

2020
COMPUTER SCIENCE

[GENERAL]

Paper : III

[NEW SYLLABUS]

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) Define Natural Join with an example.
 - b) Distinguish between key and super key.
 - c) What is user acceptance testing?
 - d) What is feasibility study?
 - e) What is flowchart?
 - f) What is SRS?
 - g) Define Temporal Cohesion.
 - h) Differentiate between error and failure.

Answer any **five** questions: 8×5=40

2. a) State 1NF, 2NF and 3NF and explain with examples. 6+2
b) Define candidate key. 6+2
3. a) Define coupling. 2+6
b) Explain different types of coupling. 2+6
4. a) What are the advantages of DBMS? 3+5
b) Describe the concept of client/server model. 3+5
5. Consider a relation **PLAYER** with relational schema *PLAYER* (*Player-no*, *Player-name*, *Team*, *Team-color*, *Coach-no*, *Coach-name*, *Player-position*, *Team-captain*) and set of functional dependencies as follows:

$$F = \{ \textit{Player-no} \rightarrow \textit{Player-name},$$

$$\textit{Player-no} \rightarrow \textit{Player-position},$$

$$\textit{Player-no} \rightarrow \textit{Team},$$

$$\textit{Coach-no} \rightarrow \textit{Coach-name},$$

$$\textit{Team} \rightarrow \textit{Team-color},$$

$$\textit{Team} \rightarrow \textit{Coach-no},$$

$$\textit{Team} \rightarrow \textit{Team-captain} \}$$

Convert the relation upto third Normal Form.

6. Consider the following schema:

Sailors (sid, sname, rating, age)

Boats (bid, bname, color)

Reserves (sid, bid, day(date))

Write SQL statement for the following queries:

- a) Find all information of sailors who have reserved boat number 101.
- b) Find the names of sailors who have reserved a red boat, and list in the order of age.
- c) Find the names of sailors who have reserved at least one boat. 2+3+3

7. a) Discuss the role of a system analyst in system analysis and design.

- b) Explain in detail the structure of SRS. 4+4

8. Explain waterfall model for software life cycle and write its various activities in each phase.

8

9. Write short notes (any **two**): 4×2=8

- a) Black box testing
- b) Sequential file organization
- c) System maintenance
