COMPUTER NETWORKS
DEC 2015

QUESTION ONE

1. Describe the following devices and the layers in which they operate:
   i. Gateway (2 marks)
   ii. NIC (2 marks)
   iii. Switch (2 marks)
   iv. Hubs (2 marks)
   v. Repeaters (2 marks)
   vi. Bridges (2 marks)
2. Describe the following topologies stating the access method used:
   Bus topology (4 marks)
   Ring topology (4 marks)

[Total 20 marks]

QUESTION TWO

1. Describe the following switching techniques:
   i. Packet Switching (3 marks)
   ii. Circuit Switching (3 marks)
   iii. Message Switching (3 marks)
2. Define network troubleshooting (2 marks)
3. Describe the following tools used in network troubleshooting
   i. Protocol Analyzers (4 marks)
   ii. Oscilloscope (5 marks)

[Total 20 marks]

QUESTION THREE

1. State the layers of the OSI in which the following is performed:
   i. CRC (2 marks)
   ii. Multiplexing (2 marks)
   iii. Token passing (2 marks)
   iv. Translating bits into electromagnetic waves (2 marks)
   v. RIP (2 marks)
   vi. Transferring e-mails (2 marks)
2. Explain any four (4) circumstances under which a wireless network is the most appropriate (8 marks)

[Total 20 marks]

QUESTION FOUR

1. Describe routers (4 marks)
2. Distinguish between static and dynamic routing (4 marks)
3. Distinguish between distance- vector routing protocols and link state routing Protocols (4 marks)
4. State any two advantages and two disadvantages of using the routers (8 marks)

[Total 20 marks]

QUESTUION FIVE

Describe all the fields contained in a packet structure

[Total 20 marks]

QUESTION SIX

Complete the table below of the general cable characteristics

[Total 20 marks]

Type	Maximum Cable Length	Bandwidth	Cost	Interference
10Base2				
10Base5				
UTP				
STP				
Fiber-Optic				

QUESTION SEVEN

1. Describe the following types of protocols and the layers of the OSI model in which they operate:
   i. UDP (4 marks)
   ii. ICMP (4 marks)
   iii. ARP (Address Resolution Protocol) (4 marks)
   iv. HTTP (4 marks)
   v. OSPF (4 marks)

[Total 20 marks]