

**2021**

**COMPUTER SCIENCE — GENERAL**

**Paper : SEC-A-1**

**(Communication, Computer Network and Internet)**

**Full Marks : 80**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

Answer **question no. 1 and 2** and **any four** questions from the rest.

1. Answer **any ten** questions :

2×10

- (a) What is router?
- (b) What is network topology?
- (c) Define bandwidth of an analog signal.
- (d) Differentiate between bit rate and band rate.
- (e) What is VSAT?
- (f) What is a modem?
- (g) What do you mean by composite signal?
- (h) What is multiplexing?
- (i) What is the main problem of using RZ encoding?
- (j) How bit rate of a noisy channel can be obtained?
- (k) Differentiate between FDM and WDM.
- (l) What is protocol?
- (m) What are the advantages of unguided media over guided media?
- (n) Define Internet.
- (o) What are the advantages of IMAP4 over POP3 in the context of E-mail?

2. Write short notes on **any four** :

5×4

- (a) LAN
- (b) Ring topology
- (c) Network layer of OSI model
- (d) ISDN
- (e) Voice and Video conferencing
- (f) Internet service providers

**Please Turn Over**

3. (a) Compare MAN and WAN.  
(b) What is attenuation?  
(c) Define SNR of a signal. 5+3+2
4. (a) Describe functionalities of physical layer and data link layer.  
(b) Mention features of mesh topology. 5+5
5. (a) Describe functionalities of coaxial and twisted pair cable.  
(b) What are the differences between line coding and block coding?  
(c) What are the advantages of TDM over FDM? 5+2+3
6. (a) Differentiate between Delta Modulation (DM) and Pulse Code Modulation (PCM).  
(b) Discuss Manchester encoding with example.  
(c) How sampling rate affects performance of PCM? 3+4+3
7. (a) Compare FSK and PSK.  
(b) Explain the concept of QAM.  
(c) What is a Low pass channel? 4+4+2
8. (a) Discuss about DNS.  
(b) Why IP address is used? Explain briefly.  
(c) What is a browser? 5+3+2
9. (a) Discuss about architecture of Email.  
(b) What are the functionalities of TCP?  
(c) Define ADSL. 5+3+2
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