Total No. of Questions—**3**] [Total No. of Printed Pages—**3**

Seat No.	

[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]