(Please write your Exam Roll No.) Exam Roll No. 06721402013

END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY- JUNE 2015

Paper Code: BCA-208 **Subject: Software Engineering (Batch 2011 onwards)**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q.1 which is compulsory. Select one question from each unit.

Q1 Answer the following question briefly: **(2.5x10=25)**

(a) What do you mean by Protyping?
(b) List out requirements elicitation techniques. Which one is most popular and why?
(c) What is more important: Product or process? Justify your answer.
(d) Differentiate between function point and LOC.
(e) What problem are likely to arise if a module has low cohesion?
(f) What is the importance of language level in Halstead theory of software science?
(g) Discuss the limitations of testing.
(h) What is the difference between Alpha and Beta testing?
(i) What are the various categories of maintenance. Which category consume maximum effort.
(j) Define software Re-Engineering.

Unit-I

Q2. (a) Discuss the prototype model. What is the effect of designing a prototype on the overall cost of the software project. **(6.5)**
(b) Draw 1-level DFD and E-R diagram of hospital management system. **(6)**

Q3. (a) List five desirable characteristics of a good SRS document. Discuss the relative advantages of formal requirement specifications. List the important issues, which an SRS must address. **(6.5)**
(b) Consider the problem of railway reservation system and design the following: **(6)**
(i) Problem statement
(ii) Use case diagram
(iii) Use cases

Unit-II

Q4. (a) What are the various factors of management dependency in software development? Discuss each factor in detail. **(6)**
(b) A project size of 200 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the effort, development time, average staff size and productivity of the project. Refer "Basic COCOMO coefficients" table below: **(6.5)**

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

Q5. (a) Discuss the various types of COCOMO model. Explain the phase wise distribution of effort. **(6.5)**

BCA-208

(b) The value of size of program in KLOC and different cost drivers are given below:

Size=400KLOC, Complexity=0.85, Analyst capability=1.19, Modern in programming Practices=0.82, Required software reliability=0.75 **(6)**
Calculate the effort, development time, average staff size and productivity of the project using COCOMO model.

Project	a_i	b_i	c_i	d_i
Organic	3.2	1.05	2.5	0.38
Semidetached	3.0	1.12	2.5	0.35
Embedded	2.8	1.20	2.5	0.32

Unit-III

Q6. (a) What is modularity? Explain different type of coupling. **(6)**
(b) For a program with number of unique operators n_1=20 and number of unique operands n_2=40, Compare the following.
(i) Program volume (ii) Effort and time
(iii) program length (iv) program level **(6.5)**

Q7. (a) Define Data Structures matrices. How can we calculate amount of data in a program? **(6.5)**
(b) Differentiate between Function oriented design and object oriented design. **(6)**

Unit-IV

Q8. (a) What are the various debugging approaches? Discuss them with the help of examples. **(6)**
(b) Consider a program to determine whether a number is 'odd' or 'even' and print the message NUMBER IS EVEN OR NUMBER IS ODD. The number may any valid integer. Design equivalence class test cases. **(6.5)**

Q9. (a) What is software maintenance? Describe various categories of maintenance. Which category Consumes maximum effort and why? **(6.5)**

(b) Write short note on the following: **(2x3=6)**
(i) Configuration Management
(ii) Documentation

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BCA-208

P2/2