

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)**

**CLASS: MCA  
BRANCH: MCA**

**SEMESTER :IV  
SESSION : SP/19**

**SUBJECT: MCA4103 DATA COMMUNICATION AND COMPUTER NETWORKS  
TIME: 3.00 Hrs**

**FULL MARKS: 60**

**INSTRUCTIONS:**

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
  2. Candidates may attempt any 5 questions maximum of 60 marks.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) With a suitable block diagram explain the different components of a data communication model. [6]  
Q.1(b) Explain the utility of layered network architecture for data communication. Differentiate between OSI and internet model [6]
- Q.2(a) Differentiate between analog and digital transmission. What are the various transmission impairments? [6]  
Q.2(b) With suitable diagram explain different types of wireless propagation. [6]
- Q.3(a) Draw the patterns for the binary data 01001110 using NRZ-I, Manchester and Differential Manchester encoding schemes. [6]  
Q.3(b) Write short notes on : [6]  
I. Amplitude Shift Keying  
II. Pulse Code Modulation
- Q.4(a) Differentiate between asynchronous and synchronous data transmission. [6]  
Q.4(b) Given a 10 bit data sequence 1010011110 and a divisor 1011. Find the CRC generated at the sender side and check the acceptability of the data at the receiver end. [6]
- Q.5(a) In case of Stop-And-Wait ARQ, with the help of a suitable diagram discuss the operations performed on the following situations: [6]  
I. Normal Operation  
II. Lost or Damaged Frame  
III. Lost Acknowledgement  
IV. Delayed Acknowledgement  
Q.5(b) Write short notes on: [6]  
I. HDLC  
II. Frequency Division Multiplexing
- Q.6(a) Give a detailed comparison of the working of traditional circuit switching and softswitch architecture. [6]  
Q.6(b) Write short notes on X.25. [6]
- Q.7(a) What do you mean by Asynchronous transfer mode (ATM)? With a suitable block diagram explain the ATM protocol architecture. [6]  
Q.7(b) Differentiate between fixed routing and flooding. [6]

:::26/04/2019 M:::