22634

12425

03 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

a) List any two Standard Organizations for Data Communication.

b) Define Bit rate and Baud rate.

c) List any four application layer Protocols.

d) State the level of addresses used in the following layers of TCP/IP Protocol suite.

i) Network layer.

ii) Transport layer.

e) Draw the labeled construction diagram of Fiber optic cable.

f) State the function of Router and Switch.

g) State the role of firewall in computer network.

Marks

2. Attempt any THREE of the following : **12**

a) Draw the block diagram of data communication system and state the function of each block.

b) Name the topology which combines two or more topologies. What are its disadvantages? Draw a neat diagram for the same.

c) State the functions performed by following layers of ISO-OSI reference model:

i) Presentation Layer

ii) Physical Layer

d) Calculate the CRC for the frame of data to be transmitted in 100100 and the generator polynomial is $x^3 + x^2 + 1$. Generate the Code word for the transmitted frame.

3. Attempt any THREE of the following : **12**

a) Compare OSI & TCP/IP reference model.

b) Describe stop and wait protocol used in flow control. State two limitations for the same.

c) On which layer of the OSI reference model the following network devices work?

i) Switch

ii) Router

iii) Gateway

iv) Hub

d) State the disadvantages of classful addressing. What are the rules to create classless addressing system block?

Marks

4. Attempt any THREE of the following : **12**

a) WDM combines a number of wavelengths on to the single fiber. Justify with diagram.

b) Describe the transition phases of PPP protocol.

c) Compare FDM and TDM on the basis of following:

i) Definition

ii) Analog or digital

iii) Synchronization

iv) Cross-talk

d) Give class & subnet address for following IP address:

i) 191.168.0.1

ii) 221.45.14.68

iii) 245.32.14.24

iv) 10.145.14.68

e) With suitable diagram explain circuit switching technique.

5. Attempt any TWO of the following : **12**

a) With a schematic diagram, explain the following topologies with their disadvantages.

i) Star topology

ii) Mesh topology

b) Draw the Seven layered architecture of OSI model and state the function of each layer.

c) Classify the guided and unguided transmission media. Draw the labeled construction of coaxial cable. State two advantages and applications of coaxial cable.

Marks

6. Attempt any TWO of the following : **12**

a) For following situation, state which type network architecture you will prefer? Justify your answer with neat diagram.

i) Number of users is less than 10.

ii) No network administrator is required.

b) Describe the working of Go-Back-N ARQ Protocol.

c) Explain with block diagram symmetric and asymmetric cryptography.
