



(*Knowledge for Development*)
KIBABII UNIVERSITY
(KIBU)

**UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR**

**SPECIAL/SUPPLEMENTARY EXAMINATIONS
FOURTH YEAR SEMESTER ONE EXAMINATIONS**

**FOR THE DEGREE OF
(COMPUTER SCIENCE)**

COURSE CODE : CSC 452E
**COURSE TITLE : HIGH SPEED INTERNET &
MULTIMEDIA NETWORKS**

DATE: 12/01/2022 TIME: 11.00 A.M – 01.00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE [COMPULSORY] [30 MARKS]

- a) Define the following terms. **[2 Marks]**
- i. ATM
 - ii. Frame Relay Frame
- b) High speed internet network provides platform for various applications that heavy depend on services provided by the network; discuss four applications of high-speed networks. **[4 Marks]**
- c) Frame Relay networks is said to be superior to traditional networks. Explain what makes it stand out. **[4 Marks]**
- d) Asynchronous Transfer Mode (ATM) is one of the Frame Relay networks; explain its protocol architecture while giving activities that happen in each layer. **[4 Marks]**
- e) Explain four congestion control mechanism **[4 Marks]**
- f) TCP Congestion control is a very difficult task; explain how this can be achieved. **[5 Marks]**
- g) Explain how Routing Information Protocol functions. **[5 Marks]**

QUESTION TWO [20 MARKS]

- a) Differentiate between the following terms **[4 Marks]**
- i. VCC and VPC
 - ii. Network-network interface and User-network interface
- b) Kibabii University is in the process of rolling out open and distance e-learning. It emerged that there is need of high-speed network and the department of ODeI needs to know the hardware devices needed to implement frame relay network. Using examples, discuss two categories of devices they will need for this purpose. **[6 Marks]**
- c) Discuss the main parts of a Frame Relay Frame. **[4 Marks]**
- d) Discuss virtual channel connection uses in the following areas
- i. Between end users **[2 Marks]**
 - ii. Between end user and network **[2 Marks]**
 - iii. Between network entities **[2 Marks]**

QUESTION THREE [20 MARKS]

- a) Define the following terms [2 Marks]
 - i. CSMA/CD
 - ii. Wireless LAN
- b) Discuss how high speed LANS operate. [6 Marks]
- c) Explain the benefits of 10 Gbps Ethernet over ATM [4 Marks]
- d) Illustrate how Fibre Channel can be used to provide high speed network in organizations. [4 Marks]
- e) Describe four wireless LAN requirements for high-speed network. [4 Marks]

QUESTION FOUR [20 MARKS]

- a) Define the following terms [2 Marks]
 - i. Congestion Control
 - ii. Traffic Management
- b) Discuss three considerations in management of traffic in congested network. [6 Marks]
- c) Explain two strategies used in congestion avoidance with explicit signaling. [4 Marks]
- d) Describe four frame relay traffic rate management parameters considered in dealing with traffic in frame relay networks. [4 Marks]
- e) TCP flow control is greatly achieved using window management. Explain four strategies used in window management. [4 Marks]

QUESTION FIVE [20 MARKS]

- a) Define the following terms [2 Marks]
 - i. Routing
 - ii. Integrated Services Architecture (ISA)
- b) Discuss the following routing protocols. [2 Marks]
 - i. Interior protocols [2 Marks]
 - ii. Exterior protocols [2 Marks]
- c) Discuss three shortcomings of Routing Information Protocol. [6 Marks]
- d) Describe four components of Integrated Services Architecture. [4 Marks]
- e) Explain services provided by ISA. [4 Marks]