

(c) Represent each of the following Structured Query Language statements using a Venn diagram: easytv.com

(i) `SELECT *` (3 marks)  
`FROM Table_A A`  
`FULL OUTER JOIN Table_B B`  
`ON A.Key = B.Key`  
`WHERE A.Key IS NULL OR B.Key IS NULL`

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(ii) `SELECT *` (3 marks)  
`FROM Table_A A`  
`RIGHT JOIN Table_B B`  
`ON A.Key = B.Key`  
`WHERE A.Key IS NULL`

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(iii) `SELECT *` (3 marks)  
`FROM Table_A A`  
`FULL OUTER JOIN Table_B B`  
`ON A.Key = B.Key`

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6 (a) Describe each of the following approaches used in the design of a database.

(i) top down; (2 marks)

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(ii) bottom up. (2 marks)

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(b) Write a Structured Query Language statement that would:

(i) display first 3 characters of the field `first_name` from a table named `employee`; (2 marks)

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(ii) display names that begin with letters in the range of D through G from the `first_name` field from the `employee` table; (3 marks)

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(iii) create a table named `employeedata` with the following properties; (5 marks)

Fieldname	Size	Data type	Other properties
Employee id	6	decimal	Primary key
Start date		date	Not accept blank
Job id	10	Var Char	Not accept blank
Department id	4	decimal	Not accept blank

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- (iv) change the email and commission field values of employees table with 'not available' and 0.10 respectively for those employees whose department\_id is 150; (3 marks)

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- (v) add a field named region\_id after start\_date to the table employeedata table. (3 marks)

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7. (a) Outline **four** types of states that a transaction may be in during processing in a database management system. (4 marks)

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- (b) Distinguish between *direct* and *indirect end users* as used in DBMS. (4 marks)

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- (c) Aristocrafty, encountered some challenges when they introduced a distributed database management system. Explain **three** technical challenges that the company may have faced. (6 marks)

- (d) Write equivalent relational algebra statements for each of the following Structured Query Language statements; (6 marks)

(i) 

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SELECT ActionTitle
FROM Stars, Actionmovie
WHERE starName = Andrew AND birthdate = 1956
```

(ii) 

```
Select a,b
From table 1,table2
Where d>e and f=g;
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(iii) Select sum(salary)  
from employee  
WHERE DEPARTMENT='COMPUTER'

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8 (a) Outline **four** functions of views as used in Structured Query Language. (4 marks)

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(b) Under what circumstance would each of the following joins be used in relational algebra; (2 marks)

(i) left join;

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(ii) equi join; (2 marks)

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(iii) cross join. (2 marks)

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- (c) Distinguish between *data manipulation language* and *transaction control language* as used in Structured Query Language. (4 marks)

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- (d) Mwanziri intends to design an Entity Relationship Diagram for a proposed database system. Outline six procedures guidelines that will enable him meet his objective. (6 marks)

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