



*(Knowledge for Development)*

**KIBABII UNIVERSITY**  
(KIBU)

**UNIVERSITY EXAMINATIONS**  
**2021/2022 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS**  
**YEAR THREE SEMESTER ONE EXAMINATIONS**

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

**COURSE CODE : CSC 463E**

**COURSE TITLE : WEB APPLICATION SECURITY**

**DATE: 17/05/2022**

**TIME: 09.00 A.M - 11.00 A.M**

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**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTIONS ONE AND ANY OTHER TWO.**

### QUESTION ONE (COMPULSORY) [30 MARKS]

- a) Web application can be either SOAP or Rest-full. Differentiate the two with an example [4 marks]
- b) State any three conditions that can make a web server REST-full [3 marks]
- c) Client Server architecture can be used to design web application. Draw a diagram and explain where web application are placed and how they interact with both the server and client [6marks]
- d) Instant messaging are mainly powered by web application. Discuss any three features of instant messaging and show how web app enables this features [6Marks]
- e) Differentiate between web page and website [2Marks]
- f) State any three SOAP Fault codes that can be used in writing SOAP message [3 Marks]
- g) With one disadvantage and one advantage, discuss any three software one can use to improve web application Security [6 Marks]

### QUESTION TWO [20 MARKS]

- a) When designing a SOAP message there are compulsory tags one must use. With an example of the basic structure of a SOAP message state and explain any four compulsory tags. [10Marks]
- b) Imagine you are Technical head of a company that is bidding for a tender to create web application for managing students fees and marks for Kibabii University. One issue Kibabii University has is the security threats for the web application. The CEO of your company has asked you to write down five security threats and their mitigation. Write a sample document you may use. [10Marks]

### QUESTION THREE [20 MARKS]

- a) The university staff portal has been hacked and has been offline for more than 24hours.
- i. Explain four costs of this problem to the university? [4Marks]
- ii. Discuss three possible type of attacks that might have occurred [6Marks]
- iii. Suggest five things to the management that can be done in future to ensure the security of the web application is safe [10Marks]

### QUESTION FOUR [20 MARKS]

- a) There are two types of instant messaging. With two examples, in each case discuss these two types [4Marks]
- b) Blogs can be considered web application. Argue for or against with three points [6Marks]
- c) CORBA can assist in implementing a distributed architecture that can be used to create web applications. However, there are underlying issues that one must solve. Providing solutions, discuss any five issues [10 Marks]

### QUESTION FIVE [20 MARKS]

- a) Define the term CORBA and state its role in Web Application [4Marks]
- b) Consider the following SOAP Code

```
<?xml version = "1.0"?>
<SOAP-ENV:Envelope
  xmlns:SOAP-ENV = " http://www.w3.org/2001/12/soap-envelope"
  SOAP-ENV:encodingStyle = " http://www.w3.org/2001/12/soap-encoding">
  <SOAP-ENV:Header>
    <t:Transaction
      xmlns:t = "http://www.kibu.ac.ke/transaction/"
      SOAP-ENV:mustUnderstand = "true">5
    </t:Transaction>
  </SOAP-ENV:Header>
  ...
  ...
</SOAP-ENV:Envelope>
```

- i. Explain the function of each line of code [10 Marks]
- ii. Add a Body element to the code Above containing a message of a student registration number and amount of fees paid [6 Marks]