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

**Work Integrated Learning Programmes Division**

**First Semester 2022-2023**

**Mid-Semester Test**

**(EC-2 Regular)**

Course No. :  CSI ZG514

Course Title :  Introduction to DevOps

Nature of Exam : Open  Book

No. of Pages = 2

No. of Questions = 4

Weightage : 30%

Duration : 2 Hours

Date of Exam : 25/09/2022 (Evening)

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.
4. An organization is trying to build an application with multiple MVPs (Minimum Viable product). Time is of essence for this organization as there is a possibility that another competitor is also creating a similar kind of a project. This application needs to work in Embedded devices and browser. With the above scenario in mind, please answer the below questions: [3 + 3 + 4 = 10 Marks]
5. What is the suitable team size for this application development? Justify your answer based on the above scenario.
6. What is the best suitable methodology and development to mitigate this issue? Justify your answer with relevant pointers.
7. Explain the steps needed for this application to become a commercial success in market. Explain all the phases needed for this application from inception to the app release.
   1. You are the DevOps administrator for a project which involves multiple teams who work on multiple platforms (Say Frontend and Backend). Each team has multiple developers, and they all work on dependent modules or on the same files and folders as this is an Agile methodology project and MVP needs to be delivered every single sprint. Considering this scenario, please answer the following questions: [3 + 3 + 4 = 10 Marks]
8. What are the steps needed to create a GitHub repository for the teams? What kind of security mechanism will you follow to ensure other teams will not be able to access this project?
9. In case there is a problem in a commit pushed by a developer, and you need to build the repo now and you found only during the deployment build, and it is already past midnight, and you are not able to contact the developer, what is the best way to handle this scenario?
10. Two developers are working on the same file. They are touching the same function in the same file. One developer has pushed the code while another developer was committing his change. What kind of issue the second developer will face? Provide the two types of mechanism in which the second developer will fix the issue.
    1. For eReservHotel 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 provide 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]
   1. With Traditional Development Elita corporation is able to develop their add-on features in average span of 4 months and 1 month is reserved to make the successful testing and deployment. You been hired as consultant to derive the results by:
4. Identifying the Problem Statement [1 Mark]
5. Proposing solution for optimized testing and deployment [2 Marks]
6. Justify the proposal [2 Marks]

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