MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : BCA-403

SOFTWARE PROJECT MANAGEMENT AND QUALITY ASSURANCE

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

   i) To allocate resource to activities we use

   a) Gantt Chart b) PERT chart

   c) CPM d) None of these.

   ii) Different phases of risk management are

   a) Risk identification b) Risk analysis

   c) Risk monitoring d) All of these.

iii) The net major step before system designing and after feasibility studies is

a) Analysis activity

b) Equipment selection activity

c) Implementation activity

d) None of these.

iv) Project planning does not include

a) Risk identification b) Design

c) Cost estimation d) Configuration.

v) The main goal of quality assurance is to

a) set coding standards

b) improve software project management

c) reduce the technique and programmatic risk in developing software

d) specify correcting action.

vi) The algorithm cost modelling is

a) MTTF

b) COCOMO

c) McCabe Cyclometric Measurement Analysis

d) None of these.

vii) The combination of the top-down and the bottom-up approach may be referred to as an

a) Integrative approach

b) Interpretive approach

c) Interactive approach

d) Both (b) and (c).

viii) Schedule shipping is a type of

a) Business risk b) Project risk

c) Technical risk d) None of these.

ix) Alpha testing is done by

a) customer b) developer

c) tester d) all of these.

x) The maximum percentage of error lies in the

a) Design b) Maintenance

c) Coding d) Specifications.

xi) PERT stands for

a) Project Evaluation and Review Technique

b) People Evaluation and Review Technique

c) Project Estimation and Review Technique

d) Product Evaluation and Review Technique.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What are the important activities that are carried out during Feasibility study ?

3. What are McCall's quality factors ? Distinguish between verification and validation. 3 + 2

4. What is the difference between Classical and Iterative Waterfall model ?

5. What is Software documentation ? What are it's uses ?

6. What is software maintenance ? What are the different types of software maintenance ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What is SDLC model ?

   b) What is called Meta model and why ? Describe the different activities involved in this model.

c) State the advantages and disadvantages of evolutionary model. Why is it called incremental model ?

d) What is phase containment of errors ?

$1 + (1 + 1 + 5) + (3 + 2) + 2$

8. a) What is COCOMO model ?

b) What are the different categories in which a product can be classified based on its development complexity ?

c) Assume that the size of an organic software product has been estimated to be 32,000 lines of source code. Assume that the average salary of each of software engineers is Rs. 15,000 per month. Determine the effort required to develop the software product and the nominal development time.

d) Explain ISO 9000 Series of standards.

$2 + 5 + 4 + 4$

9. a) What is software testing ? What are the different types of software testing ?

b) Differentiate between black-box testing and white-box testing.

c) Consider the following code and calculate the no. of independent paths using McCabe's cyclomatic complexity metric. Also design test cases.

```
void main ()
{ int a, b = 0"
for (a =1; a<=10; a++)
      if (a%2==0)
            b++;
      else
            b +=2;
printf ("b =%d", b);}
```

(2 + 3) + 3 + 7

10.

Activity	Preceding activity	Optimistic time	Pessimistic time	Most Likely time
A	—	2	6	4
B	—	3	10	5
C	A	3	8	7
D	A	4	10	7
E	B, C	3	8	7
F	D	3	8	4
G	E	3	8	7

Calculate the Earliest Starting Time (EST), Latest Starting Time (LST), Earliest Finishing Time (EFT), Latest Finishing Time (LFT) for each activity. Also draw the PERT chart, GANTT chart and calculate the critical path.

11. Write short notes on any *three* of the following : 3 × 5

a) Reliability metrics

b) ISO *vs* CMM

c) FTR

d) Risk management

e) SRS.