Atal Bihari Vajpayee
Indian Institute of Information Technology and Management (ABV-IIITM), Gwalior
(An Institute of National Importance, Ministry of Education, Government of India)

MINOR EXAMINATION-2023

Course Code: BCCS-1202
Course Name: Database Systems
Program & Sem: B.Tech (CSE), 2nd Semester

Date: 02-05-2023 (Tue)
Time: 2:00-4:00 PM
Max Marks: 30

Instructions:
(i) Read the all questions carefully and answer accordingly.
(ii) This Question paper contains nine questions.

Part A

Answer all the Questions. Each question carries *two* marks. **(5Qx 2M= 10M)**

Q.NO. 1 Explain the difference between a Super Key, Candidate key and a Primary key.

Q.NO. 2 What are the shortcomings of File processing system which was solved by DBMS? Discuss in brief

Q.NO. 3 What do you understand by Schema. Explain its Types in brief

Q.NO. 4 Consider the Relation below and find out the valid functional dependencies

A	B	C
1	2	4
1	4	4
3	7	2
1	3	2
1	4	2

(a) A $\longrightarrow$ BC and B $\longrightarrow$ A

(b) C $\longrightarrow$ AB or B $\longrightarrow$ A

(c) A $\longrightarrow$ C or CA $\longrightarrow$ B

(d) B $\longrightarrow$ C and AB $\longrightarrow$ C

Q.NO. 5 Explain any four types of Databases in brief

Part B

Answer all the Questions. Each question carries *four* marks. **(3Qx4M=12M)**

Q.NO.6 What are the different types of integrity constraints in a relational database? How do you enforce referential integrity? Give an example.

P.T.O

Q.NO.7 What is a three-level schema architecture? Explain the three levels with the help of a diagram. What is the purpose of the external schema in a three-level schema architecture?

Q.NO.8 (a) what do you understand by relational data model? Define degree and cardinality of a relation
(b) With the help of a relation (table) can you explain the three anomalies for which we perform normalization?

Part C

Answer all the Questions. Each question carries *Eight* marks **(1Qx8M=8M)**

Q.NO.9 (a) Consider the relation R (ABCDEF). The functional dependencies are given as

$$AB \longrightarrow C$$
$$C \longrightarrow DE$$
$$E \longrightarrow F$$
$$F \longrightarrow A$$

Comment on the 2NF, 3NF and BCNF for each dependency and conclude the problem by finding the highest normal form. (7 M)

(b) What is the relation between data duplicacy and normal form? (1M)