

GUJARAT TECHNOLOGICAL UNIVERSITY**ME - SEMESTER– III • EXAMINATION – WINTER • 2014****Subject Code: 730104****Date: 27-11-2014****Subject Name: Software Engineering Methodology****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Differentiate Verification & Validation. Also define the following terms: Error, Mistake, Bug, Fault, and Failure. **07**
- (b) Explain any Software project estimation technique with example. **07**

- Q.2** (a) Explain White box testing and Black box testing with an example for each. **07**
- (b) Design Robust boundary value test cases for the program used for determination of the previous date. It takes 3 inputs: day, month & year; values of which are in the following range:
[1 <= month <= 12], [1 <= day <= 31], [1900 <= year <= 2025]
Possible outputs would be Actual previous date or the string "Invalid input date". Also provide the total number of "worst case" test cases possible. Do not design all the worst cases. **07**

OR

- (b) Design Robust boundary values test cases for the program used for determination of the nature of roots of a quadratic equation. Its input is a triplet of positive integers (say a, b, c) and the values may be from interval [0, 100]. The program's expected output may have one of the following words:
[Not a quadratic equation; Real roots; Imaginary roots; Equal roots]
Also provide the total number of "worst case" test cases possible. Do not design all the worst cases. **07**
- Q.3** (a) Explain the WebE Process? **07**
- (b) Compute the functions points for an application having following functional units: 10 low external inputs, 12 high external outputs, 20 low internal logic files, 15 high external interface files, 12 average external inquiries and a value of complexity adjustment factor of 1.10 **07**

OR

- Q.3** (a) Discuss the WebE Best practices and WebE Worst practices. **07**
- (b) Suppose that a project was estimated to be 400 KLOC. Using the COCOMO model calculate the effort and development time for each of the three modes i.e. Organic, Semidetached and Embedded. **07**

- Q.4** (a) Discuss SCM process in detail. **07**
- (b) Explain content, database, user interface and usability testing for Web Apps. **07**

OR

- Q.4** (a) Discuss Clean-room Software engineering approach. **07**
- (b) Explain navigation, configuration, security & performance testing for Web Apps. **07**

- Q.5** (a) What is SQA? Explain ISO 9000 quality standard. **07**
- (b) Explain Business process re-engineering vs. Software re-engineering. **07**

OR

- Q.5** (a) Explain Earned Value Analysis with example. **07**
- (b) Describe Risk Management. Explain Reactive risk management & Proactive risk management. **07**
