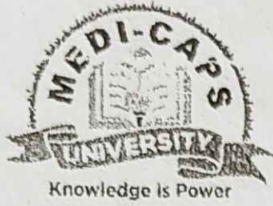


Total No. of Questions: 4



Enrollment No.....29

Faculty of Engineering

Mid Sem I Examination September - 2022

CS3CO28 Data Communication

Programme: BTECH

Branch/Specialisation: CSE

Duration: 2 Hrs.

Maximum Marks: 40

- Q.1
- A network with bandwidth of 10 Mbps can pass only an average of 12000 frames per minute with each frame carrying an average of 10000 bits. Its throughput is  
☒ (a) 2 Mbps (b) 120Mbps  
(c) 12kbps (d) 2 kbps 1
  - What is propagation time if the distance between the two points is 36000 km? Assume the propagation speed to be  $7.2 \times 10^5$  km/s in cable-  
(a) 5.1 sec (b) 5.1msec  
(c) 5.1 usec ☒ (d) None of above 1
  - Which of the following is to use for separating channel in FDM-  
(a) Time slot ☒ (b) Band pass filter (c) Attenuator (d) None of these 1
  - Both station can transmit and receive data simultaneously in-  
(a) Half duplex (b) simplex  
☒ (c) Full duplex (d) None of above 1
  - The transmission of digital signal at original frequency without modulation is called-  
☒ (a) Baseband signalling  
(b) Broadband signalling  
(c) Digital signalling  
(d) None of these 1
  - Two binary values are represented by two different frequencies in-  
☒ (a) FSK (b) ASK (c) PSK (d) QPSK 1
  - Modulation is used to-  
(a) Reduce the bandwidth  
(b) Separate the signal  
☒ (c) Ensure the signal transmit over long distance  
(d) None of these 1
  - What is transmission time of 2.5 kbyte message if bandwidth of the network is 1 Gbps. Distance between sender and receiver is 12000 km. 1

$$\frac{36 \times 10^3}{7.2 \times 10^5} = 0.05$$

- (a) 20 msec (b) 0.020 msec  
(c) 200 msec (d) 20 sec
- ix. The highest data rate is provided by which of the following medium-  
(a) coaxial cable (b) optical fiber  
(c) microwave (d) None of these
- x. A signal travels through an amplifier and its power is increased 10 times. What is gain?  
(a) 10 dB (b) 20 dB (c) 30dB (d) 1dB
- Q.2 i. Calculate channel capacity if bandwidth of a medium is 200kHz and signal to noise ratio is 20dB.  
ii. Explain Microwave communication with its advantage.  
iii. Discuss different transmission impairment in data communication.
- OR iv. A multiplexer combines four 100kbps channel using a time slot of 1 bit. Show the output with four arbitrary inputs. What is  
(a) frame rate (b) frame duration  
(c) output time slot (d) input slot (e) output bit rate?
- Q.3 i. Explain the term latency and throughput.  
ii. Discuss Spread spectrum technique FHSS and DSSS.
- OR iii. Encode the bit pattern 111100011001 using Manchester, Differential Manchester, NRZ-L and NRZ-I.
- Q.4 i. Discuss the advantage and disadvantage of different network topology.  
ii. Explain LZ compression technique with suitable example.
- OR iii. Discuss different analog to analog conversion, digital to analog conversion techniques.

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