

M.Tech. Electronics & Communication Engineering (CBCS Pattern) Sem-I
PECS12 - Data Communication and Networking

P. Pages : 1

Time : Three Hours



GUG/W/22/10979

Max. Marks : 70

- Notes :
1. All questions carry marks as indicated.
 2. Answer **five** questions from eight questions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

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| 1. | a) | Explain the protocol architecture and PDU in detail. | 7 |
| | b) | Explain the function of modem used in networking. | 7 |
| 2. | a) | Draw and explain OSI model for networking in brief. | 7 |
| | b) | Explain IPv4 header format in detail. | 7 |
| 3. | a) | Explain three different ways in which the CRC algorithm can be described. | 7 |
| | b) | What are the three frame type supported by HDLC? Describe each. | 7 |
| 4. | a) | Explain the advantage of sliding window protocol compared to stop and wait flow control protocol. | 7 |
| | b) | Explain how is WDM similar to FDM? How are they different. | 7 |
| 5. | a) | Twenty-four voice signals are to be multiplexed and transmitted over twisted pair. What is bandwidth required for FDM? Assuming bandwidth efficiency of 1 bps/Hz. What is the band width required for TDM using PCM? | 7 |
| | b) | Draw and explain three stage network. Also calculate the total number of cross points required. | 7 |
| 6. | a) | For $N = 4$, $h = 3200$, $B = 9600$, $P = 1024$, $H = 16$, $S = 0.2$, $D = 0.001$, compute the end to end delay for circuit switching, virtual switching and datagram packet switching. Assume that there is no acknowledgements. | 7 |
| | b) | Explain the various layers of fiber distributed data interface. (FDDI) | 7 |
| 7. | a) | Explain the difference between flow control and congestion control. | 7 |
| | b) | Discuss the various social issues related to the security over internet. | 7 |
| 8. | a) | List and briefly explain the fields in an ATM cell. Also explain two methods for transmitting ATM cell. | 8 |
| | b) | Write a note on digital signature with public key cryptography. | 6 |
