Name :	
Roll No. :	An Annual With North Start Careford
Invigilator's Signature :	

CS / B.TECH (IT) / SEM-6 / IT-601 / 2011

2011

SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

Time Allotted : 3 Hours

Full Marks: 70

The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.

GROUP – A (Objective Type Questions)

1. Answer the following questions :

A. Write true / false :

 $5 \times 1 = 5$

- i) Quality Assurance is applicable in product.
- ii) MTTF is related with non-repairable system.
- iii) Step Function model is unrealistic in nature.
- iv) Code walk through is done by development team.
- v) Testing objective have no link with SRS.

B. Choose the correct alternatives for the following :

5 × 1 = 5

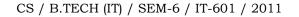
- vi) MTBF is measured in terms of
 - a) day

c)

- b) year
- hours d) minutes.
- vii) DMAIC is related with
 - a) ISO
- b) CMM
- c) ISO-9001 d) Six-Sigma.

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- viii) Performance testing is a type of
 - a) unit testing
 - b) integration testing
 - c) runtime operation testing
 - d) system testing.
- ix) If the project size is same then the development time is maximum in case
 - a) embedded
 - b) semidetached
 - c) organic
- x) Project planning does not include
 - a) Risk identification b) Design
 - c) Cost estimation d) Configuration.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

- 2. What is performance testing ? Is it a black box testing technique ? Explain. 2 + 3
- 3. Consider the following program segment :

Design the test cases using boundary value.

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What is formal technical review ? List the objectives of FTR.
$$2 \pm 3$$

5. Differentiate :

4.

- i) Walkthrough from inspection ,
- ii) Verification from validation. $2\frac{1}{2} + 2\frac{1}{2}$
- 6. Explain the use of prototyping in product development.

GROUP - C

(Long Answer Type Questions)

		Answer any <i>three</i> of the following.	3 × 15 = 45
7.	a)	a) What are the advantages of function points over the size	
		metric of LOC ?	3

- b) Distinguish between static and dynamic testing. 4
- c) What is symbolic execution ? Consider the following function :

function max (x, y, z: integer) : integer;

begin

```
if x \le y then
max = y
```

else

```
\max = x;
```

```
if max < z then
```

```
max = z;
```

```
end;
```

5

Draw a symbolic execution tree for the above function

d) What is the goal of mutation testing ? 3

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- a) List the steps for deriving the path coverage based test cases of a program.
 - b) Compare top-down and bottom-up Integration testing. 4
 - c) What is Acceptance testing ? 3
 - d) Distinguish between Alpha testing and Beta testing. 4
- 9. a) Define Software 'Reliability' and 'Availability'. 3 + 3
 - b) Discuss the metrics used for specifying software reliability and availability. 5
 - c) What is the difference between the basic and logarithmic model of reliability proposed by Musa ? 4
- 10. a) Discuss the different types of modules in a system. 5
 - b) What is a structure chart's role in physical information system design ? 4
 - c) Define Usability. How can it be measured ? 3 + 3

11. a) What is algorithmic cost estimation ? 2

- b) Consider a project to develop a full screen editor. The sizes for the major modules are estimated to be 4 KLOC, 2 KLOC, 1 KLOC, 2 KLOC and 3 KLOC. Use COCOMO to determine cost and schedule estimates for different phases. Assume that the significant cost drivers adjustment factors to be 1.216.
- c) Discuss briefly the standard ways in which the software organization and teams can be structured.
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