Reg. No.									

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

I SEMESTER M.C.A.

END SEMESTER EXAMINATIONS, NOV 2018

SUBJECT: ADVANCED DATABASE MANAGEMENT SYSTEMS [MCA 4104]

REVISED CREDIT SYSTEM
(28 /11/2018)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A.	Consider the following relations: Members (Member_id, Name, Designation, Age) Books (Bid, Btitle, Bauthor, Bpublisher, Bprice) Reserves (Member_id, Bid, Date) Write the query in relational algebra for the following: a) Retrieve the id and name of the members who are older than 45 years. b) List the title, author, publisher of the books reserved by assistant professors c) Find the name, designation, age of the members who have reserved the books that cost more than Rs.500 and on 15th November 2018. d) Find the member id and the number of books reserved by each member. e) Find the id, name of the member along with the book title, author of the books published by Bright Publications .	**5**
1B.	Describe the method for testing whether an attribute is extraneous in X→Y in F. Consider the relation R (*A, B, C, D, E, F*) with following set $F = \{ A \rightarrow BCD, BC \rightarrow DE, B \rightarrow D, D \rightarrow A \}$. Compute the canonical cover of F.	**3**
1C.	Why is the weak entity set existence dependent on the identifying entity set?	**2**

2A.	Explain how the entity set and the relationship set in the ER-diagram can be reduced into relations.	**5**
2B.	Illustrate two log based recovery approaches with example.	**3**
2C.	Why is data abstraction required in database management system?	**2**
3A.	With proper figures, explain RAID 4, RAID 5 levels along with advantages and disadvantages.	**5**
3B.	Describe advantages of database systems over file oriented system from the point of view -redundancy, Concurrent access by multiple users.	**3**
3C.	What is a role name? In what situations is it necessary to use role names in the description of relationship types?	**2**
4A.	What are the rules to be followed to transfer a schedule S into conflict equivalent and test the serializability of the following schedule based on precedence graph?	**5**
4B.	Determine the statistical size estimation for different Join operations.	**3**
4C.	Mention the condition based on which any given relation is said to be in BCNF. For the relation R = (ABCD) F = {AB -> C, B -> D, C -> A}, check whether it satisfies BCNF.	**2**
5A.	Describe external-sort merge method in detail.	**5**
5B.	Discuss the different time-stamp based dead lock prevention methods.	**3**
5C.	Briefly describe Shared Memory & Shared disk parallel database architectures.	**2**

T1	T2	T3	T4
READ(Bal)			
	WRITE(Bal)		
		READ(Accno)	
		WRITE(Bal)	
			READ(Accno)
	WRITE(Accno)		
WRITE(Bal)			
			WRITE(Bal)
		READ(Bal)	