U-5180

M. C. A. (Sem. II) Examination, 2021

Paper - MCA-203

Data Communication and Computer Networking

Time Allowed : **Three Hours**

Maximum Marks : **70**
Min. Pass Marks : **28**

Note : *This question paper is divided into three sections as under :*

Section-A **Max. Marks - 10**

Will carry 10 marks with 01 compulsory question comprising 10 short answer type questions (maximum 20 words answer) taking two questions from each unit. Each question shall be of one mark.

Section-B ***Max. Marks-25***

Will carry 10 questions, 02 questions from each unit (answer about in 250 words). Students are instructed to attempt five questions by selecting one question from each unit. Each question shall be of five marks.

Section-C ***Max. Marks-35***

Will carry 35 marks with five long answer type questions comprising one compulsory question (question no. 7) of 15 marks and four questions of 10 marks each. Students are instructed to attempt total three questions with one compulsory question (answer about in 500 words) and any two more questions (answer about in 400 words) out of ramaining four questions.

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SECTION - A

1 (i) List the five components of Data Communication System.

(ii) Name any two functions of the data link layer.

(iii) For n devices in a network, what is the number of cable links required for mesh and bus topology.

(iv) Define Bandwidth.

(v) Calculate the period if given frequency is 30 MHz.

(vi) What are signal elements ?

(vii) What is the function of router ?

(viii) Write full form of ISDN.

(ix) What is RMON ?

(x) Define cryptography.

SECTION-B

UNIT - I

2 (a) Differentiate half duplex and full-duplex transmission mode.

(b) Draw the basic block diagram of data communication model.

OR

2 Explain techniques of analog transmission What is base line wandering ?

UNIT - II

3 (a) What is the significance of twisting in twisted pair cable ?

(b) Explain working of CSMA/CD.

OR

3 How does the multiplexing and demultiplexing techniques support the communication process ? Differentiate FDM and TDM.

UNIT - III

4 Explain OSI model with suitable diagram.

OR

4 What is protocol ? What are its standards ? Explain.

UNIT - IV

5 Write notes on :

(a) ATM

(b) Frame Relay Network

OR

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5 What are the different layers of SONET and their functions ? Explain.

UNIT - V

6 Define Network Management. Explain the role of "manager" and "agent" in SNMP protocol.

OR

6 Why network security is important ? Define the terms cryptography, encryption and decryption.

SECTION-C

7 What is network topology ? Explain and differentiate different topologies viz bus, star, ring and mesh with suitable diagrams. List their merits and demerits.

8 Explain unguided transmission media.

9 (a) A signal travels from Pt. A to Pt. B. At Pt. A the signal power is 200 W. At Pt. B, the power is 170 W. What is the attenuation in decibles ?

(b) Differentiate baseband and broadband transmission.

(c) Define carrier signal and its role in data transmission.

10 What is DSL technology ? What are the services provided by the telephone companies using DSL technology ? Distinguish between a DSL modern and a DSLAM.

11 Write short notes on followings :

(a) DNS

(b) URL

(c) Switching techniques

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