ZCAS UNIVERSITY

SCHOOL OF COMPUTING AND APPLIED SCIENCES

BACHELOR OF INFORMATION TECHNOLOGY/BACHELOR OF NETWORK ENGINEERING

CIT1142 EMERGING TRENDS IN ICT

MID-SEMESTER EXAMINATION (TEST)

TUESDAY 17TH OCTOBER 2023

12:30 – 15:30 HOURS

Time allowed: 3 HOURS plus 5 Minutes reading time.

Instructions to Candidates:

1. Read the instructions very carefully.

2. Check that you have the correct examination paper in front of you.

3. There are FIVE (5) questions in this paper. Section A is Compulsory, and you are required to answer ONLY THREE (3) questions from Section B.

4. All questions must be answered in the answer booklet provided only.

5. Write down the number of questions that you have answered on the cover of the examination answer booklet.

6. Begin answering each question on a new page.

7. No books, files, mechanical/electronic aids, or scientific calculators are permitted in the examination room.

8. There shall be NO communication among students during the examination. Any students caught doing this will be disqualified.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

SECTION A

Answer the following question.

QUESTION 1.

Read the following then answer the questions that follow.

The development of grid computing is a cutting-edge technology that brings several benefits to many Universities and Research Institutions around the world. Grid computing enables Universities and Research Institutions to manage Information Technology resources in a centralized multi-core architecture, irrespective of their location in the world. It enables them to solve their ever-increasing computing and storage problems. Universities and Research Institutions would undoubtedly enhance the quality of their output while reducing costs by sharing resources through Grid technology.

Several Universities and Research Institutions believe that grid computing has the capacity to improve research work and other University operations, especially among the growing Institutions in Africa. Nevertheless, many African Universities and Research institutions have not yet embraced and adopted the use of Grid Computing Technology.

Required:
   a) Mention and explain the key components of grid computing.   (20 Marks)
   b) Explain how grid computing works.   (5 Marks)
   c) List and explain the types of Grid Computing that Universities in Africa should focus on.
                                                                        (15 Marks)
                                                                        [Total 40 Marks]

SECTION B

Choose any three questions from this section.

QUESTION 2.
Web services mainly enable different Web-based systems to communicate with each other using Internet-based protocols such as XML. By using Web services, both the time taken to connect complex systems as well as development time can be greatly reduced.
Required
   a) Provide the challenges that can be faced when deploying web services.
                                                                        (10 Marks)
   b) Which technologies would support the provision of web services?   **(4 Marks)**
   c) Explain why B2B companies should embark on the use of web services.
                                                                        (6 Marks)
                                                                        [Total 20 Marks]

QUESTION 3.

The world is witnessing a rapid evolution of Technology. You happen to work as a Network consultant at Liquid Telecom and have been invited to make a presentation at Pamodzi Hotel on emerging trends in information and communication technology.

Required

a) Explain, using examples, the areas where AI can be applied. **(10 Marks)**

b) What are the core features of pervasive computing? **(10 Marks)**

[Total 20 Marks]

QUESTION 4.

The Government of Zambia has set aside a huge sum of money for the development of cloud computing. It is envisaged that the project will benefit not only business companies but also several individuals countrywide.

Required

a) Mention five big players of Cloud computing. **(5 Marks)**

b) List and explain vividly the core types of cloud computing. **(15 Marks)**

[Total 20 Marks]

QUESTION 5.

Nowadays, many people enjoy the use of mobile devices that add to efficiency in providing goods and services to customers. Nevertheless, Mobile device usage requires awareness of security procedures.

Required:

a) Explain what the concept of Mobile computing involves. **(15 Marks)**

b) Provide specific areas where mobile computing can be applied. **(5 Marks)**

[Total 20 Marks]

END OF MID SEMESTER EXAMINATION