

MAIN EXAMINATION

DEPARTMENT: INFORMATION AND COMMUNICATION TECHNOLOGY

OPTION: INFORMATION TECHNOLOGY

ACADEMIC YEAR:2023/2024

SEMESTER: TWO

LEVEL / YEAR: Level 8 Year IV

MODULE CODE& NAME: ITLDO DEVELOPMENT OPERATIONS

CREDITS:10

MODULE LEADER: Mr. UWAMAHORO Bonaventure

EXAM DURATION: 2HOURS

MAXIMUM MARKS:50 MARKS

DATE:23 July 2024

INSTRUCTIONS TO CANDIDATE

1. The exam consists of 3 sections A, B and C
 - **Answer all questions in Section A / (20 Marks)**
 - **Attempt any Two questions in Section B / (20 Marks)**
 - **Section C is compulsory / (10 Marks)**
2. Write your registration number properly.
3. Phones and written materials are not allowed in examination room.
4. Do not write any answers on question paper.

SECTION A. 10 questions / 20 Marks

01. Differentiate Automated testing to Infrastructure as code? (2 Marks)
02. Which of the following represents a cultural aspect of DevOps? (2 Marks)
- a. Using Docker
 - b. Automation scripts
 - c. Collaboration and sharing between teams
 - d. Writing Infrastructure as Code
03. In which phase are automated tests primarily run in a CI/CD pipeline? (2 Marks)
- a. Build
 - b. Test
 - c. Deploy
 - d. Monitor
04. From the options given below, choose the incorrect option(s) of what happens when you attempt to perform a Docker build based on an image that has not been previously referenced on your machine. (2 Marks)
- a. Docker will return a 408: image not found message.
 - b. Docker will return a 404: file not found message.
 - c. Docker will pull the image from Docker Hub.
 - d. Docker will pull the image from GitHub.
05. What is a Version Control System (VCS) primarily used for? (2 Marks)
- a. Infrastructure monitoring
 - b. Configuration management
 - c. Tracking changes to source code
 - d. Application deployment
06. Which tool is often used for orchestrating cloud infrastructure as code? (2 Marks)
- a. Jenkins
 - b. Grafana
 - c. Terraform
 - d. Docker
07. Which term describes a method where developers merge their changes back to the main branch multiple times a day? (2 Marks)
- a. Continuous Deployment
 - b. Continuous Integration
 - c. Continuous Monitoring
 - d. Continuous Feedback
08. What does the term "Immutable Infrastructure" refer to? (2 Marks)
- a. Infrastructure that can be easily changed and adapted
 - b. Infrastructure components that are never updated once deployed

- c. Frequently changing infrastructure
- d. Infrastructure that is resistant to hacker attacks

09. What is containerization?

(2 Marks)

10. Which of the following command(s) is not used to list all the running containers?

(2 Marks)

- a. docker list all
- b. docker ps
- c. docker ps -a
- d. docker get all

SECTION B. Attempt any 2 questions / 20 marks

11. List any Nine (10) examples of CI/CD tools.

(10 Marks)

12. Explain four (4) key differences between docker container and docker image. (10 Marks)

13. What are the differences between Continuous Integration, Continuous Delivery, and Continuous Deployment? (10 Marks)

14. Suppose you have 3 containers running and out of these, you wish to access one of them whose container id is cb0313. (10 Marks)

- a. Write a command to access a running container.
- b. Write a command to start the container.
- c. Write a command to stop the container.
- d. Write the command to kill the container

SECTION C. Compulsory question/10 Marks

15. CI/CD stands for Continuous Integration and Continuous Delivery (or Continuous Deployment). It's a set of practices and principles in software development aimed at automating the process of building, testing, and deploying code changes.

a. What is Jenkins file?

(3 Marks)

b. Create a multibranch Jenkins Pipeline to automate the process of building, testing, and deploying code changes (7 Marks)

End!