

Con. 3192-10. Data Communication & Network AN-3130

(3 Hours)

[Total Marks : 100

N.B. (1) Question No. 1 is compulsory.

(2) Attempt any four questions out of remaining six questions.

(3) Assume suitable data wherever required.

1. Answer any four questions :-

20

- (a) Does TCP provide connection oriented or connectionless service ? Differentiate between TCP and UDP.
- (b) Is bit padding a technique for FDM or TDM ? Explain.
- (c) Why packet switching preferred over circuit switching for data transmission ?
- (d) How does fast Ethernet differ from 10 Base-T ?
- (e) Explain the VCI/VPI structure used in ATM. State advantages.

2. (a) Distinguish between synchronous TDM and statistical TDM. Explain merits and demerits of statistical TDM with respect to synchronous TDM.

8

(b) Design the switch for $N = 32$ and $n = 8$ for the following -

8

(i) 3-stage space division switch

(ii) TST switch

which is a better option ? Why ?

(c) Define utilization efficiency of the line and obtain the expression for the same for sliding window flow control.

4

3. (a) Sketch HDLC frame structure. With respect to it, explain

10

(i) Piggybacking

(ii) Bit-stuffing

(iii) Types of frames in HDLC.

(b) Sketch the frame format of frame relay and explain address field. How it provides congestion control and quality of service ?

10

4. (a) For the following block of 16 bites is 10101001 00111001

6

(i) Obtain checksum of 8 bits

(ii) If there is no error in reception, show that the receiver detects the same.

(iii) For the received data 10101111 11111001

0001 1101, obtain the receiver decision.

(b) Explain point to point protocol in detail.

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(c) Compare Go-back-N ARQ and selective repeat ARQ.

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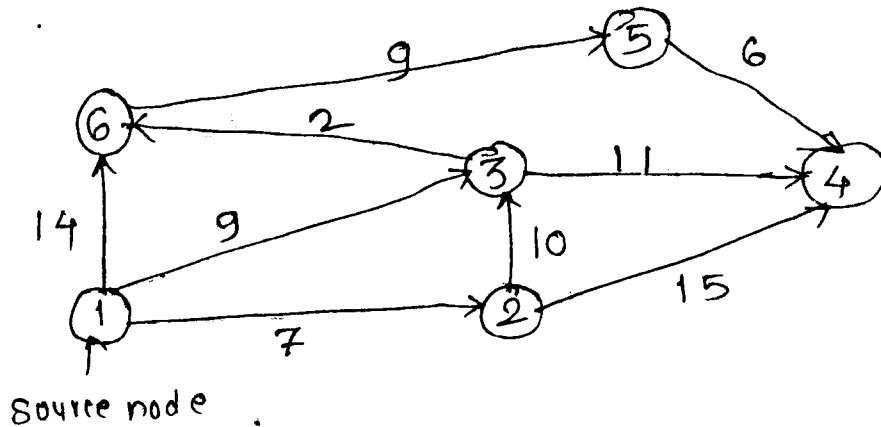
(Lab)

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2

11 Bm 20 2 Pm

5. (a) State Bellman Ford and Dijkstra's Algorithm. Apply any one algorithm to the given network and find the least cost path between the source node 1 to all other nodes. 12



- (b) How are congestion control and quality of service related? What are four general technique to improve quality of service? 8
6. (a) Explain ATM adaptation layer and ATM cell in detail. 10
 (b) Compare the IEEE 802 protocol layer with the OSI model. 5
 (c) Briefly explain the signaling structure supported by SS7. 5
7. (a) Draw block diagram of functional architecture of B-ISDN and explain B-ISDN channels and interface. 10
 (b) Write short notes on any two of the following :- 10
 (a) CSMA/CD
 (b) FDDI
 (c) ADSL.