# University of Sargodha

## BS 3rd Term Examination 2019

**Subject: Computer Science** **Paper: Computer Communication and Network (CMP-2540)**

**Time Allowed: 2:30 Hours** **Maximum Marks: 80**

**Note: Objective part is compulsory. Attempt any four questions from subjective part.**

### Objective Part (Compulsory)

**Q.1.** Write short answers of the following in 2-3 lines each on your answer sheet. (16*2)

i. Give the working principle of switch.
ii. Why we use serial transmission?
iii. How we calculate a bit rate for noisy and noiseless channel?
iv. What are the different types of digital to analog conversion?
v. What are the differences between amplitude shift keying and frequency shift keying?
vi. What is the difference between half-duplex and full-duplex transmission modes?
vii. If there is a single path between the source host and destination host, do we need a router between the two hosts?
viii. Distinguish between baseband transmission and broadband transmission.
ix. What are the applications of multiplexing?
x. What are two types of line configuration?
xi. How does sky propagation differ from line-of-sight propagation?
xii. What is meant by high speed Ethernet?
xiii. What is flow control? Where it is implemented in OSI model?
xiv. What is reflection?
xv. What is the difference between third and fourth generation cellular wireless networks?
xvi. In which layer, IP address is used?

### Subjective Part (4*12)

**Q.2.** a) What are the different data link protocols?
b) What is the cellular network? Explain third and fourth generation.

**Q.3.** What are the different types of error? Give error detection and correction techniques.

**Q.4.** a) Compare ASK with FSK.
b) We need to send data 3 bits at a time at a bit rate of 3 Mbps. The carrier frequency is 10 MHz. Calculate the number of levels, the baud rate and the bandwidth.

**Q.5.** Explain the various LAN topologies with architecture, speed, cost, application and reliability.

**Q.6.** a) Explain the types of digital-to-analog conversion
b) How we calculate a bit rate for noisy and noiseless channel?

**Q.7.** Explain guided and unguided media in detail?

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### Objective Part (Compulsory) (2*16)

Q-1: Write short answers of the following in 2-3 lines each.

i. What are the components of data communication system?
ii. What is compression? Which layer is responsible for compression?
iii. What is reflection?
iv. What types of addresses are used in Network and Data Link layer?
v. Define digital to analog conversion.
vi. How does sky propagation differ from line-of-sight propagation?
vii. What is the goal of multiplexing?
viii. Difference between Half-duplex and full-duplex?
ix. Define two main categories of network.
x. Which connectors are used in fiber optic cable?
xi. What are the two types of line configuration?
xii. Define infrared waves. Give an example.
xiii. What is handoff?
xiv. what is the difference between switch and router?
xv. Why are protocols needed?
xvi. How does single bit error differ from burst error?

### Subjective Part (3*16)

Q-2: Explain OSI model with functionality of each layer.
Q-3: Discuss the steps involved in a typical call originated from a mobile user to a fixed subscriber.
Q-4: What are the connectors, advantages and disadvantages of fiber optic cable?
Q-5: Discuss the techniques used in serial transmission.
Q-6: Discuss transmission impairments in detail.