Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination Dec 2024

CA5CO38 Advanced DBMS

Programme: MCA / BCA-MCA (Integrated) Branch/Specialisation: Computer Application

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	PO	CO	PSO
Q.1	i.	Which of the following is not a part of ER diagram? (a) Double line (b) Double rectangle (c) Double diamond (d) Hexagon	**1**	1	2	1	
	ii.	If a relation has 5 tuples and 7 attributes, then what will be the degree and cardinality of the relation? (a) Degree=35, cardinality=5 (b) Degree=7, cardinality=5 (c) Degree=5, cardinality=7 (d) Degree=5, cardinality=35	**1**	2	1	1	
	iii.	The maximum number of super keys for the relation schema R (E, F, G, H) with E as the key is- (a) 5 (b) 6 (c) 7 (d) 8	**1**	2	2	1	
	iv.	Consider a relation scheme R = (A, B, C, D, E, H) on which the following functional dependencies are hold: {A–>B, BC–> D, E–>C, D–>A}. What are the candidate keys of R? (a) AE, BE (b) AE, BE, DE (c) AEH, BEH, BCH (d) AEH, BEH, DEH	**1**	2	3	2	

v.	In immediate database modification technique if the log contains only record <T_i start> then what method will be used during recovery- (a) todo <T_i> (b) wedo <T_i> (c) redo <T_i> (d) undo <T_i>	**1**	1	3	3
vi.	If the transaction performs write operation without reading the data item, such write operation is known as- (a) Dirty write (b) Phantom write (c) Blind write (d) Clear write	**1**	1	2	3
vii.	The shared disk system architecture of the parallel database is also known as- (a) Clusters (b) SMP (c) Nodes (d) MPP	**1**	1	1	4
viii.	In which approach the relation is divided into smaller parts and stored in the various sites in the distributed environment- (a) Replication (b) Fragmentation (c) Normalization (d) Segmentation	**1**	1	2	4
ix.	The database which uses triggers and other event driven techniques for managing data is called- (a) Active database (b) Temporal database (c) Spatial database (d) Mobile database	**1**	1	3	4
x.	Which type of data contained in the Spatial Database? (a) Raster & vector data (b) Audio & video data (c) Date & time data (d) Image & picture data	**1**	1	2	4
Q.2 i.	What are the disadvantages of file processing system?	**2**	1	2	1
ii.	Describe strong and weak entity set with example.	**3**	1	1	1
iii.	Describe overall system architecture with suitable diagram.	**5**	2	1	1
OR iv.	Draw an ER diagram for banking system indicating entities, relationship and types of relationships.	**5**	2	3	2

Q.3 i.	Define functional dependency.	**2**	1	1	1
ii.	Given relational schema R (P, Q, R, S, T) having set of functional dependency {P→QR, RS→T, Q→S, T→P}. Determine T^+, the closure of attribute.	**3**	2	3	2
iii.	Describe 2NF and 3NF with example.	**5**	2	2	2
OR iv.	What is normalization? Explain various anomalies exist in database without normalization with example.	**5**	1	3	2
Q.4 i.	Explain transition states with suitable diagram.	**3**	1	2	3
ii.	What is conflict serializability? Explain the precedence graph method of finding given schedule is conflict serializable or not with suitable example.	**7**	3	3	3
OR iii.	Describe immediate database modification techniques of log-based recovery with suitable example.	**7**	2	3	3
Q.5 i.	Differentiate between parallel and distributed databases.	**3**	2	3	4
ii.	What is parallel query evaluation? Explain different types of parallel query evaluation techniques.	**7**	2	3	4
OR iii.	What is distributed database? Describe various architectures for distributed database with suitable diagrams.	**7**	3	3	4
Q.6	Attempt any two:				
i.	Differentiate between RDBMS, OODBMS and ORDBMS.	**5**	2	3	5
ii.	Write a note on active database and temporal database.	**5**	1	2	5
iii.	Design a database for hospital management with suitable tables and constraints.	**5**	3	4	5

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Marking Scheme
CA5CO38 (T) Advanced DBMS (T)

Q.1	i)	(d) Hexagon	**1**
	ii)	(b) Degree=7, Cardinality=5	**1**
	iii)	(d) 8	**1**
	iv)	(d) AEH, BEH, DEH	**1**
	v)	(d) undo $<T_i>$	**1**
	vi)	(c) Blind Wite	**1**
	vii)	(a) Clusters	**1**
	viii)	(b) Fragmentation	**1**
	ix)	(a) Active Database	**1**
	x)	(a) Raster & Vector Data	**1**

Q.2	i.	At least 4 disadvantages. Each of ½ marks.	**2**
	ii.	2 marks for definition and 1 mark for example.	**3**
	iii.	3 marks for diagram and 2 marks for description.	**5**
OR	iv.	3 marks for ER diagram and 2 marks for description.	**5**

Q.3	i.	2 marks for definition.	**2**
	ii.	2 marks for solution and 1 mark for explanation.	**3**
	iii.	3 marks for description and 2 marks for example.	**5**
OR	iv.	2 marks for definition and 3 marks for anomalies and example.	**5**

Q.4	i.	2 marks for description and 1 mark for diagram.	**3**
	ii.	3 marks for description and 2 marks for method and 2 marks for examples.	**7**
OR	iii.	4 marks for description and 3 marks for example.	**7**

Q.5	i.	At least three difference is needed each of 1 mark.	**3**
	ii.	3 marks for description and 4 marks for types.	**7**
OR	iii.	1 mark for definition and 2 marks for each architecture. There are three architectures.	**7**

Q.6

	i.	At least five difference is needed each of 1 mark.	**5**
	ii.	2 and ½ marks for each.	**5**
	iii.	3 marks for database tables and 2 marks for constraints	**5**

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P.T.O.