

MCA 3rd Semester Examination, 2022

COMPUTER APPLICATION

(Cryptography and Steganography/Cloud Computing)

PAPER – MCA-305(C&E)

Full Marks : 100

Time : 3 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

PAPER—MCA-305C

(Cryptography and Steganography)

GROUP – A

Answer any three questions : 20 × 3

(Turn Over)

1. Define Security attacks. Find the Play fair cipher of the word "ULLAS PROGRAMME". Ignore the space between words. 6 + 14

2. Write Pixel Value Difference (PVD) Algorithm. Find the Stego Pixel of the pair of Pixel (95, 102) with secret data bits 1101 using PVD algorithm. 10 + 10

3. Distinguish between diffusion and confusion. Explain DES function. 4 + 16

4. Encrypt the message "Love the life you live" using one of the following ciphers. Ignore the space between words. Decrypt the message to get the plaintext :
 - (i) Additive cipher with key = 10
 - (ii) Multiplicative cipher with key = 9. 10 + 10

5. What do you mean by Digital Watermarking ? What is Steganography ? How is Steganography different from Cryptography and Watermarking ? Discuss in brief the different domains of Watermarking Schemes. 2 + 2 + 6 + 10

6. Write encoding and decoding process through Waighted Matrix technique. Explain with an example. 10 + 10
7. Distinguish between : 5 + 5 + 5 + 5
- (a) Substitute and Transposition cipher
 - (b) Monoalphabetic and Polyalphabetic cipher
 - (c) Stream cipher and Block cipher
 - (d) Symmetric Key and Asymmetric-Key cipher.

GROUP – B

Answer any one question : 10 × 1

8. What do you mean by Brute-force attack. What is masquerade ? Explain Feistel Cipher with a diagram. 2 + 2 + 3 + 3
9. How the key is expanded in AES ? 10
10. Write different types of *P* box used in DES algorithms. 5 + 5

[*Internal Assessment – 30 Marks*]

PAPER—MCA-305E

(*Cloud Computing*)

GROUP – A

Answer any **five** questions :

2 × 5

1. What is Cloud Computing ?
2. What are the challenges of Cloud computing ?
3. What is on demand functionality in cloud ?
4. What is Hybrid cloud ?
5. Explain the usage of Utility Computing in Cloud.
6. What are the advantages of cloud services ?
7. Give some examples of large cloud service provide along with their services.
8. What do you mean by VPN ? What does it contain ?

GROUP – B

Answer any four questions : 15 × 4

9. Briefly explain the platforms that cloud computing relies on. 15

10. Explain with proper diagram the machine reference model of execution Virtualization. 5 + 10

11. Describe the vision introduced by cloud computing. How Service oriented computing is incorporated in cloud ? 7 + 8

12. What are the basic components of an IaaS based service ? Explain each of them. 15

13. Classify and explain the different types of cloud. Also explain the reference model of Cloud Computing. 8 + 7

14. Explain the theorem that define the properties that hardware instructions need to satisfy in order to support virtualization ? 15

15. What is Hypervisor ? Explain the major types of hypervisors ? 3 + 12
16. Explain the different components of PaaS ? 15

[*Internal Assessment* – 30 Marks]
