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PES UNIVERSITY

PES University, Bangalore

(Established under Karnataka Act No. 16 of 2013)

UC15MC503

DECEMBER 2016: END SEMESTER ASSESSMENT (ESA) MCA III SEMESTER

UC15MC503- DATABASE MANAGEMENT SYSTEMS

Time: 3 Hrs | Answer All Questions | Max Marks: 100

1.	a)	What is DBMS and in what way it is advantageous over conventional file processing?	2+8
	b)	Illustrate 3-schema architecture with brief explanation.	5
	c)	How is data independence achieved in DBMS? Describe different level of data independence.	5
2.	a)	Refer the following database, draw conceptual schema and answer the queries using relational algebra: film (**film_name**, budget, release_date, producer_name, director_id) actor (**aid**, aname, dob) director (**dir_id**, dname, year_of_exp) role (**file_name, actor_id**, role) • Find the role played by Amit in film 'XYZ'. • Find the name and release date of film which is directed by the director having 10 or more than 10 years of experience and also film is produced by Karan. • Find the details of actors who acted as hero in more than 100 movies.	9
	b)	Discuss the various constraints violation during insert operation with a suitable example.	5
	c)	Write short notes on i) Left outer join ii) Natural join	3+3
3.	a)	Write a short note on correlated nested query. Give an example.	4
	b)	Define the following SQL clauses with example: i) Exists ii) Group by & Having iii) Distinct	3+3 +2
	c)	Refer the database given in question 2 (a) and answer the following queries using SQL: • Find the name of films along with director and producer's names released in year 2000. • Find the name of villain acted in film 'ABC' of budget 5 crores. • Find the name, release-date and budget of the films having maximum actors.	8
4.	a)	Define entity type and entity set with an example.	4
	b)	Consider a museum database. The data requirements are summarized as follows: The museum has a collection of ART_OBJECTS. Each ART_OBJECT has a unique-ID, year of creation, title and description. The museum keeps track of ARTIST information such as name, DateBorn, DateDied, country_of_origin and description. The artist-ID is assumed to be unique. 2-3 awards need to be stored for each artist. Each ART_OBJECT is created by one of the artist and artist might have created many ART_OBJECTS. The date of keeping the ART_OBJECT in museum has to be tracked. Draw ER diagram based on above information.	5
	c)	What is specialization? Discuss the various constraints on specialization with examples.	7
	d)	Describe complex attribute with an example.	4

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5.	a)	Map the following ER diagram to conceptual schema and justify by defining the rules applied	10
	b)	Discuss various update anomalies with examples.	5
	c)	What is full-functional dependency? Define 2nd Normal Form with an example.	2+3