

#### FACULTY OF MANAGEMENT NOVEMBER 2014 EXAMINATION

# DEPARTMENT OF APPLIED INFORMATION SYSTEMS

MODULE	:	COMMUNICATION NETWORKS 2B
<u>CODE</u> <u>DATE</u>	:	CMN22B2/CMN02B1 12 NOVEMBER 2014
DURATION	:	2 HOURS
TIME	:	1230
TOTAL MARKS	:	100
EXAMINER	:	TINO MUSEBA
EXTERNAL MODERATOR	<u>:</u>	Dr T . ZUVA
NUMBER OF PAGES	:	3 PAGES

# **INSTRUCTIONS TO CANDIDATES:**

- Read the questions carefully
- Answer all questions
- Number your answers clearly
- Write neatly and legibly
- Structure your answers by using appropriate headings and subheadings
- The general University of Johannesburg policies, procedures and rules pertaining to written assessments apply to this assessment.

### **QUESTION ONE**

1.1.	Discuss ten (10) requirements for network design	10]			
1.2.	Describe the functions performed by layer 3 (Network Layer) and layer 2 (Data L protocols of the OSI Protocol Stack Model	ink) <b>[5]</b>			
1.3.	Discuss the benefits and limitations of the Bus Topology	[5]			
	QUESTION TWO				
<b>2.1.</b> W	Vhat is redundancy? Discuss nine (9) benefits of redundancy	[5]			
<b>2.2.</b> W	/hat is a router? Discuss four disadvantages of a router	[5]			
<b>2.3.</b> W	/hat is a Firewall? Describe three uses of a Firewall	[5]			
<b>2.4.</b> D of the	escribe how a collapsed Bone network is formed and discuss three disadvantage collapsed Backbone	s [5]			
QUESTION THREE					

**3.1.** Explain the difference between a physical and a logical network and state four (4) considerations taken when choosing a Topology **[5]** 

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**3.2.**Discuss the concept of Network Address Translation (NAT) and describe the benefits it offers [5]

**3.3.** What is a Terminator? Discuss four (4) main factors to consider when selecting appropriate LAN technology [5]

**3.4.** What is Ethernet? Discuss two reasons why all network technologies break data transmitted between computers into smaller pieces [5]

**3.5.** In a typical Network setup, Host A knows the IP address of Host B, but not the MAC address. Explain how how Host A gets to know the MAC address of Host B for it to be able to to send data frames. [5]

#### **QUESTION FOUR**

<b>4.1.</b> What is a switch? Describe in detail how the switch operates	[5]
4.2. Discuss five (5) disadvantages of the Routing Information Protocol (RIP)	[5]
4.3. Discuss five (5) design goals of the Interior Gateway Routing Protocol (IGRP)	[5]
<b>4.4.</b> Discuss five (5) advantages of fiber optic over copper media	[5]

### **QUESTION FIVE**

<b>5.1.</b> What is Network Address Translation? Discuss how Network Address Translation operates	[5]
5.2. In what kind of situations would UPD be better than TCP, and why?	[5]
<b>5.3.</b> What is buffering? Discuss four (4) types of Queuing	[5]
5.4. Discuss the advantages of keeping hop counts low for routers	[5]