

**2020**

**COMPUTER SCIENCE — GENERAL**

**Paper : SEC-A-XI**

**(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 nos. 1 & 2** and **any four** from the rest.

**1.** Answer **any ten** questions :

2×10

- (a) How many layers are there in OSI model? Name them.
- (b) What is Geostationary satellite?
- (c) What is Manchester code?
- (d) What is the difference between bit rate and baud rate?
- (e) What is URL?
- (f) What are the advantages of mesh topology?
- (g) What does the term 'MODEM' stand for?
- (h) What are the advantages of optical fiber as a transmission medium?
- (i) What is VSAT?
- (j) What is attenuation?
- (k) What is S/N ratio?
- (l) What is broadband?
- (m) What is ISP?
- (n) What is ring topology?
- (o) What is MAC address?

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

5×4

- (a) Video Conferencing
- (b) E-mail
- (c) ISDN
- (d) ADSL
- (e) Star topology
- (f) Data encryption.

**Please Turn Over**

3. What are the functions of Data Link layer and Network layer? 5+5
4. (a) Name some services provided by the Application layer in the internet model.  
(b) What is Shanon's capacity?  
(c) What are the differences among LAN, MAN and WAN? 2+2+6
5. (a) What is the purpose of the carrier signal in modulation?  
(b) How does frequency modulation differ from amplitude modulation?  
(c) What is amplitude shift keying? 2+6+2
6. (a) How does frequency division multiplexing combine multiple signals into one?  
(b) What is the necessity of guard band? 8+2
7. (a) Why do we need a DNS system, when we can directly use an IP address?  
(b) What is the purpose of TCP?  
(c) How is HTTP related to WWW? 4+3+3
8. (a) What are the main differences between TELNET and FTP?  
(b) What is Nyquist Rate of Sampling and how it is necessary for Pulse Code Modulation (PCM)? 5+5
9. (a) Explain wavelength division multiplexing (WDM) with proper illustrations.  
(b) Explain the process of Pulse Code Modulation (PCM). 5+5
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