PG/IS/COS-103/19

M.Sc. 1st Semester Examination, 2019

COMPUTER SCIENCE

(*Computer Networks*)

PAPER—COS-103

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

GROUP – A

1. Answer any *four* questions 2 × 4

(*a*) *Differentiate* between low pass and band pass channels.

(*b*) What do you mean by Shannon capacity in a noisy channel ?

(*c*) Define distortion of a signal.

(*d*) Given a bandwidth of 5000 Hz for an ASK signal. What are the band rate and bit rate ?

(*e*) What do you mean by inverse TDM ?

(*f*) What is asynchronous balanced mode (ABM) ?

(*g*) Why the concept of piggybacking is used ?

(*h*) Name three channelization protocols.

GROUP – B

2. Answer any *four* questions : 4 × 4

(*a*) Briefly describe different transmission modes for data transmission.

(*b*) What is the purpose of data link layer in ISO/ OSI reference model ?

(*c*) With a suitable diagram briefly explain the working mechanism of amplitude modulation (AM).

(*d*) Differentiate between circuit switching and packet switching.

(*e*) Find the CRC of the following data corresponding to the divisor $x^3 + x^2 + 1$. Data : 100110.

(*f*) Describe the frame format of an HDLC I-frame.

(*g*) Give the flow chart of CSMA/CA working mechanism.

(*h*) What is classful addressing ? Find the address span of class addresses. Also find the no. of class A networks and address space in it.

GROUP – C

3. Answer any *two* questions : 8 × 2

(*a*) *Briefly describe the* working mechanism of CDMA technique. 8

(*b*) With a suitable example, explain the working mechanism of Go-Back-N-ARQ. 8

(*c*) What is congestion ? Why congestion occurs in a network ? Describe any one congestion control algorithm. 1 + 2 + 5

(*d*) Write short notes (any *two*) : 4 × 2

(*i*) Fourier analysis of composite signal

(*ii*) UDP

(*iii*) HDLC

(*iv*) Rauting techniques.

[*Internal Assessment* : 10 Marks]