

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR [2017-20]

B.A./B.Sc. THIRD SEMESTER (July – December) 2018

Mid-Semester Examination, September 2018

Date : 25/09/2018

COMPUTER SCIENCE (General)

Time : 12 noon – 1pm

Paper: III

Full Marks : 25

[Use a separate Answer Book for each group]

GROUP – A

Answer **any one** from question nos. 1 & 2:

(1 × 2½)

1. What do you mean by view level, logical level and physical level abstraction in database?
2. Write down the task performed by Database Administrator (DBA).

Answer **any two** from question nos. 3 to 6 :

(2 × 5)

3. Draw an Entity Relationship (E-R) Diagram of Hospital Management System.
4. Define the following operations:

(i) Right outer join, (ii) Division in the context of Relational Algebra (RA).

2½+2½

5. What is data-model? Briefly discuss about hierarchical data model along with their advantages and disadvantages.

2+3

6. What do you mean by partial participation and total participation? What is derived attribute?

1½+1½+2

GROUP – B

Answer **any one** from question nos. 7 & 8:

(1 × 2½)

7. Differentiate between cryptanalytic attack and non-cryptanalytic attack.
8. Explain repudiation with example.

Answer **any two** from question nos. 9 to 12 :

(2 × 5)

9. a) Using Euclidean algorithm, find the greatest common divisor of 401 and 700.
b) Why modular arithmetic is useful in cryptography?
10. Encrypt the message “the house is being sold tonight” using Vigenere Cipher with key “dollars”. Ignore the space between words.
11. Explain the details of Round-key generator of DES algorithm.
12. Do a cryptanalysis of Hill cipher with respect to known-plaintext attack.

4

1

_____ × _____