



SCAN ME



**VIT**  
Vellore Institute of Technology  
(Declared to be University under section 3 of UGC Act 1956)

## SCHOOL OF INFORMATION TECHNOLOGY & ENGINEERING

Continuous Assessment Test – I  
Winter Semester 2019-20

Programme: B.Tech

Duration: 90 Minutes.

Course Name: Data Communication and Computer Networks

Max. Marks: 50

Course Code: ITE3001

Course Mode: CAL

Slot: A1 + TA1

### PART – A

Answer all the questions (5 X 10 = 50)

- A sender needs to send the four data items Ox3456, OxABCC, Ox02BC, and OxEEEE. Answer the following:
  - Find the checksum at the sender site.
  - Find the checksum at the receiver site if there is no error.
  - Find the checksum at the receiver site if the second data item is changed to OxABCE.
  - Find the checksum at the receiver site if the second data item is changed to OxABCE and the third data item is changed to Ox02BA.
- How unguided media differs from guided media? Explain any four unguided media with neat sketch.
- Given the dataword 1010011110 and the divisor 10111,
  - Show the generation of the codeword at the sender site (using polynomial division).
  - Show the checking of the codeword at the receiver site (assume no error).
- State the goals of multiplexing. List and explain the three types multiplexing with neat sketch.
- How do you relate OSI and ISO to each other? Analyze the necessity of Layered architecture? Which layer is responsible for the following? Discuss the respective layer functions, Services and protocols
  - Node to node delivery
  - Process to process delivery

Handwritten calculations for polynomial division and checksums:

1. Polynomial Division (Dataword 1010011110, Divisor 10111):

$$\begin{array}{r}
 1010011110 \\
 \underline{10111} \\
 0001011110 \\
 \underline{00010111} \\
 0000001110 \\
 \underline{00000011} \\
 0000000010 \\
 \underline{00000000} \\
 0000000010
 \end{array}$$

2. Checksum Calculations:

Sender site: Ox3456 + OxABCC + Ox02BC + OxEEEE = Ox65536

Receiver site (no error): Ox65536

Receiver site (second data item changed to OxABCE): Ox53248

Receiver site (second data item changed to OxABCE and third data item changed to Ox02BA): Ox59078