratory Note Book : 2   Viva-Voce : 3]

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(7)

[Cloud Computing Lab]

Answer any *one* question (Lottery Basis).

$15 \times 1 = 15$

1. Create Virtual machines that access different programs on same platform.

2. Create Virtual machines that access different programs on different platforms.

3. Create an application (say : word count) using Hadoop Map/Reduce.

4. Explore Google cloud.

5. Explore microsoft cloud.

6. Explore AWS.

7. Demonstrate the tools used in cloud computing for

   (i) Storage.

   (ii) Document editing.

[Turn Over]

8. Using tools show how calendar and to-do lists can be managed in cloud computing.

9. Explore salesforce cloud service.

10. Draw a case study on PAAS (such as Facebook, Google App engine, etc.)

[Laboratory Note Book : 2   Viva-Voce : 3]

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UG/5th Sem/Comp(H)/Pr/19

2019

B.Sc. (Honours)

5th Semester Examination

COMPUTER SCIENCE

Paper - DSE-1P

Set - II

Full Marks : 20   Time : 3 Hours

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in their own words as far as practicable.

[Information Security Lab]

Answer any *one* question (Lottery Basis).

1×15=15

1. Perform an experiment to demonstrate use of nmap tool for Port Scanning.

2. Using Jcrypt tool (or any other equivalent) to demonstrate symmetric cryptography.

[Turn Over]

(2)

3. Implement RSA algorithm using any appropriate programming.

4. Demonstrate sending of a digitally signed document.

5. Demonstrate the use of steganography tools.

6. Use John the Ripper (or any equivalent tool) to demonstrate password cracking.

[Laboratory Note Book : 2   Viva-Voce : 3]

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(3)

[Microprocessor Lab]

Answer any *one* question from the following.

15×1=15

1. Write a program for 8085 to convert a Binary Number to its Decimal equivalent. 15

2. Write a program to add two BCD Numbers. 15

3. Write a program to find one's Complement of a 16 bit number. 15

4. Write a program for 8085 to find the largest number from a given array of 8-bit numbers. 15

5. Write a program for searching an element using Binary search technique. 15

6. Write a program to check if an 8-bit number is even or odd for 8085. 15

7. Write a program to add two vectors. 15

8. Write a program to sort a set of given numbers in ascending order using 8086. 15

[Turn Over]

6/22A-1400

9. Write a program to convert a given binary to its equivalent BCD form.   15

10. Write a program to search the character in a given string using 8086.   15

[Laboratory Note Book : 2   Viva-Voce : 3]

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(5)

[Operational Research]

Answer any *one* question (Lottery Basis).

$$15 \times 1 = 15$$

1. Write a C program to solve the following equation using simplex method.

   Maximize $15x_1 + 17x_2 + 20x_3$

   $$x_2 - x_3 \leq 2$$
   $$3x_1 + 3x_2 + 5x_3 \leq = 15$$
   $$3x_1 + 2x_2 + x_3 \leq = 8$$

2. Write a C program to solve the above equation using graphical method.

3. Write a C program to solve the below equation using dual simplex method.

   Maximize $2x_1 + 3x_2$

   subject to $4x_2 + 8x_2 \leq 12$
   $$2x_1 + x_2 \leq 3$$
   $$3x_1 + 2x_2 \leq 4$$
   $$x_1, x_2 \geq 0$$

[Turn Over]

4. Write a C program to solve the previous question using graphical method.

5. Write a C program to determine the minimum value of the objective function using two phase method :

$$Z = -50x + 20y$$

Subject to the constraints :

$$2x - y \geq -5$$
$$3x + y \geq 3$$
$$2x - 3y \leq 12$$
$$x \geq 0, \ y \geq 0$$

[Laboratory Note Book : 2   Viva-Voce : 3]

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(7)

[Cloud Computing Lab]

Answer any *one* question (Lottery Basis).

15×1=15

1. Create virtual machines that access different programs on different platforms.

2. Create virtual machines that access different programs on same platform.

3. Exploring Google cloud.

4. Exploring Microsoft cloud.

5. Explore salesforce cloud service.

6. Using tools shows how to-do-lists and calendar can be managed in cloud computing.

7. Demonstrate the use of cloud storage using tools.

8. Draw a case study on SAAS service of cloud.

[Laboratory Note Book : 2 Viva-Voce : 3]