B4.3-R3: SOFTWARE TESTING AND QUALITY MANAGEMENT

NOTE:

1. **Answer question 1 and any FOUR questions from 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Time: 3 Hours **Total Marks: 100**

1.

a) What are the parameters checked in performance testing of software? How is it performed?

b) What is the difference between robustness and correctness?

c) What are the steps in automating the testing process?

d) When do you decide to stop testing any further?

e) What is informational cohesion?

f) What is typical about a Windows process in regards to memory allocation?

g) What is a testable design?

(7x4)

2.

a) What are the typical problems in testing web services? What are the differences between testing intranet and Internet-based web services in an organisation?

b) In the context of web services testing, explain the following with example:

- Proof-of-concept testing
- Functional testing
- Regression testing

(6+12)

3.

a) What are the basic concepts behind software fault tolerance? What are design diversity and independent failure modes? Explain in detail.

b) Explain the differences between recovery block and N-version software method of fault tolerance.

(10+8)

4.

a) Can we directly measure the quality of software? What are the basic three sets of factors that determine software quality? How can their indicators be derived?

b) What are clean tests and dirty tests? Which one works when?

(10+8)

5.

a) What are the parameters of a program that can be tested using glass-box or white-box testing? Give examples.

b) What is mutation testing and random testing? Illustrate your answer by an example.

6.

a) What are the advantages of dynamic analysis over static testing? Explain dynamic analysis process.

b) What are the categories of dynamic analyzers available? Describe their important features.

(10+8)

7.

a) Explain the general architecture of a test-data generator with a diagram. Give an example.

b) What is SPICE? What are it's advantages to various communities involved in the software industry? Compare it with CMM of software.

(8+10)