



(Knowledge for Development)

KIBABII UNIVERSITY

**UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS
YEAR TWO SEMESTER TWO EXAMINATIONS**

**FOR THE DEGREE OF
(COMPUTER SCIENCE)**

COURSE CODE : CSC 226

**COURSE TITLE : CLIENT-SERVER
COMPUTING**

DATE: 06/10/2021 TIME: 02.00 P.M – 04.00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

- a) Differentiate between the following terms
- i. Centralized and distributed computing [2 marks]
 - ii. Java and JavaScript [2 marks]
 - iii. CSS and HTML [2 marks]
- b) Kibabii University has implemented an elaborate infrastructure for its systems for efficient service delivery. Client-server computing has been adopted for some platforms in this regard. Identify scenarios in the University Setup that do not favour the implementation of client-server computing. [6 marks]
- c) As a Network and Database specialist, propose to management the best practices needed for key performance improvement of developed client server applications and services. [6 marks]
- d) Write an HTML document using JavaScript code, which displays your Registration Number, Name, Year of Study and Name of the University. [4 marks]
- e) Write an HTML document using JavaScript to change backgrounds colour in your web page randomly using document.bgcolor property and Math.random() function. [4 marks]
- f) Write a javascript program to display a page with the following output using min () method. [4 marks]

QUESTION TWO [20 MARKS]

- a) What is Client side scripting? [2 marks]
- b) Describe how to add an image map to your page? [7 marks]
- c) As a Web Technologist for Kibabii University, discuss how you can use javascript in the implementation of webpages. [3 marks]
- d) Why do we need searching systems in most of the interactive websites today? [4 marks]
- e) Discuss the variability information a KIBU user expects in searching information in websites. [4 marks]

QUESTION THREE [20 MARKS]

- a) Any workstation that is used by a single user is a client and this trend has been noticed in the last decade that the workstations are improving their performance based on Moore's Law. Identify some of the main services that these workstations perform. **[5 marks]**
- b) For signals, pipes and names pipes are ways by which processes can communicate. Discuss the four (4) types of mechanisms, by which processes can communicate. **[4 marks]**
- c) Explain the following combinations of executing calls to the send and receive primitives.
- i. Blocking send **[1 mark]**
 - ii. Non-blocking send **[1 mark]**
 - iii. Blocking receive **[1 mark]**
 - iv. Non-blocking receive **[1 mark]**
- d) Describe how Remote Procedure Call Works. **[7 marks]**

QUESTION FOUR [20 MARKS]

- a) What is LiveScript? **[2 marks]**
- b) Write a program to demonstrate how to play a sound using an applet image using `getAudioClip()`, `play()` & `stop()` methods of `AudioClip()` class. **[9 marks]**
- c) The Kibabii University Web Application Developer is in the process of upgrading its online presence to improve its webometric ranking. Why would he/she opt to use Servlets over CGI programs in the integration. **[5 marks]**
- d) Access modifier is used to determine the visibility and scope of the java elements. Outline the types of access modifiers. **[4 marks]**

QUESTION FIVE [20 Marks]

- a) Most applications use TCP. However, audio streaming presents a situation in which it is desirable to use UDP. Explain why RealAudio does not use TCP. **[4 marks]**
- b) Discuss the functionality of any six application protocols of the TCP/IP model that provide exchange of user information with the associated port numbers. **[6 marks]**
- c) Describe how Domain Name System works. **[4 marks]**
- d) HTTP specifies a request/response protocol. When a client, typically a web browser, sends a request message to a server, the HTTP protocol defines the message types the client uses to request the web page and the message types the server uses to respond. Discuss the three common message types. **[6 marks]**