



**MASINDEMULIROUNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS  
UNIVERSITY EXAMINATIONS  
2021 / 2022 ACADEMIC YEAR**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS  
FOR THE DEGREE OF BACHELOR  
OF**

**INFORMATION SYSTEM AND KNOWLEDGE MANAGEMENT**

**COURSE CODE: BIK 122**

**COURSE TITLE: FUNDAMENTALS OF COMPUTER NETWORKS**

**DATE: Friday 22/04/2022**

**TIME: 8:00a.m-10:00a.m**

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INSTRUCTIONS TO CANDIDATES

Question ONE (1) is compulsory  
Attempt any OTHER TWO (2) questions

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over.

### Question One (30 Marks)-Compulsory

- (a) Explain 3 uses of a Computer Network 3 marks  
(b) Explain the terms i) a node, 2 marks  
ii) topology 2 marks  
(c) The transmission of a stream of bits can be done in two ways: synchronously or asynchronously. Indicate how each work and which one is more suitable for the transmission of large blocks of bits. 4 marks  
(d) Transmission media is also referred to as communication channel. With aid of diagrams, describe the following wired media:  
i. UTP and STP cable 4 marks  
ii. Coaxial cable 2marks  
(e) Explain how error detection is achieved in digital data communications and describe one of the error-detection techniques used. 5 marks  
(f) Differentiate between hub, switch, bridge and router 8 marks

### Question Two (20 Marks)

- (a) With aid of diagrams, describe the three types of wireless propagation 9 marks  
(b) Explain why a Repeater is necessary in a network 4 marks  
(c) Define Static IP and Dynamic IP 3 marks  
i. Explain why protocol conversion is necessary 4 marks  
ii. State the 4 layers of TCP/ IP protocol

### Question Three (20 Marks)

- a) Fibre Optic Cables have characteristics that distinguish them from other cables. Explain the 3 characteristics that make fibre optic cable unique 6 marks  
b)i) Differentiate the PAN, LAN, MAN, WAN networks 4 marks  
c) Explain the following terms: i. the Asynchronous Transfer Mode works? 4 marks  
ii. Network address translation 2 marks

### d) Explain Piggybacking 4 marks

### Question Four (20 Marks)

- a) Discuss 3 network topologies and briefly state advantages and disadvantages 9 marks  
b) Differentiate synchronous and asynchronous transmission 4 marks  
c) List 4 consideration in choosing a network media 7 marks

