**Birla Institute of Technology & Science, Pilani**

**Work Integrated Learning Programmes Division**

**Second Semester 2021-2022**

**Mid-Semester Test**

**(EC-2 Regular)**

Course No. : CSI ZG514

Course Title : Introduction to DevOps

Nature of Exam : Open Book

Weightage : 30%

No. of Pages = 2

# No. of Questions = 6

Duration : 2 Hours

Date of Exam : 11/03/2022 (AN)

Note to Students:

1. Please follow all the *Instructions to Candidates* given on the cover page of the answer book.
2. All parts of a question should be answered consecutively. Each answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Q.1. (Set A) The team is interested in keeping the application in a releasable state. The team has created branches to develop different features, what are the techniques one can use to in such a situation to keep the application in a releasable state? [4 Marks]

Q.1. (Set B) You joined a team where the source code is getting compiled at development environment for unit testing, UAT environment for user acceptance testing and then at staging environment for final system check. What is the problem with the current process and how you can improve it? [4 Marks]

Q.2. (Set A) An organization wants to optimize their time-to-market from years to months. One of their employees suggested that to consider using DevOps lifecycle in the IT department. How DevOps will help to reduce their time-to-market? [5 Marks]

Q.2. (Set B) An organization has not yet implemented all DevOps practices. The team identified the problem of increasing technical debt. Which DevOps practices will result in reducing technical debt and how? [5 Marks]

Q.3. (Set A) “DevOps progress will be aided by AI and ML”. Do you agree with this statement? Write down two technical points that show why you agree or disagree with this assertion. [5 Marks]

Q.3. (Set B) List the top 10 DevOps tools, highlight and explain the tools used for following processes. [5 Marks]

a) Continuous Integration

b) Continuous Monitoring

c) Continuous feedback

Q.4. (Set A) 40 engineer’s team of “eTech Solutions” are frequently facing sync issues of their product development binaries and libraries, as most of them are working on their local environment. You being a DevOps consultant address below statements in reference to above scenario:

1. Identify the Problem [1 Marks]
2. Suggest the Solution [2 Marks]
3. Explain the benefits of suggested solution [2 Marks]

Q.4. (Set B) Answer the following questions

1. A company wants to transform their culture to DevOps, where in one department people thinks DevOps and Agile is all same. Being a DevOps consultant what would you suggest them. [3 Marks]
2. An organization has acquired latest automation tools hoping it will increase the productivity by eliminating all bottlenecks. Being a DevOps specialist comment your view. [2 Marks]

Q.5. (Set A) For eHotelReserv application, customer proposed below functionality to be implemented:

Login and Signup page for end users to use the application. Once user gets logged in he/she can reserve the room according to their selection (City, Area, package etc.). User should be provided with the addon service of car hire during their entire stay or pick & drop facility. Rewards and discount should provided as a part of loyalty program. User should be given option to select preferred payment gateway upon completion of hotel reservation process.

Being DevOps architect,

1. Prepare and design application using component-based architecture [2 Marks]
2. Draw the dependency graph pipeline [2 Marks]
3. List the benefits of component-based design [1 Mark]
4. Show the upstream dependency [1 Mark]

Q.5. (Set B) For foodOnDemand application, customer proposed below functionality to be implemented:

Login and Signup page for end users to use the application. Once user gets logged in he/she can order food from the available menu list or can opt for meal of the day. User should be provided with the addon service to know selected meal ingredients and notations. Rewards and discount should provided as a part of loyalty program. User should be given option to select preferred payment gateway upon completion of meal order.

Being DevOps architect,

1. Prepare and design application using component-based architecture [2 Marks]
2. Draw the dependency graph pipeline [2 Marks]
3. List the benefits of component-based design [1 Mark]
4. Show the downstream dependency [1 Mark]

Q.6. (Set A) Mention any five project or product development activities which can be managed by version control system? Justify the same. [5 Marks]

Q.6. (Set B) What challenges can arise as a result of multiple developers contributing to the same repository, and what tactics can be used to address them? Use examples to demonstrate your point. [5 Marks]