

END TERM EXAMINATION

SECOND SEMESTER [MCA] MAY-JUNE-2014

Paper Code: MCA-110	Subject: Software Engineering (2010 Onwards)
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Time: 3 Hours	Maximum Marks: 60
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Note: Attempt any five questions, including Q.no.1 which is compulsory. Select one question from each unit.
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- Q1 Answer the following questions briefly:- (10x2=20)
- ~~(a)~~ Why is software process difficult to improve?
 - ~~(b)~~ List out requirements elicitation techniques. Which one is most popular and why?
 - ~~(c)~~ What is risk? Is it economical to do risk management?
 - ~~(d)~~ What problems are likely to arise if a module has a high coupling?
 - ~~(e)~~ Define software metrics. Why do we really need metrics in software?
 - ~~(f)~~ What is software reliability? Does it exist?
 - ~~(g)~~ What is software testing?
 - ~~(h)~~ What is the difference between fault and failure?
 - ~~(i)~~ What is software maintenance?
 - ~~(j)~~ Define software Re-Engineering.

Unit-I

- Q2 ~~(a)~~ Explain Spiral model for software development. (5)
- ~~(b)~~ Describe the characteristics of software contrasting it with the characteristics of hardware. (5)
- Q3 (a) Draw a detailed DFD for result preparation automation system of MCA courses of any university. Clearly describe the working of the system. Also mention all assumption made by you. (7)
- (b) Describe various characteristics of SRS. (3)

Unit-II

- Q4 (a) Describe any two software size estimation techniques. Compute the function point value for a project with the following information domain characteristics. (4)
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|----------------------------|-----|
| No. of user inputs | =30 |
| No. of user outputs | =42 |
| No. of user enquires | =08 |
| No. of files | =30 |
| No. of external interfaces | =30 |
- Assume that all complexity adjustment values are moderate.
- (b) Explain Putnam Resource Allocation Model in detail. (6)
- Q5 ~~(a)~~ Discuss the difference between cohesion and coupling. (5)
- (b) Describe the various strategies of design. Which design strategy is most popular and practical? (5)

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Unit-III

- Q6 (a) Give Halstead's software science measures for:- (5)
(i) Program Length.
(ii) Program Volume.
(iii) Program Level
(iv) Effort
(b) Define Data Structure metrics. How can we calculate amount of data in a program? (5)
- Q7 (a) Discuss Logarithmic Poission models of reliability. (5)
(b) Assume that the failure intensity is 10 failures/CPU hr. The failure intensity decay parameter is 0.03/failure. We have experienced 75 failures upto this time. Find the failures experienced and failure intensity after 25 and 50 CPU hrs. of execution. (5)

Unit-IV

- Q8- (a) Consider a program to divide two numbers. The inputs may be two valid integers (say a and b) in the range of [0,-100]. Create equivalence classes and generate test cases. (6)
(b) Describe various debugging approaches. (4)
- Q9 (a) Explain Taute maintenance model. (5)
(b) What is software configuration? Why is configuration management required at all? Explain in detail. (5)
