



# UNIVERSITY EXAMINATIONS

**SECOND SEMESTER 2023/2024 ACADEMIC YEAR**

**THIRD YEAR EXAMINATION FOR THE DEGREE OF  
BACHELOR OF COMPUTER SCIENCE AND BACHELOR  
OF SCIENCE IN (ICT)**

**BICT 323: OPEN SOURCE AND LINUX**

***STREAM: R***

***TIME: 2 HRS***

***DAY: MONDAY[11.30A.M – 1.30 P.M]      DATE: 08/04/2024***

**THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES**

**PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.**

**INSTRUCTIONS TO CANDIDATES**

1. **Answer Question 1 and any other two questions in the answer booklet provided.**
2. **Do not write on your question papers. All rough work should be done in your answer booklet.**
3. **Clearly indicate which question you are answering.**
4. **Write neatly and legibly.**
5. **Edit your work for language and grammar errors.**
6. **Follow all the instructions in the answer**

**SECTION A: (Compulsory) TOTAL MARKS FOR THIS SECTION IS 30.**

- a) Explain the following terms:
  - i. Shell (2 Marks)
  - ii. She-bang (2 Marks)
  - iii. Read only variable (2 Marks)
  - iv. UNSET (2 Marks)
- b) Discuss two types of shell commands. (4 Marks)
- c) Differentiate between bourne shell and c shell. (4 Marks)
- d) When a shell is running, three main types of variables are present. Discuss. (6 Marks)
- e) Explain three differences between Unix and Linux according to the following:
  - i. Coding (2 Marks)
  - ii. Error detection and solution (2 Marks)
  - iii. GUI (2 Marks)
  - iv. Cost (2 Marks)

**SECTION B. TOTAL MARKS FOR THIS SECTION IS 40 (MARKS)**

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION. EACH QUESTION IN THIS SECTION CARRIES (20 MARKS)**

**QUESTION TWO (20 MARKS)**

- a) Differentiate between the break and the continue statement. (4 Marks)
- b) Write a program to print number 1 to 10 in reverse order. (6 Marks)
- c) Create an array that consists a collection of colors (Pink, Red, Green, Yellow, Brown) that gives the give the following output:
  - i. Print the 3rd and the fifth item (2 Marks)
  - ii. Print all the items in the array (2 Marks)



- b) Write an if...else program that accepts user's age as the input. If the user's age will be greater than 18 then he or she will be eligible to vote, otherwise not.  
Output should be as follows: **(6 Marks)**

Greater than 18: "You are eligible to vote"

Less than 18: "You are younger!!"

### QUESTION THREE (20 MARKS)

- a) Write a program that accepts three inputs from the user (i.e. first name, second name and age). Use the program to discuss the following special variables.
- i. \$0 **(2 Marks)**
  - ii. \$# **(2 Marks)**
  - iii. \$\* **(2 Marks)**
  - iv. \$n **(2 Marks)**
- b) Explain the main concept that unites all the versions of Unix. **(8 Marks)**
- c) Differentiate between shell prompt and shell scripts **(4 Marks)**

### QUESTION FOUR (20 MARKS)

- a) Explain how to determine the shell currently in use. **(2 Marks)**
- b) While using ls -l command, it displays various information related to file permission. Using the information below, discuss the permission associated with a file or a directory. **(6 Marks)**

```
$ls -l /home/amrood
-rwxr-xr-- I amrood users I024 Nov 2 00:10 myfile
drwxr-xr-- I amrood users I024 Nov 2 00:10 mydir
```

- c) Using examples, explain the files access modes in Unix. **(6 Marks)**
- d) Discuss the directories access modes in Unix. **(6 Marks)**

### QUESTION FIVE (20 MARKS)

- a) Write a *for* loop program that will add values 1+2+3+4+5 upto 10. **(6 Marks)**
- b) Describe the attributes of Unix files. **(6 Marks)**
- c) Discuss the two commands available for changing owners and group ownership of a file. **(4 Marks)**
- d) Demonstrate Unix commands to achieve the following tasks.
- i. Change password from kabu1 to kabu2. **(2 Marks)**
  - ii. Create two directories (dir1, dir2) in a single instance in this location /tmp/test-dir. **(2 Marks)**