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V SEMESTER B.TECH.(COMPUTER SCIENCE AND ENGINEERING) DEGREE
END-SEMESTER EXAMINATION-DECEMBER 2013
SUBJECT: SOFTWARE ENGINEERING (CSE 305)
DATE: 07.12.2013

TIME: 3 HOURS MAX.MARKS: 50

Instructions to Candidates

- **Note:** Answer any **FIVE** full questions.

1. A) Mention any two limitations of the conventional water fall model.
B) Explain & justify with a neat sketch, how the spiral model can be adapted to apply throughout the entire life cycle of an application from concept development to maintenance?
C) What is Agility? Explain the four frame work activities of Extreme Programming (XP) with suitable diagram?

(1+ (1+2) + (1 + (1+4))

2. A) Justify why the design of a software product is to be wise and just? List and explain any four software design modeling principles.
B) With a neat sketch explain the goal of product engineering and explain the various aspects of the requirement, component engineering and the roles of a software engineer in detail.

((1+4) + (2+3))

3. A) Enumerate the key difference between an *actor* and a *scenario* with respect to USE CASE diagrams?
B) What are the purposes of "include" and "extend" relationship in USE CASE diagrams? How they are represented?
C) Draw a simple USE CASE diagram for the following operation to differentiate clearly "include" and "extend". A person 'X' "drives a car" using key functions like "brake" and "turn", he is enabled to turn the vehicle in both "left" and "right" directions, also he could drive an ambulance too.
D) What is quality function deployment? Mention any two of its requirements types. (2 + 2 + 4 + (1+1))

4. A) How is the quality of software design assessed? Mention any two goals of good software design

B) What is "Pattern based S/W design"? Explain in detail any two types of design pattern.

C) Draw a level 0 and level 1 DFD to enumerate functionality of a "***Student Information System – SIS***". Where in, at level 0, ***SIS*** is associated with ***My SQL Database*** having *details* and *reports* and associated with ***Admin / User*** having *student details* and *final report*. At level 1, SIS is associated with ***Attendance*** having *Attendance Information*, *Details*, with ***marks*** having *view reports and membership details*, with ***administration*** having *course section data*, with ***faculty*** having *faculty info and remuneration* and finally with ***student*** having *student info* and *degree*. ((1+2) + (1+2) + (1+3))

5. A) Differentiate between "Verification" and "Validation" with respect to software testing?

B) List and explain various steps involved in software risk management strategy.

C) Draw the control flow graph for the following code snippet given below and determine the Cyclomatic complexity V (G) and write down its possible independent paths.

```
i=0
n=4
while (i<n-1) do
j=i+1
while (j<n) do
if(a[i]<a[j]) then
swap (a[i], a[j])
else
swap (a[j], a[i])
end do
i=i+1
end do
end program
```

(1 + 4 + (2+2+1))

6. A) Define Software Quality? Differentiate between a 'measure' and 'measurement' with respect to software quality?

B) List and brief three goals of Software Quality Assurance (SQA) group? Mention any two pre-requisites which will make SQA more effective?

C) Write brief note on three COCOMO II models?

((1+1) + (3+2) + 3)

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