



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN

BIOLOGICAL SCIENCE, FOOD SECURITY

2ND YEAR 1st SEMESTER 2018/19 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: SCS 3231

COURSE TITLE: DATA COMMUNICATION AND NETWORKING

EXAM VENUE: STREAM:

DATE: December 2018 EXAM SESSION:

TIME: 2.00 HOURS

INSTRUCTIONS:

- 1. Answer Question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE [30 MARKS]

- a) What is Data communication? (2 marks)
- b) “Performance of network depends on the channel”. Discuss it with different transmission media. (5 marks)
- c) Differentiate between a protocol and an interface in regard to data communication (4 marks)
- d) Discuss various transmission impairments and how they may affect the information carrying capacity of a communication link. (9 marks)
- e) What is the full form of ASCII (3 Marks)
- f) Explain various types of networks based on their sizes (7 Marks)

QUESTION TWO [20 MARKS]

- (a) Explain the various Network topologies with aid of neat diagrams in each case (7 marks)
- (b) Discuss any two types of errors that occur during digital transmission. (2 marks)
- (c) With the aid of a diagram, describe the TCP/IP layer model. (6 Marks)
- (d) What is information Technology? (5 Marks)

QUESTION THREE [20 MARKS]

- (a) Distinguish between Internet and intranet. (3 marks)
- (b) Many organizations are cautious about using public cloud computing. Outline four issues that could be influencing its adoption. (4 Marks)
- (c) What is HTTP? (3 Marks)
- (d) Explain the following:-
 - (i) Synchronous Transmission. (4 marks)
 - (ii) Asynchronous Transmission (4 marks)
 - (iii) Ethernet. (2 marks)

QUESTION FOUR [20 MARKS]

- (a) James wants to acquire communication software for his company’s computer systems. Outline four factors other than cost that he should consider while carrying out the task. (4 Marks)
- (b) Outline three benefits of a client-server network model. (3 Marks)
- (c) For each of the following scenarios, state the appropriate transmission method:
 - i. Walkie-talkie communication; (2 mark)
 - ii. Cell phone conversation; (2 mark)
 - iii. Lecturer in a class lesson; (2 mark)
 - iv. Market selling/buying session (2 mark)
- d) What is a firewall? (5 Marks)

QUESTION FIVE [20 MARKS]

- (a) Explain three function of the session layer as used in OSI model. (5 Marks)
- (b) Define Communication channel. (2 marks)
- (c) Discuss all the six basic hardware components used in construction of any network. (6 marks)
- (d) Describe the layers of OSI model, (7 Marks)