



UNIVERSITY OF EMBU

2016/2017 ACADEMIC YEAR

SECOND SEMESTER EXAMINATION

**SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE,
BACHELOR OF SCIENCE (COMPUTER SCIENCE)**

CSC 225: COMPUTER NETWORKS

DATE: APRIL 11, 2017

TIME: 11:00AM-1:00PM

INSTRUCTIONS:

Answer Question ONE and ANY other two Questions

QUESTION ONE (30 MARKS)

- a) Define the term as used in software engineering. (5 Marks)
- i) Multiplexing.
 - ii) Throughput.
 - iii) Router.
 - iv) Datagram.
 - v) Socket.
- b) Explain if a machine with a single DNS name can have multiple IP addresses? (3 Marks)
- c) Describe error detection and correction in data link layer. (4 Marks)
- d) Write a short note on ATM protocol. (4 Marks)
- e) Explain Tunnelling process of internetworking. (4 Marks)
- f) Describe any 5 application of Computer Networks. (5 Marks)
- g) Explain protocol scenarios for establishing a connection using a handshake. (5 Marks)

QUESTION TWO (20 MARKS)

- a) Some email systems support a Content Return: header field. It specifies whether the body of a message is to be returned in the event of non-delivery. Does this field belong to the envelope or to the header? Explain. (4 Marks)
- b) Briefly explain four network topologies. (5 Marks)
- c) Describe ARP protocol. (5 Marks)
- d) Describe leaky packet concept. (6 Marks)

QUESTION THREE (20 MARKS)

- a) Distinguish between OSI and TCP/IP reference models. (6 Marks)
- b) Describe User Datagram Protocol. (7 Marks)
- c) Explain in details how fibre optic cable works. (7 Marks)

QUESTION FOUR (20 MARKS)

- a) Explain One-bit sliding window protocol. (5 Marks)
- b) Describe the importance of HTTP. (6 Marks)
- c) With the help of diagrams describe ANY THREE network hardware. (9 Marks)

QUESTION FIVE (20 MARKS)

- a) A router can process 2million packets/sec. The load offered to it is 1.5million packets/sec on average. If a route from source to destination contains 10 routers, how much time is spent being queued and serviced by the router? (6 Marks)
- b) Describe data link design issues. (6 Marks)
- c) Explain the four Multiplexing schemes as defined in Medium Access Control sub-layer (8 Marks)

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