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RM-7693-R

B. E. - IV (Sem. VIII) (Co.) Examination

May / June – 2010

Software Engineering

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - 4 (Sem. 8) (CO.)**

Name of the Subject :

☛ **Software Engineering**

☛Subject Code No. : **7 6 9 3** ☛Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) All questions are **compulsory**.
(3) Figures to the **right** indicate full marks.
(4) State and make necessary assumption if required.

Section I

Q.1 (A) State whether the following Statements are TRUE or FALSE: **[05]**

1 Verification refers to the set of activities that ensure that software correctly implements a specific function.
2 Very through white box testing would lead to 100 percent correct programs.
3 The waterfall model is the oldest paradigm for software engineering.
4 The only deliverable work product for a successful project is the working program.
5. Project requirements continually change, but change can be easily accommodated because software is flexible.

(B) What is Project Management? What qualities do we look for when choosing someone to lead a software project? **[08]**

OR

Explain spiral model with diagram. **[08]**

(C) Determine Cyclomatric Complexity and write a set of linearly independent path for the following pseudo code. **[07]**

```
Procedure Validate_Pin(Valid_Pin, Return_Code)
Valid_Pin=FALSE
Return_Code=GOOD
Pin_Count=0
Do until Valid_Pin=TRUE OR Pin_Count >2 OR  Return_Code=CANCEL
Begin
```

```
Get Pin_Number (Pin_Number, Return_Code)
If (Return_Code  != CANCEL)
    Begin
        If (Valid_Pin = FALSE) then
          Begin
           Output "Invalid Pin"
           Pin_Count=Pin_Count+1
          End
    End
End
Return(Valid_Pin,Return_Code)
```

Q.2 (A) Define the following: (Any Four) **[08]**

1. CMMI
2. Waterfall Model
3 Performance Testing
4 driver and stub in unit testing
5 Risk Projection

Q.2 (B) What do you mean by integration testing? What are the steps for top-down integration? What problems may be encountered when top-down integration is chosen? **[07]**

OR

(B) Define Black Box Testing. Which kind of errors is uncovered by black box testing? What questions do black box tests answer? **[07]**

Q.3 (A) Attempt Any Three: **[12]**

1. How should effort be distributed across the software process workflow?
2. What do you mean by risk components and drivers?
3. What are the objectives of FTR?
4. What is the origin of changes that are requested for software?
5. Which are the qualities of a good test?

(B) Which of the SQA activities are encompassed into verification and validation? **[03]**

SECTION – II

Q.4 [A] Do as directed

(i) Which one of the following diagram does not represent the dynamic view of application domain in UML **[01]**

(a) State diagram (b) Sequence diagram
(c) Collaboration diagram (d) Component diagram

(ii) Best coupling between module is **[01]**

(a) Data coupling (b) Content coupling
(c) Control coupling (d) Stamp coupling

(iii) Worst type of cohesion is **[01]**

(a) Coincidental cohesion (b) Communicational cohesion
(c) Temporal cohesion (d) Procedural cohesion

(iv) What is system engineering **[01]**

(v) What is analysis package? How do we specify visibility? **[02]**

(vi) How *Pareto principle* applies to software testing? **[02]**

(vii) Explain the 'Open-Closed Principle 'for component level design. **[02]**

(viii) 'If we subdivide software indefinitely, the effort required to develop it will become negligibly small!' Comment on validity of the statement. **[02]**

[B] What is software architecture? Why it is important? Describe and draw various architecture styles. [08]

Q.5 [A] Describe Bohem's W^5HH principle for project planning and management. [05]

[B] Explain Quality Function Deployment. [04]

[C] Discuss the issues in design of user interface. [06]

OR

Q.5 [A] Describe various models of User Interface Analysis and Design. [06]

[B] Explain operational principles for analysis modeling. [04]

[C] List out the key principles that should be followed at the time of software deployment. [05]

Q.6 Design the software to support the operation of a public library. The system has a number of stations for customer transactions. These stations are operated by library employees. When book is borrowed, the identification card of the client is read. Next, the station's bar code reader reads the book's code. When a book is returned, the identification card is not needed and only the book's code needs to be read. Clients may search the library catalog from any of the PCs located in the library. When doing so, the user is first asked to indicate how the search is to be done: by title, or by keyword. The library personnel can change the content of the catalog and handle the fine. Password if required for these functions.

[A] Identify classes, find associations between them and draw the class diagram from above problem definition. [08]

[B] Draw the sequence diagram for borrowing a book from above problem definition. [07]

OR

[B] Explain various elements of Flow-Oriented modeling. [07]
