



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

DEPARTMENT OF INFORMATION SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE BACHELOR OF INFORMATION

COMMUNICATION AND TECHNOLOGY

YEAR THREE: SEMESTER ONE

2ND YEAR 2ND SEMESTER 2022 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: ITB 1204

COURSE TITLE: WIRELESS INTERNET APPLICATIONS

DATE:

TIME:

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**

Questions one

- a) Define wireless network applications. **(2 marks)**
 - b) What is a distinguishing attribute of a wireless network as compared to a general wireless communication system? **(4 marks)**
 - c) What types of information does wireless network support?? **(4 marks)**
 - d) Discuss the various types of a wireless networks. **(6 marks)**
 - e) What is the typical maximum range of a wireless PAN? **(2 marks)**
 - f) Differentiate between Client/Server Networks and Peer-to-Peer Networks **(4 marks)**
- a) What is meant by network topology? **(2 marks)**
 - b) With illustrations, describe at least three common topologies **(6 marks)**

Questions Two

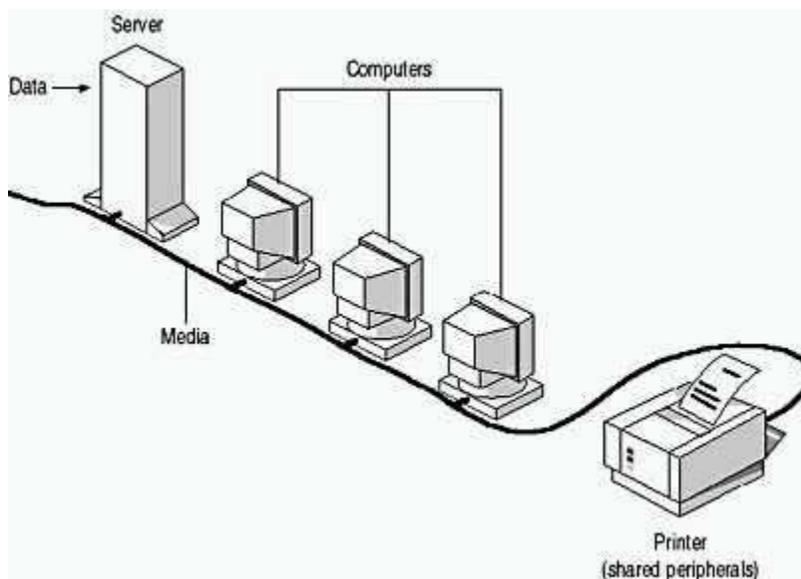
- a) In terms of Local Area Networks, explain the purpose of the following LAN basics
 - i. Server **(2 marks)**
 - ii. Hub **(2 marks)**
 - iii. Router **(2 marks)**
 - iv. Node **(2 marks)**
 - v. Switch **(2 marks)**
 - vi. Gateway **(2 marks)**
 - vii. DHCP **(2 marks)**
- b) Describe and illustrate the classification of networks Based on management method. **(4 marks)**
- c) Describe and illustrate the classification of networks Based on topology. **(2 marks)**

Questions Three

- a) What is meant by the terms: **(4 marks)**
 - i) IP Address
 - ii) MAC Address
 - iii) Octet
- b) With the help of an example, explain the structure of an IP Address **(4 marks)**
- c). Explain the various classes of IP Addresses, giving the octet range for each class. **(4 marks)**
- d). Convert the following binary IP addresses to obtain a decimal equivalent of this IP addresses.
 - i. 01000101. 00101011. 00001011. 11101111 **(4 marks)**
 - ii. 10101100. 00000001. 00010000. 00100000 **(4 marks)**

Questions Four

- a) Discuss the following three modes of data transmission listed below:
- i) Simple duplex **(2 marks)**
 - ii) Half duplex **(2 marks)**
 - iii) Full duplex **(2 marks)**
- b) In general, all networks have certain components, functions, and features in common: Explain each of the following Components as denoted in the figure below **(10 marks)**



- c) List three factors that can influence the choice of whether to implement a peer-to-peer or server-based network configuration. **(2 marks)**
- d) Describe the advantages of a peer-to-peer network **(2 marks)**

Questions Five

- a) The OSI Model is a Layered framework for the design of network systems that allow communication between all types of computer systems. It consists of seven separate but related layers, each of which defines a part of the process of moving information across a network. Name and explain the structure of the seven layers mentioned above. **(10 marks)**
- b) Given that two computers are connected to each other with an Ethernet cable. How does the data move from computer **A** to computer **B**? Explain with the help of a diagram indicating the different layers in which the sent data will pass through. **(5 marks)**
- c) Make a discussion about the fourth layer of the OSI Model and explain the tasks performed by it. **(5 marks)**