



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE**

**IN INFORMATION AND COMMUNICATION TECHNOLOGY**

**4<sup>TH</sup> YEAR 1<sup>ST</sup> SEMESTER 2018/2019 ACADEMIC YEAR**

**MAIN CAMPUS**

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**COURSE CODE: ICT 3413**

**COURSE TITLE: ADVANCED NETWORK MANAGEMENT**

**EXAM VENUE: STREAM: ICT**

**DATE: December 2018 EXAM SESSION:**

**TIME: 2.00 HOURS**

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**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) Explain three factors to be considered when selecting a network transmission media. (6Marks)
- b) Explain the following network hardware elements. (8Marks)
- (i) Bridge
  - (ii) Switch
  - (iii) Hub
  - (iv) Router
- c) Distinguish between Authentication and Authorization, describing where they are encountered in the context of networking. (4Marks)
- d) Differentiate between web server and proxy server (7 Marks)
- e) State the key hardware components needed to implement a wireless LAN in a small office Environment. (2Marks)
- f) List three of the BlueTooth profiles (3Marks)

### QUESTION TWO [20 MARKS]

- a) Describe the following types of Network Subnets;
- ii) *Circuit switched* (3 Marks)
  - iii) *Packet switched* (3 Marks)
  - iv) *Broadcast* (3 Marks)
13. Compare and contrast the following network architectures:
- (i) Client/server and Peer-to-Peer (6Marks)
  - (ii) Intranets and Extranets (5Marks)

### QUESTION THREE [20 MARKS]

- a) Explain the meaning a firewall and give its two functions (5 Marks)
- b) Give two Characteristics of a good firewall (4 Marks)
- c) State and explain 6 (six) skills of a good network manager. (6 Marks)
- d) Where does the NOS (Network operating system) reside? Explain basing your answer on LAN implementation. (3 Marks)
- e) Give two advantages achieved while using LANs (Local Area networks) (2 Marks)

#### **QUESTION FOUR [20 MARKS]**

- a) There are many services and functions available to assist an individual in managing computer network operations; Name and explain one of them and explain how it works (5 Marks)
- b) What is network security? (4 Marks)
- c) Explain how Public Key Cryptography works to achieve network security. (6 Marks)
- d) Name and explain two basic techniques for detecting errors in the network. (5 Marks)

#### **QUESTION FIVE [20 MARKS]**

- (a) Explain how E-mail programs can create, send, receive, and store e-mails, as well as reply to, forward, and attach non-text files (6 Marks)
- (b) Name and explain 4 (four) Network Diagnostic Tools. (4 Marks)
- (c) (i) With well labeled diagram, describe the OSI ordered seven layer models. (3Marks)  
(ii) Explain the functionality areas that each layer of your diagram in above ( c i) is responsible. (7Marks)