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Section : 07

Ans to the ques no:- 1

A For the same values of X , the combination of Y and Z is unique. Thus, $X \rightarrow YZ$ is valid.

B When the combination of X and Y is $\{xyz\}$, $z\}$, the corresponding value of A is $\{11, 13\}$. As this dependency is giving multiple results for same X and Y , $XY \rightarrow A$ is invalid.

C When the value of A is 10, we get $XYZ = \{ \langle 'acefg', 1, 'a' \rangle, \langle 'abdefg', 3, 'a' \rangle \}$. Because of multiple results, $A \rightarrow XYZ$ is invalid.

D For the combination $\{ \langle 3, 'a' \rangle \}$ from Y and Z , the corresponding value of $X = \{ \langle 'feg' \rangle, \langle 'abdefg' \rangle \}$. Because of multiple results, $YZ \rightarrow X$ is invalid.

E We always get the same value from Z for the same value of Y . So, $Y \rightarrow Z$ is valid.

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Ans to the ques no-2

i

There is no composite or multivalued attribute in the relation. If we assume that the values of this relation is atomic, then, the relation is already in 1NF.

ii

There are partial dependencies present in the relation. So, it is not in 2NF.

After converting it to 2NF :-

Engineer

<u>Engineer_ID</u>	Engineer_Name	Total_Repairs	Commission_Percentage	Engineer_Phone
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Computer

<u>Comp_ID</u>	Customer_Name	Customer_phone
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Repair

<u>Comp_ID</u>	<u>Date_Assigned</u>	Issue	Priority_Level	Service_Charge
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Comp-repair-information

<u>Comp_ID</u>	<u>Engineer_ID</u>	<u>Date_Assigned</u>	<u>Date_Repaired</u>
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iii

There are two transitional dependencies.
After converting to 3NF :-

Computer

<u>Comp_ID</u>	Customer_Name	Customer_Phone
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Comp-repair-information

<u>Comp_ID</u>	<u>Engineer_ID</u>	<u>Date_Assigned</u>	<u>Date_Repaired</u>
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Engineer

<u>Engineer_ID</u>	Engineer_Name	Total Repairs Total Repairs	Engineer_Phone
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Commission

<u>Total_Repairs</u>	Commission_Percentage
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Repair

<u>Comp_ID</u>	<u>Date_Assigned</u>	Issue	Priority_Level
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Change

<u>Priority_Level</u>	Service_change
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