7. (a) What are the *two* types of sliding window ARQ error control ? How do they differ from one another ?

(b) How are flow and error control handled by X.25 ? Are all the layers involved ?

(c) Describe the line configuration, transmission mode, and flow and error control methods used by BSC. 6,6,4

Unit–IV

8. (a) How is blocking related to a crossbar switch ?

(b) Compare a TSI to a TDM bus.

(c) How is masking related to subnetting ? 4,6,6

9. (a) What is the limiting factor in a crossbar switch ? How does a multistage switch alleviate the problem ?

(b) What is the function of SMTP ?

(c) Describe the steps required for data communication for a connection-oriented protocol. 6,4,6

Roll No. : .....

Total No. of Questions : **9**] [Total No. of Pages : **4**

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M.C.A. (Regular) 3rd Semester Current (CBCS Scheme) Examination, March–2021

(w.e.f. Dec. 2017-18)

DATA COMMUNICATION AND COMPUTER NETWORKS

Paper–17MCA33C4

*Time : **Three** Hours]* *[Maximum Marks : **80***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note :– Question No. **1** is compulsory. Attempt *four* questions by selecting *one* question from each Unit. All questions carry equal marks.

1. (a) Name the factors that affect the reliability of a network.

(b) What is difference between network layer and transport layer delivery ?

(c) Why are protocol needed ?

(d) What is a crosspoint in a crossbar switch ?

(e) How is the bandwidth of a signal related to its spectrum ?

(f) What is the major factor that makes PSK superior to ASK ?

(g) Which sliding window ARQ is more popular ? Why ?

(h) How does a router differ from bridge ? 2×8=16

Unit–I

2. (a) What is bit rate and what is its counterpart in an analog signal ?

(b) What is the major disadvantage in using NRZ encoding ? How do RZ encoding and biphase encoding attempt to solve the problem ?

(c) Give a disadvantage for each type of network topology. 4,8,4

3. (a) What happens to a beam of light as it travels to a less dense medium ? What happens if it travels to a denser medium ?

(b) What are the two types of TDM implementations and how do they differ from each other ?

(c) Describe the layers of the atmosphere. What types of radio communication utilize each ? 6,5,5

Unit–II

4. (a) What is the difference between a simple bridge and transparent bridge ?

(b) The transport layer creates a connection between the source and destination. What the three events involved in a connection ?

(c) What is the limiting factor in the size of a bus network topology ? Include a discussion of taps in your answer. 5,5,6

5. (a) What is the difference between a central and a secondary hub ? What is the difference between a passive and an active hub ? How do these categories interrelate ?

(b) Why are the layers of the model important to the network administrator ?

(c) How does a router differ from a bridge ? 6,6,4

Unit–III

6. (a) Discuss the concepts of redundancy in error detection.

(b) What is the data rate for a BRI and PRI ?

(c) How does the frame layer address field differ from the HDLC address field ? 4,4,8