

7. (a) Discuss the working architecture of  
ISDN. (10)

(b) Compare OSI and TCP/IP model (10)

8. (a) Write briefly about User Datagram  
Protocol. (10)

(b) Discuss transmission impairments. (10)

Roll No. ....

**22147**

**M.E. 1st Semester Electronics &  
Communication Engg.  
Examination- December, 2016**

**DATA COMMUNICATION NETWORK**

**Paper : MEEC-515**

**Time : 3 hours**

**Max. Marks : 100**

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

**Note :** Attempt any five questions in all. All questions carry equal marks.

1. (a) Explain Shannon Hartley theorem for channel capacity. Also calculate the maximum bit rate for a noiseless channel with bandwidth of 4 Khz transmitting at two signal levels. (10)

- (b) Differentiate between analog and digital data transmission networks. (10)
2. (a) Discuss link control protocol in detail. (10)
- (b) Compare the Go back N ARQ and selective repeats flow control protocols. (10)
3. (a) Tabulate difference between character and bit oriented protocols. Which one is more efficient and why? (10)
- (b) Tabulate comparison of various error detection and correction techniques used in data communication networks. (10)
4. (a) Discuss in brief CSMA/CD protocol. (10)

- (b) Explain the mechanism of synchronous and statistical TDM. Also discuss the optimum efficiency of each. (10)
5. (a) Find the throughput of slotted ALOHA. Also state the condition for maximum throughput. (10)
- (b) Write briefly about the resources required for circuit switching. Also give out its limitations. (10)
6. Discuss in detail functioning of Application Layer. Also state its use for specific services : (20)
- (i) File Transfer
- (ii) Access and management
- (iii) VTS
- (iv) Directory services