

**UNITED INTERNATIONAL UNIVERSITY (UIU)**

Dept. of Computer Science & Engineering

Trimester: Fall 2023

Course No: CSE 4495 Title: Software Quality Assurance and Testing

Section: A

**Time: 30 minutes Marks: 25**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** |  | **ID** |  |

1. During a regular periodic testing phase of your software you obtained the following log:

“--*Testing started: 12:00 AM, February 12, 2023*

*--****Failure Occurred****: Reason: Bad Output, Timestamp:* ***2:40 AM, February 12, 2023***

*.*

*--****Failure Occurred****: Reason: System Crash, Timestamp:* ***5:30 AM, February 12, 2023***

*=>Rebooting System=>Reboot Successful.*

*=>System Online; Timestamp:* ***5:50 AM, February 12, 2023***

*…<Log Corrupted >*

”

As you can see, the log failed to record the system details after the first crash. But from your health monitoring API you know get the following statistics –

*#***Total testing time = 600 min**

#**Failures = 3, Crashes =2**

#**Availability = 94.17%**

With this and the knowledge from previous testing that your system has MTBF of roughly 145-180 minutes. Can you find out the probable time window of the second crash (i.e. 3rd failure)? **[10]**

1. Imagine you are the lead developer of FreeSpace.Inc game studios. Your company wants to release a new mobile shooting game that will rival popular games like Free Fire, PUBGm etc. To achieve this your system needs to fulfil the following requirements-availability of at least 99.6%, a probability of failure on demand of less than 0.05, and a rate of fault occurrence of less than 4 failures per 36 hour work period. After the testing is done you receive the following report from the testing team – During 10 days of testing the system processed **18972** requests. Some of these requests ended in failure. Three types of failures were observed -  
   i. **26** times the system showed an user wrong information about enemy position.  
   ii. **27** times the game disconnected the user from a match.  
   iii. **32** times the whole system crashed, and servers needed to be restarted. Each restart took 5 minutes (Avg.) Now depending on this report measure the availability, POFOD and ROCOF of your system. Also decide whether your software is ready for release **[10]**
2. Describe what it means for a system to scale out vertically or horizontally. Provide examples. **[5]**