



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS**  
**UNIVERSITY EXAMINATION FOR THE DEGREE IN COMPUTER SECURITY AND**  
**FORENSICS**  
**3<sup>RD</sup> YEAR 2<sup>ND</sup> SEMESTER 2021/2022 ACADEMIC YEAR**  
**MAIN AND KISUMU CAMPUS**

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**COURSE CODE: ICB 1302**

**COURSE TITLE: ENTERPRISE SYSTEMS MANAGEMENT & SECURITY**

**DATE:**

**TIME:**

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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 1 [30 marks]

- a) Describe the following: **(6 marks)**
  - i. RAID technology
  - ii. Lightweight Directory Access Protocol (LDAP)
  - iii. High Performance Computing (HPC)
- b) State any two principal areas or components of the Active Directory (AD) structure. **(2 marks)**
- c) With reference to email systems, state any two functions of MajorDomo. **(2 marks)**
- d) What is telnet? **(2 marks)**
- e) Servers typically adhere to three form factors; state two. **(2 marks)**
- f) In the Kerberos workflow, the Key Distribution Center (KDC) logically separates into three parts which exist in a single server. State any two. **(2 marks)**
- g) State any two social engineering attack techniques. **(2 marks)**
- h) Differentiate between:
  - i. Symmetric and asymmetric encryption **(4 marks)**
  - ii. POP3 and IMAP protocol as used in email systems. **(4 marks)**
  - iii. SSL and SSH. **(4 marks)**

### Question 2 [20 marks]

- a) There are four cloud computing deployment models that define the type of access to the cloud. Discuss any three. **(6 marks)**
- b) Enterprise system integration is the practice of making two or more separate software systems work together. Discuss any three system integration methods. **(6 marks)**
- c) There are 5 types of access control models; describe any four. **(8 marks)**

### Question 3 [20 marks]

- a) There are frameworks such as Zachman that are used to develop enterprise architectures. These frameworks have four basic domains: discuss any three. **(6 marks)**
- b) Discuss any four web security safe practices. **(8 marks)**
- c) Discuss the function of the following types of servers: **(6 marks)**
  - i. DNS Server
  - ii. FTP Server
  - iii. DHCP Server

### Question 4 [20 marks]

- a) The System Recovery Options menu contains tools for recovering Windows from a serious error. Describe any four recovery options on the System Recovery Options Menu. **(8 marks)**
- b) The basic idea behind virtualization is to use software to simulate the existence of hardware. Discuss four advantages of virtualization. **(8 marks)**
- c) Differentiate between the RSA and DSA algorithms as used in asymmetric encryption **(4 marks)**

**Question 5 [20 marks]**

- a) Describe the following with reference to web security: **(4 marks)**
  - i. Some URLs start with http://, while others start with https:// What is the difference?
  - ii. Tunneling
- b) E-mail agents are programs that are part of the e-mail infrastructure. State the four types of email agents. **(4 marks)**
- c) Discuss the three types of data backup methods. **(6 marks)**
- d) There are three main actions that can be performed by a monitoring agent in Enterprise Systems. Discuss them. **(6 marks)**