

(Please write your Exam Roll No.)

Exam Roll No .....

**Bharati Vidyapeeth's**  
**Institute of Computer Applications and Management**  
**A-4, Paschim Vihar, New Delhi-63**  
**Model Question Paper-II [Sem-II]**

**Paper Code: MCA -108** **Subject: Database Management Systems**

**Time: 3 Hours**

**Maximum Marks: 75**

**Note: Attempt FIVE questions in all. Question No. 1 is compulsory and attempt one question from each unit.**

<b>UNIT - I</b>		
1.	Answer all the following questions briefly:-	2.5 x 10 = 25
(a)	Determine why does any transaction lock a data item before accessing it? And what is lock conversion?	
(b)	Define join operation? Why do we consider cost of join operation when joining two tables?	
(c)	Differentiate between fine granularity and coarse granularity when locking a data item?	
(d)	Discuss the differences between procedures and functions in PL/SQL.	
(e)	How recovery from deadlock is done in DBMS during transaction management.	
(f)	Explain the concept of checkpoints in recovery.	
(g)	Compare features of SGA and PGA of oracle.	
(h)	What is database fragmentation? Discuss its types.	
(i)	Discuss two phase locking.	
(j)	What are the different attributes of a cursor?	
<b>UNIT - I</b>		
2.	(a) Explain the difference between relational oriented and Object oriented data models.	6
	(b) Discuss a case where aggregation is preferred over ternary relationship.	6.5
3.	(a) What are weak entities? And with example show how they are converted into strong entities?	6
	(b) Write notes on : 1. Roles of DBA 2. Mapping between views	6.5
<b>UNIT - II</b>		
4.	(a) Discuss the difference between Relational Algebra and SQL. Also write some operators of relational algebra.	6
	(b) What is an anomaly? Explain insert, update and delete anomalies with a suitable example.	6.5
5.	(a) For given relation R={P,Q,R,S,T} FDs={P→QR, RS→T, Q→S, T→P}. Find Primary Key and normalize till 3 NF.	6
	(b) Consider a relation R (A B C D E F ) with following FDs: F ={A→BC , C→A, D→E,F→A, E→D} Is the decomposition of R into R1(A C D), R2(B C D) and R3(E F D) lossless?	6.5
<b>UNIT - III</b>		

6.	(a)	Write a Cursor( PL/SQL code) to display the Employee_name, Dateofbirth ,Designation of employees whose basic salary is greater than 15000, if not found then show the proper error message	6
	(b)	Explain the following terms in Oracle system: 1. Log files 2. Segments and extents 3. Database files	6.5
7.	(a)	Write the syntax of following built-in functions in SQL: Substr() to_char() initcap() power() mod() exp()	6
	(b)	Write a trigger to display old and new values of attributes when an update command is fired on any particular table.	6.5
<b>UNIT - IV</b>			
8.	(a)	Explain the reference architecture of Distributed database systems.	6
	(b)	Explain the working of timestamp based protocols, with advantages and limitations.	6.5
9.	(a)	Explain deadlock prevention schemes in DBMS.	6
	(b)	Discuss serializable schedules? How can we ensure that a given schedule is serializable?	6.5