BANKURA UNIVERSITY

B.SC (HONOURS) SIXTH SEMESTER EXAMINATIONS, 2022

Subject: Computer Science

Course Code: SH/CSC/603/DSE - 3 **Course ID: 61516**

Course Title: Information Security

Full Marks: 25 **Time: 1 Hr 15 Min.**

The figures in the margin indicate full marks

Answer all the questions.

UNIT I

1. Answer *any five* of the following questions: **(5x1=5)**

a) Write a difference between cryptography and steganography.

b) What is meant by decryption?

c) Write a difference between virus and worm.

d) What do you mean by hacking?

e) Define digital signature.

f) What is brute force attack?

g) What is residual risk?

h) What is proxy firewall?

UNIT II

2. Answer *any two* of the following questions: **(5x2=10)**

a) Explain goals of using Information Security. What is MAC? 4+1

b) The encryption key in a transposition cipher is (3, 2, 6, 1, 5, 4). Find the decryption key. With these keys show the encryption and decryption process for the message "information secrecy" [excluding blank space] 1+2+2

c) Write two differences between symmetric key and asymmetric key encryption algorithm. With suitable diagram explain the key generation process of DES encryption algorithm (no table is required). 2+3

d) Write properties of a good hash function. What is avalanche effect? Differentiate between attack and threat. 2+1+2

UNIT III

3. Answer *any one* of the following questions: (10x1=10)

a) Explain the Random Oracle model briefly. What is pre image attack, 2nd pre image attack and collision attack? 4+6

b) Explain the features of a firewall. What is packet filtering firewall? Briefly explain possible attacks and countermeasures on a packet filtering firewall. 3+1+6

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B.SC (HONOURS) SIXTH SEMESTER EXAMINATIONS, 2022

Subject: Computer Science

Course Code: SH/CSC/603/DSE - 3 **Course ID: 61516**

Course Title: Introduction to Data Science

Full Marks: 25 **Time: 1 Hr 15 Min.**

The figures in the margin indicate full marks

Answer all the questions.

UNIT I

1. Answer *any five* of the following questions: (5x1=5)

a) *How can you load and use csv file in R?*

b) *What is R Base package?*

c) *Define PCA.*

d) *What is maximum likelihood estimation?*

e) *What is over-fitting?*

f) *Differentiate between type-1 error and type-2 error.*

g) *How do you get the name of current working directory in R?*

h) *How to get a list of all the packages installed in R?*

UNIT II

2. Answer *any two* of the following questions: (5x2=10)

a) *What are different ways to call a function in R?*

b) *How missing values and missing impossible values are represented in R?*

c) *How can you add data set in R?*

d) *What is the importance of data cleansing?*

UNIT III

3. Answer *any one* of the following questions: (10x1=10)

a) Mention the types of biases that occur during sampling? What is the Confusion Matrix? Explain selection bias. 4+3+3

b) Explain about data import in R language. What is implied by K-closest neighbor? 7+3