

B. Tech. Sem - III (Computer Engg.) 2014 COURSE) (CBCS) :

WINTER - 2018

SUBJECT : FUNDAMENTAL OF DATA COMMUNICATION

Day: Friday
Date: 23/11/2018

W-2018-2291

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B.

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat diagrams **WHEREVER** necessary.
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Q.1 What is channel capacity? How is it related to channel bandwidth? Explain with an appropriate formula. Also calculate the maximum bit rate of channel having bandwidth 2400 Hz if (10)

- i) S/N ratio is 0 db ii) S/N ratio is 40 db

OR

Q.1 Explain with suitable examples and diagrams guided transmission media and unguided transmission media. (10)

Q.2 Explain the PCM Technique of changing analog signal to digital signal with neat diagrams of PCM encoder and Decoder. (10)

OR

Q.2 List any five line coding techniques and represent the sequence 10110011 using the techniques. (10)

Q.3 Explain selective repeat ARQ. Justify how selective repeat ARQ outperforms Go-Back-N and Stop-and-wait ARQ. (10)

OR

Q.3 What is internet checksum? With an example list the steps undertaken by the sender and receiver for error detection. Also find the code word $C(x)$ for the information $d(x) = X^3 + 1$ with the generator polynomial $1 + x + x^2 = g(x)$. (10)

Q.4 Write a short note on : (10)

- i) Frame Relay ii) ISDN

OR

Q.4 With the help of frame formats, explain the following methods of data transmission. (10)

- i) Asynchronous transmission ii) Synchronous transmission

Q.5 What are the three types of orbits? Which type of orbit does a GEO satellite have? Justify your answer. Also explain line of sight issues in satellite communication. (10)

OR

Q.5 Compare : (10)

- i) Step index and grades index fibers.
- ii) Single mode and multimode fibers.

Q.6 Explain IEEE 802.15 – Bluetooth architecture with diagram. Also state the limitations of Bluetooth. (10)

OR

Q.6 Define FHSS and explain how it achieves bandwidth multiplexing. (10)

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