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PG (CBCS)
M.SC. Semester- III Examination, 2023
COMPUTER SCIENCE
PAPER: COS 301
(ADVANCED NETWORKING)
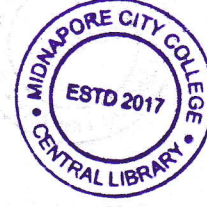
Full Marks: 40   **Time: 2 Hours**

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

<u>**Write the answer for each unit in separate sheet**</u>

M1: ADVANCED NETWORKING

GROUP-A

1. Answer any **TWO** of the following questions: 2×2=4

   a) Define Routing?
   b) What is purpose of data link layer in ISO/OSI reference model?
   c) Distinguish between synchronous and asynchronous transmission?
   d) What is wireless network?
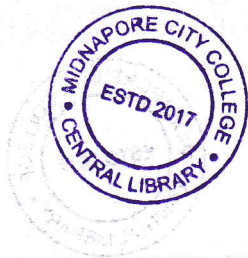
GROUP-B

2. Answer any **TWO** of the following questions: 2×4=8

   a) What is the difference between Packet Switching and circuit switching techniques?
   b) What is the difference between
       (i) GO BACK NARQ
       (ii) REPEAT ARQ
   c) What is congestion? Why congestion occur in a network?
   d) Find the CRC of the following data corresponding to the divisor $x^3 + x^2 + 1$.
      Data: 100110

GROUP-C

3. Answer any **ONE** of the following questions: 1×8=8

   a) Explain the working mechanism of CSMA/CD Protocol.
   b) Write a short note on (**any two**)
       (i) Ad hoc Networks
       (ii) Public and Private key Crypto-System
       (iii) VPN (Virtual private network)
       (iv) WWW (World Wide Web).

P.T.O

M2: NETWORK SECURITY

GROUP-A

1. Answer any **TWO** of the following questions: 2×2=4

   a) What is difference between active attack and passive attack?
   b) What is Steganography?
   c) Define the term Denial of Service?
   d) What is cryptanalysis and cryptography?

GROUP-B

2. Answer any **TWO** of the following questions: 2×4=8

   a) Briefly describe CIA triad with proper diagram.
   b) Encrypt the message "meet me tomorrow morning" using Vigenere cipher with the key "secret".
   c) What are the disadvantages of One-time pad technique? What is the difference between diffusion and confusion?
   d) Explain Caesar cipher technique with an example.

GROUP-C

3. Answer any **ONE** of the following questions: 1×8=8

   a) Draw the general structure of DES and explain the encryption decryption process. What are the advantages of DES algorithm?
   b) Perform encryption and decryption using RSA Algorithm. for the following. P=7; q=11; e=17; M=8. Using Playfair cipher encrypt the message "FREEDOM IS MY BIRTHRIGHT" with the keyword MONARCHY.

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