



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SCO 403: NETWORK APPLICATIONS

DATE: 26/10/2020

TIME: 8.30-10.30 AM

INSTRUCTIONS

Answer question ONE and any other TWO questions.

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Explain the following terms:
 - i. MiddleWare (2 marks)
 - ii. Remote Procedure Calls(RPC) (2 marks)
 - iii. Database Driven Website (2 marks)
 - iv. Cloud computing (2 marks)
 - v. Hardware Virtualization (2 marks)
- b) Name any THREE examples for each of the following
 - i. Application Programming Interfaces(APIs) (3 marks)
 - ii. MiddleWare (3 marks)
 - iii. Database Driven Websites (3 marks)
- c) Distinguish between Dynamic Websites and Static Websites (4 marks)
- d) Describe briefly any FIVE technologies used in IoT environment for connecting devices (7 marks)

QUESTION TWO (20 MARKS)

- a) Briefly describe any FIVE Protocols in Application Layer of the OSI model (10 marks)
- b) Explain the Advantages of a Database-Driven Website (6 marks)

- c) Describe the following code: (4 marks)

```
var aElements = document.querySelectorAll('a');  
for (var i = 0; i < aElements.length; i++) {  
    aElements[i].addEventListener('click', function (event) {  
        // code  
    });  
}
```

QUESTION THREE (20 MARKS)

- a) Name any THREE commonly used Search Engines (3 marks)
- b) Briefly describe the components of a search engine (6 marks)
- c) Given a string of words “apples bananas pears”, describe how a search engine can find exact string of words in quotes in that order (5 marks)
- d) What are the risks associated with cloud computing? Explain (6 marks)

QUESTION FOUR (20 MARKS)

- a) What are the advantages of using database driven websites? (5 marks)
- b) Describe the components of an e-mail system (5 marks)
- c) What are the advantages and disadvantages of e-mail systems? (5 marks)
- d) Explain the advantages and disadvantages of Remote Procedure Calls (5 marks)

QUESTION FIVE (20 MARKS)

- a) Describe the sequence of events in a remote procedure (RPC) call (6 marks)
- b) What are the benefits of P2P computing? (5 marks)
- c) Describe briefly the following P2P architectures
- i. Centralized Directory (3 marks)
 - ii. Query Flooding (3 marks)
 - iii. Exploiting Heterogeneity (3 marks)