PG/IIIS/COS/301(M1 & M2)
/24

M.Sc. 3rd Semester Examination, 2024

COMPUTER SCIENCE

PAPER – COS-301 (M1 & M2)

Full Marks : 50

Time : 2 hours

Answer **all** questions

The figures in the right hand margin indicate marks

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

Illustrate the answers wherever necessary

PAPER – COS-301 M1

(*Advanced Networking*)

GROUP–A

Answer any **two** questions : 2×2

1. What is the difference between IPv4 and IPv6 ?

2. Distinguish between forwarding and routing.

3. What do you mean by congestion ?

4. Define switch and gateway.

GROUP–B

Answer any **two** questions : 4×2

5. Compare the merits and demerits of classful addressing and classless addressing.

6. What are subnetting and supernetting ? Explain with examples.

7. Explain the leaky bucket technique in congestion control.

8. Differentiate between trusted and secure VPNs.

GROUP–C

Answer any **one** question : 8×1

9. Describe the Bellman-Ford Algorithm for routing. Write the benefits of VPN technology. $5 + 3$

10. An ISP is granted a block of addresses starting with 190.100.0.0/16 (65,536 addresses). The ISP needs to distribute these addresses to two groups of customers as follows :

(*a*) The first group has 64 customers; each needs 256 addresses.

(*b*) The second group has 128 customers; each needs 128 addresses.

Design the sub-blocks and determine how many addresses are still available after these allocations.

PAPER – COS-301 M_2

(*Network Security*)

GROUP–A

Answer any **two** questions : 2×2

1. Define integrity and non repudiation.

2. Differentiate between Snooping and Spoofing.

3. What is the difference between diffusion and confusion ?

4. Define product cipher.

GROUP–B

Answer any **two** questions : 4×2

5. (*a*) Difference between private key and public key algorithms.

(*b*) Find the decryption key for the encryption key : 436521 2 + 2

6. Find the cipher text using transposition cipher of the following plain text with the encryption key : 562143.

4	7	3	2	7	7
9	8	7	6	9	5
7	4	3	2	4	8

7. Distinguish passive attack and active attack. Explain with example. 2 + 2

8. Find the cipher text of the plain text "MEET ME AT THE PARK" using Playfair cipher generation technique. You can design your own secret key of (5 × 5) matrix.

GROUP – C

Answer any **one** question : 8 × 1

9. What is P-Box ? Write the variation of P-Boxes. Write down the purpose of S-Boxes in DES ? Compare DES and AES. 2 + 3 + 1 + 2

10. Briefly explain the DES function with diagram. 8

[Internal Assessment — 10 Marks]
