END TERM EXAMINATION

FIFTH SEMESTER [MCA] DECEMBER 2010

Paper Code: MCA317 ***Subject: Software Testing***
Paper ID: 44317

Time : 3 Hours ***Maximum Marks : 60***

Note: Attempt five question including Q.1 which is compulsory.

Q1 (a) What is software testing? Is it possible to do complete testing? **(2)**

(b) Differentiate between:- **(2x8=16)**

(i) Alpha and Beta testing
(ii) Static and dynamic testing tools
(iii) Fault, bug and failure
(iv) Test, Test case and Test Suite
(v) Performance and Functional testing
(vi) Black box and white box testing
(vii) Verification and validation
(viii) Positive and negative testing

(c) What is risk? What is the use of risk analysis? **(2)**

Q2 (a) When to stop testing is a very crucial decision? What factors should be considered for taking such a decision? **(3)**

(b) Testing is not a single phase in the software development life cycle. Explain and comment. **(3)**

(c) There are two limitations in software testing:- **(4)**

(i) Input domain is too large to test (ii) Too many paths in the program

Justify these limitations with the help of suitable examples.

OR

(a) Write a program to add two digit integers. Can we test the program completely? If so, how many test cases are required? Assume that each test case can be executed and analyzed in one second, how long would it take to execute all test cases? **(6)**

(b) Define a test case. What are the objectives of test case design? Discuss the various steps involved. **(4)**

Q3 (a) Consider the following points based faculty appraisal and development system of a university:-

Points Earned	University view
1-6	Work hard to improve
6-8	Satisfactory
8-10	Good
10-12	Very good
12-15	outstanding

Generate the test cases using equivalence class testing. **(6)**

(b) What are the limitations of boundary value analysis technique? Discuss the situations in which it is not effective. **(4)**

OR

(a) Consider the program to find the median of three numbers. Its input is a triple of positive integers (say x, y and z) and values are from interval [100,500]. Generate boundary, robust and worst-case test cases. **(4)**

P.T.O.

(b) Consider a program for classification of a triangle. Its input is a triple of positive integers (say a, b, c) from interval [1,100]. The output may be one of the following:- **(6)**
[Scalene, Isosceles, Equilateral, Not a triangle, invalid inputs]. Find all du-paths identify those du-paths that are definition clear.

Q4 (a) What slice based testing? How can it improve testing? Explain the concept with the help of an example and write test cases accordingly. **(6)**

(b) Discuss the regression test selection algorithm using an example. **(4)**

OR

(a) What is mutation testing? What is the purpose of mutation score? Why higher order mutants are not preferred? **(4)**

(b) What are popular debugging approaches? Which one is more popular and why? **(3)**

(c) What is a risk matrix? How do we assign thresholds that group the potential problems into priority categories? **(3)**

Q5 (a) What is class testing? What are various issues related to class testing? **(4)**

(b) Explain the testing process for object oriented programs. **(6)**

OR

Write short notes on the following:- **(4+3+3)**

(a) Graph matrix

(b) Object oriented concepts

(c) Integration testing