



Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India

(Autonomous College Affiliated to University of Mumbai)

Mid Semester Examination

September 2018

Max. Marks: 20

Class: SYMCA

Course Code: MCA32

Name of the Course: Database Management System

Duration: 1 Hr

Semester: III

Branch : MCA

Instruction:

- (1) All questions are compulsory
- (2) Draw neat diagrams
- (3) Assume suitable data if necessary

Q No.	Question	Max. Marks	CO
Q.1	Design an ER diagram and Relational database for Library Management System by considering three main entities.	7	CO1
Q.2	Apply Normalization concept to identify the highest normal form of following functional dependencies. $R(A,B,C,D,E) F = (A \rightarrow BC, B \rightarrow DE, C \rightarrow D)$ OR Identify Candidate keys and Super keys for the following functional dependencies. $R(A,B,C,D,E) F = (A \rightarrow B, B \rightarrow C, C \rightarrow D, D \rightarrow E, E \rightarrow A)$	6 6	CO2 CO2
Q.3	Test whether following transactions follows ACID properties or not by justifying it? $T1 : R(A); A := A - 100; W(A);$ $T2 : R(A); A := A + 100; W(A); \text{Commit};$ T1 will be executed first and then T2 by considering initial value of A as 200.	3	CO4
Q.4	Test whether following is conflict serializable schedule or not? $S: R1(A), W1(A), R2(A), C2, C1, R1(B), W1(B)$ OR Test whether following is recoverable schedule or not? If not, then convert it into recoverable schedule. $S : R1(A), W1(A), R2(B), R2(A), W1(A), W2(B), R1(B), W2(B)$	4 4	CO4 CO4