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- (c) Why should a long BSC message be divided into blocks? 4

Unit-IV

8. (a) Discuss the three main divisions of the domain name space. 6
- (b) What is the purpose of the time-to-live field in the IP diagram header? 4
- (c) How is space-division switching superior to time-division switching? 6
9. (a) What are the two types switches used in circuit switching? 6
- (b) What are the advantages of using UDP over TCP? 6
- (c) Discuss the TCP connection need in FTP. 4

MCA 3rd Semester Current (CBCS Scheme)

Examination, Nov./Dec. -2019

**DATA COMMUNICATION AND
COMPUTER NETWORKS**

Paper-17MCA33C4

w.e.f. Dec. 2017-18

Time allowed : 3 hours]

[Maximum marks : 80

Note : Question No. 1 is compulsory. Attempt four more questions selecting one from each unit. All questions carry equal marks.

1. (a) What are three fundamental characteristics which determine the effectiveness of a data communication system ?
- (b) What are the advantages of a multipoint connection over a point-to-point connection ?
- (c) What is the difference between a service-point address, a logical address, and a physical address?
- (d) What is the purpose of LCN ?
- (e) How are QAM related to ASK and PSK ?
- (f) How does NRZ-L differ from NRZ-I ?
- (g) Why are address needed in poll/select but not in ENQ/ACK ?

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[P.T.O.]

- (h) How can the FECN bit inform the receiver of congestion in the network ? $8 \times 2 = 16$

Unit-I

2. (a) How can a composite signal be decomposed into its individual frequencies ? 5
 (b) How does the sampling rate affect the transmitted digital signal ? 5
 (c) What is purpose of cladding in an optical fiber ? Discuss its identity relative to the core. 6
3. (a) What is the relationship between the number of slots in a frame and the number of input lines for synchronous TDM and asynchronous TDM ? 8
 (b) A light beam travels to a less dense medium. What happens to the beam in each of the following cases? 8
 (i) The incident angle is less than the critical angle.
 (ii) The incident angle is equal to the critical angle.

Unit-II

4. (a) Relate the TCP/ IP application layer to its OSI model equivalent. 6

- (b) What is the difference between a simple bridge and a transparent bridge ? 5
 (c) Give a disadvantage for each type of network topology. 5
5. (a) What type of transmission media are used in LANs? 4
 (b) What are the functions of transport, network and data link layer ? 8
 (c) What is a port number and give some examples ? 4

Unit-III

6. (a) What kind of error is undetectable by the checksum ? 4
 (b) What is the purpose of the access field in the DQDB header ? 4
 (c) What is the difference between the information fields in an HDLC (I-frame) and an HDLC (U-frame) ? 8
7. (a) How are LAPB, LAPD and LAPM different from each other ? 4
 (b) Explain CSMA/CD and its use. What part of the 802 project uses CSMA/CD ? 8