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[5459]-209

S.E. (IT) (Second Semester) EXAMINATION, 2018
FOUNDATIONS OF COMMUNICATION AND
COMPUTER NETWORK
(2015 PATTERN)

Time : Two Hours

Maximum Marks : 50

- N.B. :—** (i) Answer Q. Nos. 1 or 2, Q. Nos. 3 or 4, Q. Nos. 5 or 6, Q. Nos. 7 or 8.
(ii) Figures to the right indicate full marks.
(iii) Assume suitable data, if necessary.

1. (a) Draw ISO/OSI model and explain functions of the following layers : [6]
(1) Physical
(2) Data link
(3) Network layer.
(b) What is an AM wave ? Derive a mathematical expression for AM wave. [6]

Or

2. (a) Explain different addressing schemes in TCP/IP model. [6]
(b) Calculate bandwidth required for FM in which the modulating frequency is 1 kHz and maximum possible deviation is 15 kHz. Assume highest needed sidebands 5. Also calculate bandwidth using Carson's rule ? [6]

P.T.O.

3. (a) What is meant by Constellation Diagrams ? Draw the Constellation Diagrams for the ASK, PSK, FSK, QPSK and 4-QAM. [7]
- (b) What is CRC ? Generate the CRC code for message 1101010101. Given generator Polynomial $g(x) = x^4 + x^2 + 1$. [6]

Or

4. (a) What is meant by Delta Modulation ? Explain distortions in Delta Modulation. [7]
- (b) What is meant by Parity check ? Explain two-dimensional Parity check method in detail. [6]
5. (a) Compare FDM, TDM and WDM. [6]
- (b) Draw and explain FHSS modulation techniques. [6]

Or

6. (a) Explain in brief ALOHA, slotted ALOHA mentioning efficiency, advantages in each case. [6]
- (b) Discuss CSMA/CA random access technique. How is collision avoidance achieved in the same ? [6]
7. (a) What is meant by switching ? Explain circuit switching in detail with help of three phases, efficiency and delay. [6]
- (b) Write short notes on : [7]
- (i) IEEE 802.4 (Token Bus)
- (ii) IEEE 802.5 (Token Ring).

Or

8. (a) Explain the following physical layer implementation in standard Ethernet : [6]
- (i) 10Base5
 - (ii) 10BaseT
 - (iii) 10BaseF
- with respect to media, maximum length and line encoding.
- (b) What is purpose of bridges ? Explain types of bridges. Explain Frame filtering. Why are bridges called self-learning devices ? [7]