SOFTWARE PROJECT MANAGEMENT & QUALITY ASSURANCE
(SEMESTER - 4)

CS/BCA/SEM-4/BCA-403/09

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ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009
SOFTWARE PROJECT MANAGEMENT & QUALITY ASSURANCE
(SEMESTER - 4)

Time : 3 Hours]   [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question.**
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

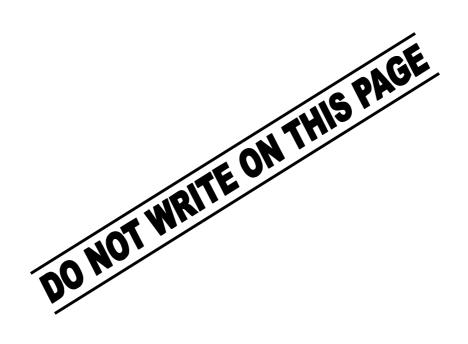**No additional sheets are to be used and no loose paper will be provided**

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GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :   10 × 1 = 10

    i)   The structured analysis development method is

         a)   partition the system into components

         b)   construct a model of the system

         c)   both (a) & (b)

         d)   none of these.

    ii) Which is not a software life cycle model ?

         a)   Waterfall model   b)   Spiral model

         c)   Combo model   d)   Prototyping model.

    iii) The maximum percentage of error lies in the

         a)   design   b)   coding

         c)   maintenance phase   d)   specification phase.

    iv) A feasibility study means

         a)   partly computerized & partly manually

         b)   conceptual solution of the problem

         c)   assessment of the viability of the project

         d)   none of these.

v)   The next major step before system design and after feasibility study is

    a)   analysis activity   b)   equipment selection activity

    c)   implementation activity   d)   none of these.

vi)   The detail study/investigation of the present system is frequently referred as

    a)   system planning   b)   system analysis

    c)   feasibility study   d)   none of these.

vii) Which of the following is not part of SDLC ?

    a)   SDLC audit   b)   Reliability

    c)   Security   d)   None of these.

viii) Outcome of requirement specification phase is

    a)   design document   b)   develop an SRS

    c)   test the document   d)   hand over the document.

ix)   Which one is not a strategy of design ?

    a)   Bottom up design   b)   Top down design

    c)   Embedded design   d)   Hybrid design.

x)   Alpha testing is done by

    a)   customer   b)   developer

    c)   tester   d)   all of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following questions.   3 × 5 = 15

2.   Describe briefly different levels of CMM.   5

3.   a)   Compare and contrast waterfall model and spiral model.

    b)   What do you mean by perfective maintenance ?   3 + 2

4.   a)   What do you mean by work breakdown structure ?

      b)   Briefly describe Gantt charts.   2 + 3

5.   Explain prototype model. What is meta model ?   3 + 2

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following questions.   3 × 15 = 45

6.   a)   What do you mean by software quality ? Explain.

      b)   Briefly discuss McCall's quality factors.

      c)   What are the main functions of Quality Assurance Group (QAG) ?   5 + 5 + 5

7.   a)   Consider a project with the following functional units :

          Number of user inputs = 50

          Number of user outputs = 40

          Number of user enquiries = 35

          Number of user files = 06

          Number of external interfaces = 04

          Assume Complexity Adjustment Factors (CAF) and weighting factors are average. Compute the function points for the project. [Assume CAF = 1·07]

      b)   A project size of 200 KLOC is to be developed. Software development team has average experience on similar types of projects. The project schedule is not very tight. Calculate the effort, development time, average staff size and productivity of the project.   7 + 8

8.   a)   What do you understand by the term 'integration testing' ? Which types of defects are uncovered during integration testing ?

      b)   Distinguish between software verification and software validation. When do you perform verification and validation in the context of software life cycle ?

      c)   Compare and contrast between black box and white box testing of software.

                                                                  5 + 5 + 5

9.   a)   Why should Pareto 80/20 rule be applied to software risk analysis ?

     b)   List the software quality assurance activities. What are software reviews ? What
          are its benefits ?

     c)   Explain ISO 9001 requirements.   5 + 5 + 5

10. Consider the following program segment.

```
void sort (int a[], int n){
int i,j;
for(i=0;i<n—1;i++
for(j=i+1;j<n;j++)
if(a[i]>a[j])
{
temp=a[i];
a[i]=a[j];
a[j]=temp;
}
}
```

     a)   Draw the control flow graph for above program segment.

     b)   Determine the cyclomatic complexity for above program. (Show all the
          intermediate steps in your computation).

     c)   How is the cyclomatic complexity metric useful ?   5 + 5 + 5

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END