Course No : IS 341

Course Title : Software Engineering

Component : Test 1(Closed Book)

Max Marks: 30

Duration: 1 hour

Date: 17/2/13

Note: 1. Answer the Questions strictly in sequential order.

2. Answer each Question on fresh page.

3. Write the answers in points form highlighting the key points.

Q 1) Answer the following questions briefly. (7 * 2)

a) State the reason why software requirements elicitation is difficult.

b) Who provides automated support for software process activities?

c) Mention the layers of software engineering.

d) Why we measure software process?

e) Mention the drawbacks of RAD model.

f) In the software development process what kind of people are teamed in requirement elicitation?

g) What are functional and non-functional requirements of the software products?

Q 2) Differentiate between 1-tier, 2tier and 3-tier. (3)

Q 3) Differentiate between Process and Product. Which one is more important and why? (3)

Q 4) A company has created a new small business division to develop a specialized wireless protocol system. Approximately 12 people will be transferred from the key areas of the company to form the base for the venture. Some 23 additional people will be hired from the outside, the bulk of them are the engineers. It has already been decided that project will be on object oriented and approached will be used in java. None of the participant has prior knowledge of these techniques, but will go through few days training when they come on board. In addition a consortium-partner of the company has just released a new development platform. This will be development platform of choice. The company has certain financial difficulties.

What do you think is the most appropriate life cycle approach? Justify (5)

Q 5) A telephone company has decided to implement an interactive web-based alternative to the telephone directory. Using this service, anybody with access to the Internet shall be able to browse and search the company's list of telephone customers to find their name, address, and phone number. In addition, it shall be possible for the customers listed in the directory to extend this information with their email- and web addresses. To access this functionality,

customers must authenticate themselves by supplying a password provided by the telephone company. (5)

Course No : IS 341	**Max Marks: 30**
Course Title : Software Engineering	**Duration: 1 hour**
Component : Test 2(Closed Book)	**Date: 23/03/13**

Note: 1. Answer the Questions strictly in sequential order.

2. Answer each Question on fresh page.

3. Write the answers in points form highlighting the key points.

Q 1) How are design patterns different from algorithms and data structures? Do design patterns provide architecture? [4]

Q 2) Explain some of the standard conceptual ways of software design. [5]

Q 3) State the difference between system testing and system integration testing. [3]

Q 4) Mention the difference between Error, defect, failure with respect to various phases of software development. Are they interrelated? Justify if yes.
[4]

Q 5) Give an example of aggregate association and composite aggregation with explanation [4]

Q 5) Answer [2 * 5]

   a) Explain Big Bang testing.

   b) Significance of path coverage in testing.

   c) How does cohesion and coupling plays a role in developing good software product.

   d) What are the necessary inputs for integration testing?

   e) What is mutation testing?

Course No : IS 341

Course Title : Software Engineering

Component : COMPRE(Closed Book)

Max Marks: 24

Duration: 1 hour

Date: 4/5/13

MARKS:

PART A

ID:

Q1) Choose the correct answer among choices and mention in the box below.   [10 *1]

a. The most important feature of spiral model is
(A) Requirement analysis. (B) Risk management. (C) Quality management. (D) Configuration management.

b. The worst type of coupling is
(A) Data coupling. (B) Control coupling. (C) Stamp coupling. (D) Content coupling

c. One of the fault base testing techniques is
(A) Unit testing. (B) Beta testing. (C) Stress testing. (D) Mutation testing.

d. SRS is also known as specification of
(A) White box testing (B) Stress testing (C) Integrated testing (D) Black box testing

e. The desired level of coupling is
(A) No coupling (B) Control coupling (C) Common coupling (D) Data coupling

f. If every requirement can be checked by a cost-effective process, then the SRS is
(A) Verifiable (B) Traceable (C) Modifiable (D) Complete

g. The main purpose of integration testing is to find
(A) Design errors (B) Analysis errors (C) Procedure errors (D) Interface errors

h. Which of the following is not a class of pattern?
(A) Creational (B) Conditional (C) Structural (D) Behavioural

i. Cost of error correction is least at
(A)Implementation stage (B) design stage (C) Development stage (D) Requirement stage.

j) An important aspect of coding is
(A)Readability (B) Productivity (C) To use as small memory space as possible (D) brevity

Q2) Answer   [7*2]

a. Mention three risk categories.

b. Mention four web application attributes

c. Mention Distributed system characteristics

d. Mention user interface design principals.

e. Mention the risk drivers that affect the risk components

f. Mention the different evolution stages of component.

g. Mention software quality attributes

Course No   : IS 341
Course Title   : Software Engineering
Component   : COMPRE(Closed Book)

Max Marks: 46/70
Duration: 2 hour
Date: 4/5/13

PART B

[5*5]

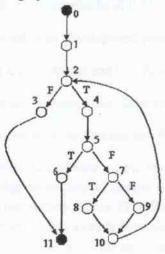Q3) Answer briefly.

   a.   What is the difference between Statement Coverage, Branch Coverage, and Path Coverage?
   b.   Differentiate between functional testing and structural testing.
   c.   What problems arise if two modules have high coupling?
   d.   Explain boundary value analysis.
   e.   What are different types of interaction diagrams? Compare them. What are the key differences between those diagram types considering their characteristics and their application?

Q 4) What are fundamental difference between component as program elements and component as services?[4]

Q5) Explain why it is difficult to validate the relation between internal product attributes, such as cyclomatic complexity and external attributes such as maintainability. [6]

Q 6) For the flow graph shown in fig [4]

   a.   compute the McCobe's cyclomatic complexity
   b.   Find out independent paths

Q 7) Compute Halstead metrics.(Vocabulary and Estimated length) [7]

```
void sort ( int*a, int n ) {  int i, j, t;
                    if ( n < 2 ) return;
                    for( i=0 ; i < n-1; i++ ) {  for( j=i+1 ; j < n ; j++ ) {  if ( a[i] > a[j] ) { t = a[i];
                                                                                                    a[i] = a[j];
                                                                                                    a[j] = t; }
                    }}
```