

Time: 3 Hours

FEBRUARY 2014

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE:

- **Question 1 is compulsory and carries 28 marks. Answer any FOUR questions from the rest. Marks are indicated against each question.**
- **Parts of a question should be answered at the same place.**

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- Q.1** a. What is the difference between Software Product and Software Process?
b. Explain CMM and ISO approaches to Quality Assurance System.
c. Name any four software testing tools.
d. What is function point? Discuss how function point metrics is computed.
e. What is software risk? Explain the steps involved in mitigating software risks.
f. Explain the use of Case diagram. Why is it important?
g. Differentiate between Glass Box Testing and Black Box Testing. **(7×4)**
- Q.2** a. State Prototyping model in detail. What are the advantages and disadvantages of Prototyping model? **(9)**
b. Describe the main activities in the software design process and the outputs of these activities. Using a diagram, show possible relationships between the outputs of these activities. **(9)**
- Q.3** a. State the difference between 'measure', 'metric' and 'indicators'. **(6)**
b. What are the different ways in which an object can access another in a language like C++? (Do not consider the access allowed by being a friend). Can we have inheritance without polymorphism? Explain. **(6)**
c. Explain the structure of an SRS document with a suitable example. **(6)**
- Q.4** a. Write a program in C language to calculate the roots of Quadratic equation. Calculate the Cyclomatic complexity. **(6)**
b. What is Cohesion? Explain the various levels of Cohesion with a suitable example. **(6)**

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- c. What is debugging? Explain the most commonly used approaches for debugging. (6)
- Q.5** a. Name the characteristics which lead to testable software. (3)
- b. Perform a Halstead analysis on the following source code:
SUBROUTINE SORT(X, N)
DIMENSION X(N)
IF (N.LT.2) RETURN
DO 20 I=2, N
 DO 10 J=1,I
 IF (X(I).GE.X(J)) GO TO 10
 SVE=X(I)
 X(I)=X(J)
 X(J)=SVE
10 CONTINUE
20 CONTINUE
RETURN
END (9)
- c. Explain Clean Room Software Engineering. (6)
- Q.6** a. Explain in detail the software reengineering process model with a diagram. (12)
- b. What is the difference between restructuring and forward engineering. (6)
- Q.7** Write short notes on any **THREE** of the following:- (6×3)
- (i) Coding standards and guidelines
 - (ii) PERT
 - (iii) Software Reliability Metrics
 - (iv) Verification and Validation testing