



WEST BENGAL UNIVERSITY OF TECHNOLOGY

BCA-202

INFORMATION SYSTEMS ANALYSIS & DESIGN

Time Allotted: 3 Hours

Full Marks: 70

The questions are of equal value.

The figures in the margin indicate full marks.

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

All symbols are of usual significance.

GROUP A

(Multiple Choice Type Questions)

1. Answer all questions.

10×1 = 10

(i) Requirement analysis includes

(A) Fact gathering

(B) Understanding of requirement

(C) Requirement documentation

(D) All of these

(ii) Data dictionary keeps details of the contents of

(A) data flows

(B) data stores

(C) both (A) and (B)

(D) neither (A) nor (B)

(iii) Use case is related with

(A) Prototype

(B) RAD

(C) Requirements determination

(D) None of these

(iv) Which is not an Evolutionary model?

(A) Incremental

(B) Prototype

(C) Spiral

(D) None of these

- (v) A zero level DFD describes
- (A) overview of process, inputs and outputs
 - (B) the fully blown up system design
 - (C) that the system design can't be split further
 - (D) none of these
- (vi) The first step in the Systems Development Life Cycle (SDLC) is
- (A) Analysis
 - (B) Design
 - (C) Problem/Opportunity Identification
 - (D) Development and Documentation
- (vii) BCNF is a type of
- (A) Indexing
 - (B) DFD
 - (C) Normalization
 - (D) None of these
- (viii) Normalization is a process of restructuring a relation to
- (A) minimize duplication of data in a database
 - (B) maximize duplication of data to ensure reliability
 - (C) make it of uniform size
 - (D) allow addition of data
- (ix) By 'metadata' we mean
- (A) very large data
 - (B) data about data
 - (C) data dictionary
 - (D) meaningful data
- (x) An entity is
- (A) a collection of items in an application
 - (B) a distinct real world item in an application
 - (C) an inanimate object in an application
 - (D) a data structure

GROUP B
(Short Answer Type Questions)

Answer any *three* questions.

3×5 = 15

2. Explain DFD and ER diagrams with example.
3. What is a relationship? In what way is it different from an entity?
4. Is random selection of test cases effective? Justify your answer.
5. Discuss the role of system analyst. Why are they known as “agent of change”?
6. Distinguish between function-oriented and object-oriented design. Give examples.

GROUP C
(Long Answer Type Questions)

Answer any *three* questions.

3×15 = 45

7. Write down major differences between functional testing and structural testing. What are driver and stub modules in the context of integration testing of a software product? 4+4+7
8. Distinguish between the static and dynamic analysis of a program. What are the different types of integration testing strategies? 6+9
9. (a) Draw ERD for the following: 10+5
A college has many departments. A Department offers many courses. Students apply for a course which is taught by teachers in a department. Each department is headed by one Head of the department. At a time a student can apply for one course only. Class schedule are generated by department and given to students.
(b) Discuss specialization and generalization with proper example.

- 10.(a) What do you mean by Normalisation? 5+5+5
(b) Differentiate between functional and transitive dependency.
(c) Discuss BCNF. Compare it with 3NF.
11. Let a database contain the following: Teacher code, Teacher's name, Teacher's address, rank, department, courses taught by the teacher, course name, credits for course, no of students in the class, course taught in semester no., student no., name, dept, year and courses taken in semester no. The following information is given on dependencies: 15
(i) A teacher may teach more than one course in a semester.
(ii) A teacher is affiliated to only one department.
(iii) A student may take many courses in a semester.
(iv) The same course may have more than one section and different sections will be taught by different teachers.
(v) A course may be taught in more than one semester.
Draw the E-R Diagram for the above.