Institute of Information Technology

Jahangirnagar University

Professional Masters in IT

1st Trimester Final Examination, Spring 2022 **Intake: Fall 2021 & Spring 2022**

Duration: 3 Hours Full Marks: 60

Course Code: PMIT 6111 **Course Title:** Software Testing & Quality Assurance

There are 07 (Seven) questions. Answer any **5 (Five)** of them.
Figures in the right margin indicate marks.

1. **a)** Mention the agile manifesto. Draw the XP release cycle. 2+2

   b) How test driven development works? Write the difficulties of it. 2+2

   c) Why continuous integration is important for agile development? 4

2. **a)** Apply an appropriate testing strategy for the system given in fig.1. Justify your opinion. 5

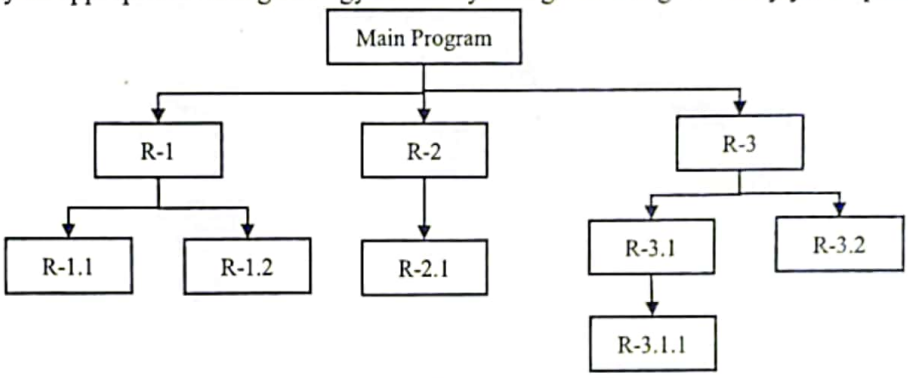

Fig. 1

   b) What are the stages of Testing? Identify the following types of testing: 1.5+2.5

   a. Testing the limits of system e.g. maximum number of users, peak demands, extended operation.

   b. Test the various software and hardware configurations

   c. Evaluate response times and time to perform a function

   d. Exercise all input and output parameters of each component, all components and all calls (each component is called at least once and every component is called by all possible callers.)

   e. Conducted at sponsor's site (developer is not present) and software gets a realistic workout in target environment.

   c) What is driver and stub? When it is critical to write driver and stub? 3

3. **a)** Write different types of interfaces. What kind of errors are commonly occurs in the interfaces. 4

   b) Draw a model of software testing process. Do you think testing done by the developers are enough? Justify your answer. 2+2

   c) Show the unit testing environment. Which parts of any system can be identified as units? 4

4. a) Mention different kinds of coverage. Calculate the coverage for the flowchart in fig.2 when "a = 121". 4

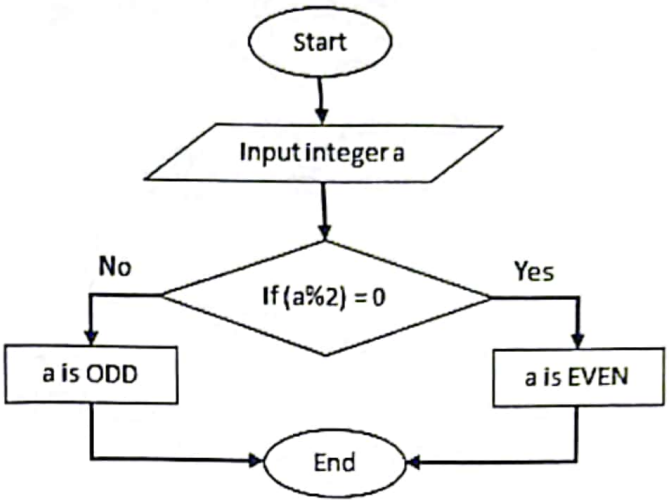

Fig. 2

b) Draw a decision table on the following condition. 3
"A tourist will visit Saint Martine island from Chottogram or from Taknaf. A tourist will visit saint martine island from Taknaf if the day is sunny, sea is calm and ships are available. From Chottogram if sea is calm and ships are available the tourist will got to Saint Martine. Otherwise tourist will not go."

c) Write test cases on any one of the users in the use case diagram shown in fig. 3. 3

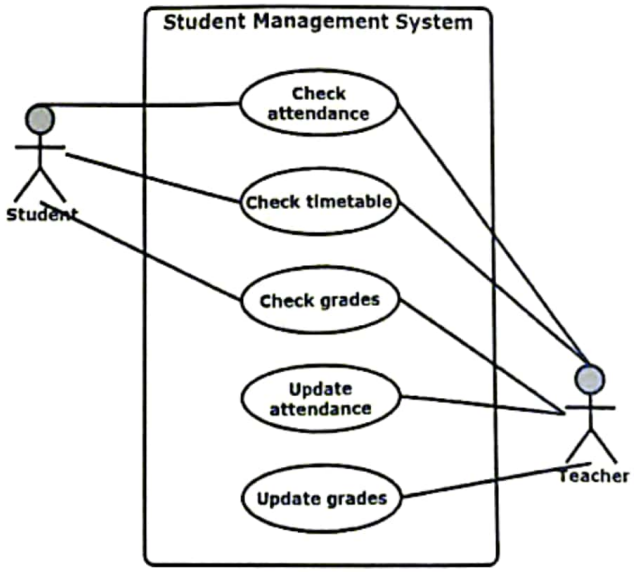

Fig. 3

d) what is fault attack or error guessing testing? 2

5. a) Identify the severity and priority of the following defect: 2

a. You cannot add items in shopping cart of an online shopping site.
b. An application or web page crashes when a remote link is clicked
c. In a student information system, new student cannot be added.
d. Spelling mistake in a paragraph describing anything in a website.

b) Write the parameters of defect tracking system. What is the role of a business analyst? 2+2

c) Identify the defect life cycle states: 2

a. A defect assigned to developer team and they are investigating it.
b. After fixing the defect ready for testing.
c. The defect is identified as duplicate.
d. After testing, QA team still finds defects.

d) Show the risk management process. When we need contingency plans? 2+2

6. a) How agile makes inspection easier? Identify the types of faults: 3+3

a. If character strings are used, is a delimiter explicitly assigned?
b. If a break is required after each case in case statements, has it been included?
c. Do formal and actual parameter types match?
d. Is space explicitly de-allocated after it is no longer required?
e. In case statements, are all possible cases accounted for?
f. Are all output variables assigned a value before they are output?

b) How ISO 9001 standard can be achieved by any organization. 3

c) What is software quality conflicts? Identify the following terms: 2+1

a. What kind of standard "Requirements document structure" is?
b. What kind of standard "Submission of new code for system building" is?

7. a) Mention the quality goals. Write some attributes of each goal. 4

b) Suppose there are 50 licensed copies of any application has installed within 3 months. Customers has reported 200 problem during this period. The FP = 45 and true defect identified by the user is 162; total closed defects = 156, defects closed within respones time = 144. 6

i. Find PUM.
ii. Find defect density
iii. Find BMI
iv. Find Percent delinquent fixes

c) If any application has mean-time-to-failaure is 300 hours and mean-time-to-repair is 20 seconds. Then find its availability. Is it a reliable system? 2