| MCS-042 |

MCA (Revised)
Term-End Examination

☐☐☲☷☲   **December, 2016**

MCS-042 : DATA COMMUNICATION AND COMPUTER NETWORKS

Time : 3 hours   *Maximum Marks : 100*

Note : *Question no. 1 is **compulsory**. Attempt any **three** questions from the rest.*

1. (a) Explain various types of analog-to-analog modulation techniques with suitable examples.   *10*

    (b) If a binary signal is sent over a 5-kHz channel whose signal to noise ratio is 20 dB, what is the maximum achievable data rate ?   *5*

    (c) Differentiate between stream ciphers and block ciphers with the help of examples.   *5*

    (d) Draw unipolar encoding and RZ encoding for the following bit stream :   *5*

    01001100

(e) What is sliding window protocol ? How is the size of window decided ? *10*

(f) Consider a signal where the amplitude varies from + 6·4 V to − 6·4 V. If we want to quantise it into 64 levels, what would be the quantised value corresponding to the signals of − 3·6 V and + 0·88 V. *5*

2. (a) Explain Rijndael cipher in detail. *10*

(b) Explain CFB (Cipher Feedback) and OFB (Output Feedback) in detail. *10*

3. (a) Explain the concept of selective repeat ARQ. *7*

(b) Describe link state routing protocol. *7*

(c) Describe the concept of Remote Procedure Call (RPC) in detail. *6*

4. (a) What is Binary Exponential Back-off algorithm ? How is it used in CSMA/CD ? *10*

(b) State the problems found in distance vector routing. *5*

(c) What is the difference between frequency division multiplexing and time division multiplexing ? *5*

5. (a) Explain the working of MACAW protocol. 7

(b) Explain how Radio communication differs from Satellite communication. *6*

(c) What do you mean by Quality of Service ? 7

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