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Total number of printed pages – 2

B. Tech
PCCS 4402

Seventh Semester Examination – 2011

PRINCIPLES AND PRACTICES IN SOFTWARE ENGINEERING

Full Marks – 70

Time : 3 - Hours

Answer Question No. 1 which is compulsory and any **five** from the rest.

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10
 - (a) What is software engineering ?
 - (b) How you distinguish between program and software product ?
 - (c) Why software life cycle model is important ?
 - (d) What is software project management ?
 - (e) What is a sequence diagram ?
 - (f) What is a singleton design pattern ?
 - (g) How cohesion differs from coupling ?
 - (h) What do you mean by reengineering ?
 - (i) How system testing differs from integration testing ?
 - (j) What are the important artifacts that can be reused ?
2. Compare the relative advantages of using waterfall model and the spiral model of software development. Under what circumstances Prototyping model is beneficial to use. Discuss with examples. 5+5
3. Discuss the major advantages of the object oriented design methodologies over data flow oriented design methodology. Discuss the importance of preparing SRS document. What is phase containment of errors ? 4+4+2

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4. State the organization of an SPMP document. How Function point metric overcomes some drawbacks of Lines of Code metric ? 5+5
5. How black box testing differs from white box testing ? Write down the different types of performance testing. Write down the format of a test case. 4+4+2
6. What are the different types of maintenance that a software product might need ? Discuss two software maintenance process models in detail. 5+5
7. How do you find out cyclomatic complexity of a function ? Discuss with an example. Draw level 0 and level 1 DFD of an online railway reservation system where normal users and agents can book and cancel railway tickers. All tickets cancelled after the actual departure of the train has to be authorized by the railway administrators for refund. 4+6
8. Write short notes on : 2.5×4
 - (a) Test coverage analysis
 - (b) Code review techniques
 - (c) SEI CMMI level
 - (d) Computer Aided Software Engineering (CASE).