

END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY 2018

Paper Code: BCA-208

Subject: Software Engineering

Time: 3 Hours

Maximum Marks: 75

Note: Attempt five questions in all including Q.no.1 which is compulsory.
Select one question from each unit.

- Q1 Answer the following questions briefly: (2.5x10=25)
- (a) What is software crisis? Was Y2K a software crisis.
 - (b) Distinguish between generic and customized software product. Which one has larger share of market and why?
 - (c) What are the characteristics of a good SRS?
 - (d) Describe any two software size estimation techniques.
 - (e) Define module cohesion and list down various types of cohesion.
 - (f) What are the various categories of software metric?
 - (g) What are the crucial process steps of requirement engineering? Discuss with the help of a suitable diagram.
 - (h) What are the different levels of testing?
 - (i) What are the various categories of software maintenance?
 - (j) What do you mean by Regression testing?

Unit-I

- Q2 (a) Explain the spiral model of software development with the help of a diagram. What are the limitations of such a model? (5)
- (b) Consider the problem of University Result Management System and design the following: (7.5)
- (i) Use Case Diagram
 - (ii) Level-1 DFD
 - (iii) ER Diagram

- Q3 (a) What is facilitated application specification technique (FAST) and compare this with brainstorming sessions. (2.5)
- (b) List out the merits and demerits of various SDLS models. (10)

Unit-II

- Q4 (a) What are the risk management activities? Is it possible to prioritize the risk? (5)
- (b) Compare the Walston-Felix model with the SEL model on a software development expected to involve 8 person-years of effort. (7.5)
- (i) Calculate the number of lines of source code that can be produced.
 - (ii) Calculate the duration of the development.
 - (iii) Calculate the productivity in LOC/PY.
 - (iv) Calculate average manning.
- Q5 (a) Describe the role of management in software development with the help of examples. (5)
- (b) Suppose that a project was estimated to be 600 KLOC. Calculate the effort, development time, average staff size and productivity for each of the three modes i.e. organic, semidetached and embedded. (7.5)

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Project	a _b	b _b	c _b	d _b
Organic	2.4	1.05	2.5	0.38
Semidetached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

Unit-III

- Q6 (a) Describe the various strategies of design. Which design is most popular and practical? **(6)**
- (b) For a program with the number of unique operators $n_1 = 40$ and number of unique operands $n_2 = 60$, compare the followings: **(6.5)**
- (i) Program Volume
 - (ii) Potential Volume
 - (iii) Program level
 - (iv) Program Difficulty
 - (v) Effort
 - (vi) Time
- Q7 (a) Write a short note on the following terms: **(6)**
- (i) Liver variables
 - (ii) Module weakness
- (b) Describe the following terms: **(6.5)**
- (i) Objects
 - (ii) Messages
 - (iii) Abstraction
 - (iv) Class
 - (v) Inheritance
 - (vi) Polymorphism

Unit-IV

- Q8 (a) Discuss the structural testing. How is it different from functional testing? **(6)**
- (b) Write a short note on the maintenance process with a suitable diagram. **(6.5)**
- Q9 (a) Briefly discuss the following: **(6.5)**
- (i) Test case design and test suite
 - (ii) Verification and Validation
 - (iii) Alpha, Beta and Acceptance testing
- (b) Write short note on the following: **(6)**
- (i) Re-engineering
 - (ii) Reverse Engineering

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