SVKM's NMIMS
MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Programme: B. Tech (Computer) Year: III Semester: V

Academic Year: 2015-2016

Subject: Software Engineering

Date: 02/12/2015

Marks : 60
Time : 2.00 pm to 5.00 pm
Durations : 3 (hrs)

Final-Examination

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

NB:

1. Question No.1 is compulsory.
2. Attempt any four out of remaining six questions.
3. In all 5 questions to be attempted
4. All questions carry equal marks.
5. Answer to each new question to be started on fresh page.
6. Figures in bracket on the right hand side indicate full marks.

Q1 Solve any Four (12)

A Differentiate software versus program and describe importance of Software Engineering

B Explain verification and validation pertaining to software testing with example

C Design User Interface for Sign In to email service for which user is registered and explain how interface design golden rules are applied

D Which process model will be preferred for web application for online jewelry shop ? Justify

E Draw State Transition Diagram for Laser Printer

F List generic software process activities and umbrella activities

Q2 A How will you apply RAD process model to develop software for Student Admission System for the XI Std (FYJC) Science at an Autonomous Institute. (6)

B Write Three Scenarios and Draw Context Level Data Flow Diagram for software system having following problem statement (6)

to depict System Requirement

ABC Housing Society having Four Wings. In each wing there are 32 Flats. Each wing has overhead water tank having capacity of 25000 Liters. The society also has underground Water Tank of capacity of 75000 Liters with water connection from Municipal Corporation. Currently the water levels in each tank is managed by manual valve control. Existing system resulting in wastage of water in overflow as well as non-availability of water in overhead and underground tank. Society decided to develop Automatic Water Level Control System with suitable hardware and software. The system should keep constant watch on water levels and according control Motor and inlet valve to maintain required water level.

Q3 A Describe SCRUM agile process model with advantages and disadvantages (6)

B Explain Transform Mapping with suitable diagram (6)

Q4 A What are key process areas required to achieve CMMI maturity level Managed, Defined, Quantitatively Managed and Optimizing (6)

B Explain Equivalence Partitioning and Boundary Value Analysis (6)

Q5 A Consider effort required for project is 50 person-months and productivity is 12 FP per each person-month. Summation of Value Adjustment Factors is 46. (6)

Calculate tentative External Inputs, External Outputs, External Inquiries, Internal Logical Files and External Interface Files assuming weighting factor as Average with values (EI-4, EO-5, EQ-4, ILF-10, EIF-7).

B Explain Integration Testing and Smoke Testing with its benefits (6)

Q6 A Draw the control flow graph for the following function named find-maximum. From the control flow graph, determine its Cyclomatic complexity. (6)

```
int find-maximum(int i, int j, int k)
    {
      int max;
          if (i>j) then
                  if (i>k) then max = i;
                          else max = k;
          else
                  if (j>k) then max = j;
                          else max = k;
      return(max);
    }
```

B Which activities are to be performed by SQA team? (6)

Q7 Write Short Note : Solve any TWO (12)

A Reengineering and Reverse Engineering

B Software Configuration Management Process

C System Requirement Specification Document with Example

D Architectural Design Metrics

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