



**MAULANA ABUL KALAM AZAD UNIVERSITY OF
TECHNOLOGY, WEST BENGAL**

Paper Code : BCA-403

SOFTWARE PROJECT MANAGEMENT AND QUALITY ASSURANCE

Full Marks: 70

Time Allotted: 3 Hours

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)

1x10=10

1. Choose the correct alternatives for *any ten* of the following:
 - (i) Two tools for computing critical path and project completion times from activity networks are
 - (a) PERT and CPM
 - (b) DRE and SQA
 - (c) FP and LOC
 - (d) None of these
 - (ii) Prototype is a
 - (a) mini model of the existing system
 - (b) mini model of the proposed system
 - (c) working model of the existing system
 - (d) None of these
 - (iii) The testing process only reveals
 - (a) failures
 - (b) errors in code
 - (c) errors in logic
 - (d) None of these
 - (iv) COCOMO belongs to
 - (a) empirical estimation
 - (b) heuristic estimation technique
 - (c) analytical technique
 - (d) None of these
 - (v) The linear sequential model of software development is also known as the
 - (a) classical life cycle model
 - (b) spiral model
 - (c) waterfall model
 - (d) Both (a) and (c)
 - (vi) The model which reduces the cost of development of software is
 - (a) waterfall model
 - (b) prototyping
 - (c) iterative
 - (d) None of these

- (vii) On an average, the programmer months is given by $3.6 * (KLOC)^{1.2}$. If so, project requiring one thousand source instructions will require

 - (a) 3.6 PM
 - (b) 0.36 PM
 - (c) 0.0036 PM
 - (d) 7.23 PM

(viii) White box testing is also known as

 - (a) procedure testing
 - (b) performance testing
 - (c) structural testing
 - (d) All of these.

(ix) Data dictionary keeps details of the contents of

 - (a) Data flow
 - (b) Data store
 - (c) Both (a) and (b)
 - (d) None of these

(x) The most important feature of spiral model is

 - (a) quality management
 - (b) maintenance
 - (c) risk assessment
 - (d) None of these

(xi) Outcome of requirement specification phase is

 - (a) design document
 - (b) develop an SRS
 - (c) test the document
 - (d) handover the documents

Group-B

(Short Answer Type Questions)

Answer any three of the following questions.

5x3=15

2. What is Schedule Slippage risk? What is reserve and restore operation in configuration management? 5x3=15

3. What are the 4P's of software project management? Explain. 2+3=5

4. What is formal technical review? Write the features of FTR.

5. "A good software should have high cohesion and low coupling." Explain the statement.

6. Compare and contrast waterfall model and spiral model.

Group-C

(Long Answer Type Questions)

(Any three questions)
Answer *any three* of the following questions.

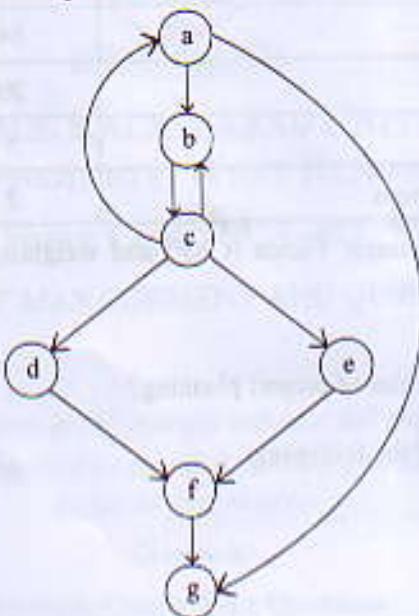
$$15 \times 3 = 45$$

7. (a) Explain Integration Testing? Which type of defects are uncovered during Integration Testing?
 (b) Distinguish software verification and validation.
 (c) Compare and contrast between black box and white box testing of software.
 (d) Explain control flow graph with an example.

$$5+3+3+4=15$$

8. (a) For the following graph shown:

- Compute the McCabe cyclomatic complexity.
- Find out the independent path



- (b) Assume that the size of an organic type software product has been estimated to be 32,000 lines of source code. Assume that the average salary of a software developer is Rs. 15,000 per month. Determine the effort required to develop the software product, the nominal development time, and the cost to develop the product.

- (c) Compare Basic and Detailed COCOMO models.

6+6+3=15

9. Suppose you are project manager of a software project consists of the following activities:

Activity No.	Activity Name	Duration	Immediate predecessor
1.	Specification	15	—
2.	Design database part	45	1
3.	Design GUI part	30	1
4.	Code database part	105	2
5.	Code GUI part	45	3
6.	Integrate and test	120	4,5
7.	Write user manual	60	1

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 and calculate the critical path.
What is gnat chart?

12+3=15

10. (a) Consider a project with the following functional units:

Number of user inputs	22
Number of user outputs	14
Number of user inquiries	20
Number of user files	3
Number of external interfaces	2

Assume Complexity Adjustment Factor (CAF) and weighting factors are average. Compute the function points for the project.

[Assume CAF = 1.17]

- (b) What are the essential activities of project planning?

10+5=15

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

5x3=15

- (a) HIPO
- (b) V-Model
- (c) ISO : 9000
- (d) Risk management
- (e) CASE tools