



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

DEPARTMENT OF COMPUTER SCIENCE & SOFTWARE ENGINEERING

**UNIVERSITY EXAMINATION FOR THE DEGREE OF MASTERS IN HEALTH
INFORMATICS**

1st YEAR 1st SEMESTER 2023/2024 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: ICH 5230

COURSE TITLE: Configuration Technologies for Scientific Informatics

EXAM VENUE: STREAM: Masters in Health Informatics

DATE: EXAM SESSION:

TIME: 3.00 HOURS 10 students

INSTRUCTIONS:

Answer QUESTION ONE and ANY other TWO questions

QUESTION ONE (20 Marks)

System configuration is the reconfiguration of the machines to maintain conformance with the specification whenever the environment changes. Describe the following concepts as used in this perspective:

- i) Hardware configuration (5 mks)
- ii) Software configuration management (5 mks)
- iii) Network configuration management (5 mks)
- iv) Distributed application configuration (5 mks)

QUESTION TWO (20 mks)

- a) Information Technology (IT) is important to multiple players in the field of Medicine. Describe FIVE reasons that may prompt a health facility to adopt IT in its operations. (5 mks)
- b) Healthcare organizations tend to spend only 3-4% of their budget on information technology, which is far less than other information dependent industries. Healthcare information technology adoption has multiple barriers. Discuss any FIVE of these barriers. (15 mks)

QUESTION THREE (20 mks)

Electronic Health Records (EHRs) comprise of a number of key components. Discuss the following components as used in EHRs:

- i) Clinical Decision Support Systems (CDSS) (4 mks)
- ii) Referral management feature (4 mks)
- iii) Secure messaging (4 mks)
- iv) Computerized Physician Order Entry (CPOE) (4 mks)
- v) Public health reporting and tracking (4 mks)

QUESTION FOUR (20 mks)

- a) In the past two decades the field of Bioinformatics has been involved with the creation of biological databases that helped evaluate DNA sequences and other genetic proteins. This allowed scientists to study the genetic information in the databases or add new information. Discuss any other FIVE areas where Bioinformatics can be applied. (10 mks)
- b) Mobile technology continues to improve and gain popularity in the medical profession at an amazing pace.
 - i) Discuss any FOUR applications of mobile technology in the medical field. (4 mks)

- ii) Describe any limitations of mobile technology that may impede its application in the medical field. (6 mks)

QUESTION FIVE (20 mks)

Although the basic statement of the system configuration problem is straightforward, there are a number of complicating factors which make practical solutions very difficult. Discuss the following issues as used in this respect:

- i) Managing relationships (5 mks)
- ii) Usability (5 mks)
- iii) Autonomics (5 mks)
- iv) Security (5 mks)