2020

COMPUTER SCIENCE

[GENERAL]

Paper : III

GROUP-A

[NEW SYLLABUS]

[SUPPLEMENTARY]

Full Marks : 50 Time : 2 Hours

The figures in the right-hand margin indicate marks.

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

GROUP–A

1. Answer any **five** questions: 2×5=10

   a) Distinguish between DML and DDL.

   b) Define attribute inheritance.

   c) What do you mean by data coupling?

   d) What do you understand by schema of DBMS?

   e) What do you mean by data anomaly?

   f) What are the benefits of prototyping model?

   g) What is technical feasibility?

   h) Define coupling.

GROUP–B

Answer any **one** question: 8×1=8

2. a) Describe briefly the types of cost-benefit analysis.

   b) Explain the different types of sub-systems with suitable example. 4+4

3. a) Differentiate between structure chart and flow chart.

   b) Explain the waterfall model. 5+3

GROUP–C

Answer any **four** question: 8×4=32

4. a) State Armstrong's axioms.

   b) Explain the ACID properties of transactions. 3+5

5. a) What is multiple relationships?

   b) Describe the three level architecture of DBMS. 2+6

6. Consider the following relational database scheme and answer the queries using specified language:

   Student_Member(Roll_no, Name, Dept_ID, Semester, Gender)

   Department (Dept_ID, Dept_name)

a) Display the names of all male students. (using relational algebra)

b) Give the names and roll numbers of all students of information technology department. (using relational calculus)

c) Display the names of the departments where there are no female students. (using SQL). 2+3+3

7. a) What is atomicity of a transaction?

b) Why databases are needed to be normalized?

c) Explain different types of database anomalies with example. 2+2+4

8. a) What is Relational Algebra?

b) Define aggregation operation with example.

c) Explain selection, natural join, set union and set difference operators with example. 2+2+4

9. a) What is functional dependency?

b) Draw the E-R diagram of a hospital. Where a patient is treated by doctors and care taken by the nurse as instructed by the doctors. Patient may undergo some medical test as prescribed by the doctor. 2+6

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