

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.

- 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 graded 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)