Practitioner Certificate
In
Software Testing

Practice Exam 2

Time allowed: 3 hours

1 Compulsory Question

5 optional questions, from which 3 questions must be attempted

(for the purposes of a practice exam, there are only three optional questions, i.e. you need to attempt every question within this paper)

Examination Question 1

(40 marks possible)

1) Provide a description of the following test techniques. The description should clearly show how each technique can be used to create test cases. Diagrams may be used for clarity.

   - Error Guessing
   - Equivalence partitioning
   - Boundary value analysis

   (15 marks)

Consider the following requirements for a simple stopwatch program:

- When the stopwatch is started it counts from zero to sixty seconds. When the stopwatch reaches sixty seconds it will stop.
- The time in seconds that the count should stop at, can be manually input. If no input is received, it will default to 60 seconds.
- The stopwatch can be stopped at any time, and can also be un-paused to continue the count.

2) Create two test cases from the above requirements for each of the following testing techniques:

   - Requirements-based functional testing
   - Equivalence partitioning
   - Boundary value analysis

   Each test case must include a title, purpose, test steps, expected result, any explanatory notes. *(10 marks)*

3) Provide a description of the following Non-functional testing techniques:

   - Useability testing
   - Stress testing
   - Volume testing
   - Performance testing

   (15 marks)

Examination Question 2

(20 marks possible)

You have been tasked as the Test Manager of a large software development project. Previously, the testing department has performed tests on an ad-hoc type basis resulting in poor quality products. The company is aiming to improve this situation by incorporating a more formalised 'Test' Process'. Also, the company is considering the utilisation of 'Alpha' and 'Beta' testing with a view to improve the overall testing process.

1) Describe in detail the 'Generic Test Process'. Include heading, and descriptions for each stage within the process. *(10 marks)*

2) Provide a detailed comparison of 'Alpha' and 'Beta' testing. *(10 marks)*

Examination Question 3

(20 marks possible)

An online electrical retailer has a popular website to allow its customers to buy products over the internet. The business has expanded considerably over recent years resulting in an increasing amount of online orders. The company has tried several different software packages to control the online ordering process with varied success, and so has now decided to implement a new package.

You represent the testing department as part of a team put together to bid for the contract to supply a software package to the electrical retailer. You have been made aware of the concerns from the customer.

- Online transaction security is a high priority
- How many orders can be processed within a given time?
- How the end users will actually use the product
- What happens if the demand on the software dramatically increases?

1) Provide details of the types of non-functional testing techniques that you would recommend to satisfy the customers concerns. *(8 marks)*

2) The Manager in charge of the bid has expressed his concerns over the amount of time it would take to perform the testing activities you have suggested. Describe the impact of not testing each of the concerns in the scenario. *(6 marks)*

3) A question has been put to you from the prospective customer asking you how you would go about choosing a test technique. Include in your answer a checklist of points to consider. *(6 marks)*

Examination Question 4

(20 marks possible)

You have been concerned recently with the delay in code being handed-over from the Developers to the Systems Test team. Upon investigation it appears that the Developers have no formal process for static analysis. This results in faults being found in unit tests, which requires additional time being spent rectifying the faults.

1) In order to get the Developers to spend more time using static analysis, you need to convince the Project Managers that it will be time well spent.

   Provide an overview of what static analysis is? Its advantages and also the types of errors it can detect. *(7 marks)*

2) Describe the following complexity metrics:

   - Lines of Code
   - Cyclomatic Complexity

   (7 marks)

3) Provide a comparison of the TMM and the TPI. *(6 marks)*