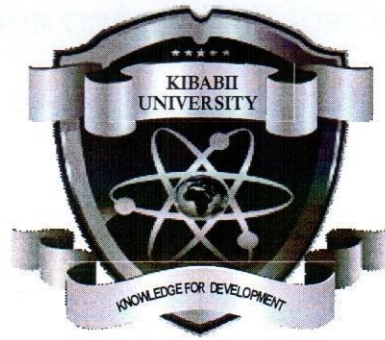


35



*(Knowledge for Development)*

## **KIBABII UNIVERSITY**

### **UNIVERSITY EXAMINATIONS 2022/2023 ACADEMIC YEAR**

### **END OF SEMESTER EXAMINATIONS YEAR ONE SEMESTER TWO EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE COMPUTER SCIENCE**

**COURSE CODE : CSC370E**

**COURSE TITLE : NETWORK PROGRAMMING**

**DATE: 14/12/2022      TIME: 9:00 A.M – 11:00 P.M**

---

#### **INSTRUCTIONS TO CANDIDATES**

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

## QUESTION ONE (COMPULSORY) [30 MARKS]

- a. Define the following terms:
- i. Protocol [2 marks]
  - ii. Daemon [2 marks]
  - iii. Socket [2 marks]
- b. Differentiate between RIP, IGRP and IS-IS routing protocols. [6 marks]
- c. Explain any five characteristics of TCP protocol. [5 marks]
- d. Correct the following Socket Java Program. [5 marks]

```
try {  
    Socket socket = new Socket(host, port);  
    BufferedReader in = new BufferedReader(  
        new InputStreamReader(  
            socket.getInputStream());  
    PrintWriter out = new PrintWriter(  
        new OutputStreamWriter(  
            socket.getOutputStream());  
    «Send and receive data»  
    in.close()  
    out.close()  
    socket.close()  
} catch (IOException e) {  
    «Handle exception»  
}
```

- i. Differentiate between a server socket and a server port. [2 marks]
- ii. What do you understand by passing of arguments in RMI. [2 marks]
- iii. Explain the function of a protocol analyzer. [4 marks]

## QUESTION TWO [20 MARKS]

- a. State any five operations that can be performed on an RMI registry. [5 marks]
- b. Discuss the following chat handler. [6 marks]

```
public class ChatHandler extends Thread {  
    Socket socket;  
    DataInputStream in;  
    DataOutputStream out;  
    static Set<ChatHandler> handlers = new HashSet<ChatHandler>();
```

```
    public ChatHandler(Socket socket) throws IOException {  
        this.socket = socket;  
        in = new DataInputStream(socket.getInputStream());  
        out = new DataOutputStream(socket.getOutputStream());  
        handlers.add(this);  
    }  
}
```

- c. Java provides two mechanisms for distributed computing. Discuss. [4 marks]
- d. Describe how a client application communicates with a server on different WANS while using the TCP/IP model. [5 marks]

## QUESTION THREE [20 MARKS]

- a. Discuss the RMI procedure. [10 marks]
- b. Describe how wireless routers can be used to connect remote-site LANS. [6 marks]
- c. Discuss with an example Remote Method Invocation (RMI). [4 marks]

## QUESTION FOUR [20 MARKS]

- a. Describe the RMI Architecture. [10 marks]
- b. Write a java program to implement a client and server chat application. [10 marks]



**QUESTION FIVE [20 MARKS]**

- a. Write a java program to describe a simple echo server. [10 marks]
- b. Johns Android mobile phone has 20 applications and only 15 are able to communicate on the internet. Explain why the remaining five are not able to communicate. [4 marks]
- c. Describe the stages you would follow to develop a client server program. [6 marks]