

**CS/BCA/EVEN/SEM-2/BCA-202/2016-17**



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

**Paper Code : BCA-202**

**INFORMATION SYSTEM ANALYSIS &  
DESIGN**

*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 the following :

10 × 1 = 10

- i) RAD stands for
- a) Rapid Application Development
  - b) Relative Application Development
  - c) Ready Application Development
  - d) Repeated Application Development.
- ii) Which Model is most popular for student's small projects ?
- a) Waterfall Model
  - b) Spiral Model
  - c) Quick and Fix Model
  - d) Prototyping Model.

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[ Turn over

- iii) Beta testing is done by
- a) the development team
  - b) a friendly set of customers
  - c) the customer himself
  - d) none of these.
- iv) Which is not a step of SDLC ?
- a) Testing
  - b) Maintenance
  - c) Transformation
  - d) Feasibility study.
- v) Testing process only reveals
- a) failures
  - b) errors in logic
  - c) errors in code
  - d) none of these.
- vi) Example of process model is
- a) incremental
  - b) decision table
  - c) spiral
  - d) none of these.
- vii) A prototype refers to
- a) a working model of a proposed system
  - b) the set of activities in a system
  - c) the typical activities in a system
  - d) all of these.
- viii) A decision table is
- a) a truth table
  - b) a table which facilitates taking decisions
  - c) a table in a decision support system
  - d) a table listing conditions and actions to be taken based on the testing of conditions.
- ix) Which one is a non-functional requirement ?
- a) Efficiency
  - b) Product features
  - c) Reliability
  - d) Stability.
- x) If the no. of conditions in a decision table is  $n$ , the no. of maximum no. of rules ( columns ) possible is
- a)  $n$
  - b)  $2n$
  - c)  $2^n$
  - d)  $\text{Log } n$ .

**GROUP - B**

**( Short Answer Type Questions )**

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

2. ✓ What is the difference between Cohesion and Coupling ?  
With proper example explain why a good system requires high cohesion low coupling.  $3 + 2$
3. ✓ Explain 1NF, 2NF and 3NF with example.  $3 + 2$
4. ✓ What is COCOMO ? A project was estimated to be 500 KLOC. Calculate the efforts and development time, for the organic model.  $2 + 3$
5. Explain the importance of CSSE tools with example.
6. Compare hardware and software reliability.

**GROUP - C**

**( Long Answer Type Questions )**

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

7. ✓ a) What is DFD ? Discuss different symbols used in DFD.
- b) Differentiate between Logical DFD and Physical DFD.
- c) ✓ Draw the E.R. diagram showing the cardinality for the following problem :  
A store has different counters managed by different employees. A counter has different items but no two counters have common items. Customers buy from different counters. Bills are prepared from bill counter only.
- d) Explain generalization and specialization. What is aggregation ?  $3 + 2 + 6 + 4$

8. a) What is reliability ? Define ROCOF, POFOD, MTTR and MTTF.  
b) What is the extra parameter incorporated by feature point metric ?  
c) Draw a CFG and independent paths and evaluate the cyclomatic complexity of the following :

```
intgcd ( int x, int y )  
{  
    While ( x != y )  
    { if ( x > y )  
      x = x - y;  
      Else  
      y = y - x;  
    }  
    return x;  
}
```

2 + 8 + 1 + 4

9. a) What is software failure ?  
b) How is it related with a fault ?  
c) Explain the significance of bath tub curve of reliability with the help of a diagram.  
d) What do you mean by software quality standard ?

2 + 3 + 5 + 5

10. a) Describe waterfall model.  
b) What are the advantages and disadvantages of waterfall model ?  
c) Compare ITV with RAD model.

7 + 4 + 4

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

- a) Spiral model  
b) Feasibility study  
c) System testing  
d) Data dictionary  
e) Six sigma qualities.