Himanshu Dixit
2110326 2
B11

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Database Systems & Web (15B11CI312)

Assignment-1

Q.1. 1. $\Pi_{eids}(\sigma_{aname = "Boeing"}(Aircraft \bowtie Certified))$

2. $\Pi_{ename}(\sigma_{aname = 'Boeing'}(Aircraft \bowtie Certified \bowtie Employees))$

3. ~~$\Pi_{eid}(\sigma_{aname = 'Boeing'}$ from 'Bonn' to 'Madrid'~~

$\int x(\sigma_{from = 'Bonn' \wedge to = 'madrid'}(flights))$

$\Pi_{aid}(\sigma_{cruisingrange > distance}(Aircraft \times x))$

4. $\Pi_{fno}(\sigma_{distance < cruisingrange \wedge Salary > 1,00,000}(flights \bowtie Aircraft \bowtie Certified \bowtie employees))$.

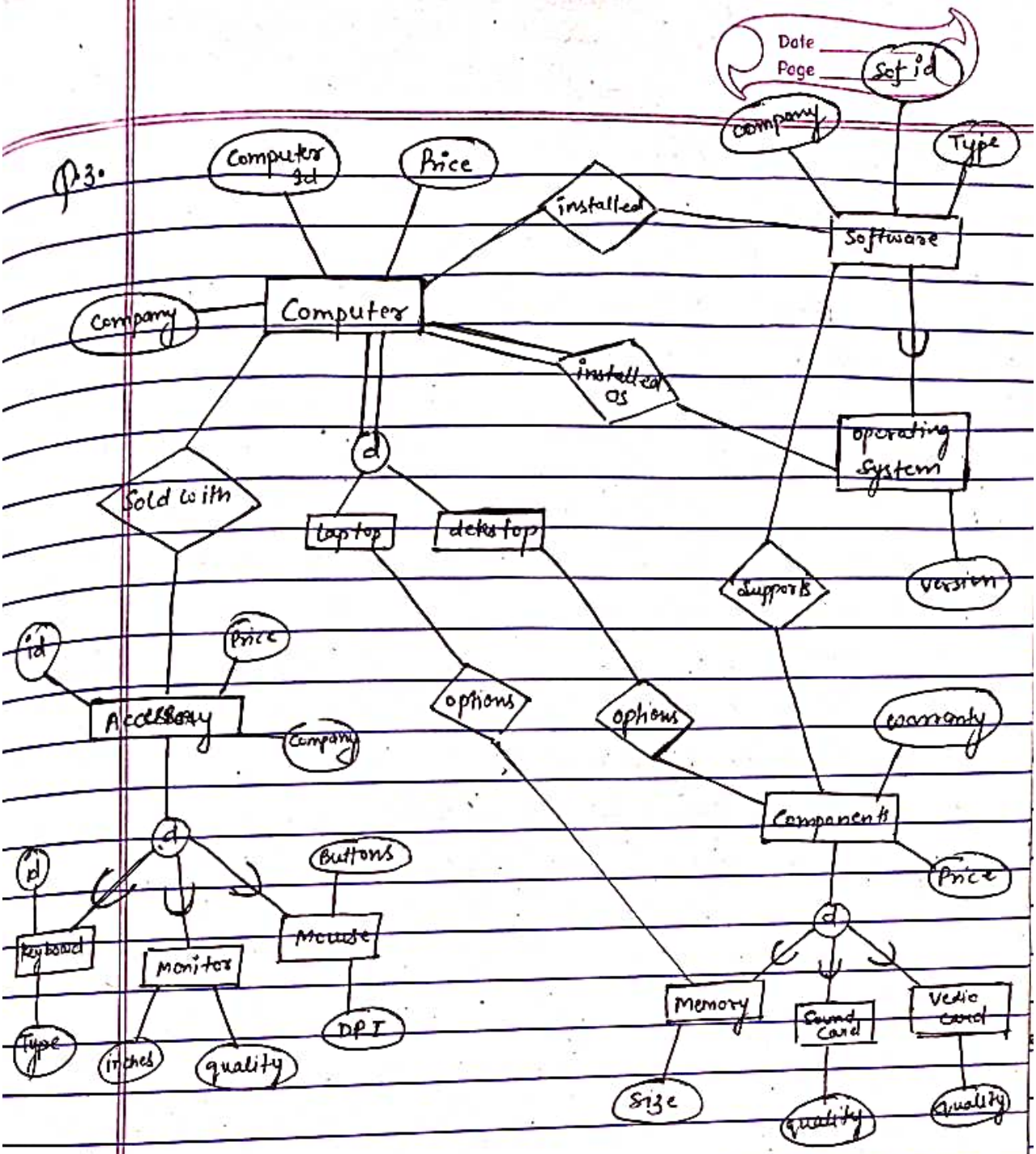
5. $\int a(\Pi_{eid}(\sigma_{cruisingrange > 3000}(Aircraft \bowtie Certified))$
$\Pi_{name}(Employees \bowtie (a - \Pi_{eid}(\sigma_{aname = 'Boeing'}($
$Aircraft \bowtie Certified))))$

Q.2.

```
<html>
<head>
<title> Friend's likes </title>
</head>
<div>
<h3 style = "color : Blue ;"><i> Select preferences </i> </h3>
</div>
<form method = "GET" action = "likes.php">
Indian <input type = "checkbox" value = "Indian" name = "food">
French <input type = "checkbox" value = "french" name = "food">
Chinese <input type = "checkbox" value = "chinease" name = "food">
Italian <input type = "checkbox" value = "Italian" name = "food">
```

```
<input type = "submit" name = "sub" value = "Search" style = "color:
yellow;" >
</form>
</body>
</head>
<?php
if (isset ($_GET ['sub']))
{
$con = mysqli_connect ('localhost', 'root', '', 'xyz');
if (mysqli_connect_errno())
{
if (!$con) {
echo "failed to connect to mysql". mysqli_connect_error();
}
$box = $_GET['food'];
$food = array();
foreach ($box as $x) {
$food[] = $x;
}
echo "List of friends who have liked the same items";
foreach ($food as $x)
{
$result = mysqli_query ($con, "select * from friendlikes
natural join friends where friends.name = friendlikes.name
&& friends.conversation like concat('%','$fooditems','%')
&& likes = '$fooditems' ; ");
while ($row = mysqli_fetch_array ($result))
{
echo "Name : ". $row['name']. "Relavant conversation :".
$row['conversation'] ;
}
}
mysqli_close ($con);
?>
```

Q3.



Relational Schema :-

Entity	(Attribute)
Computer	(Computer Id, Price, company)
Accessory	(Id, company, Price)
Keyboard	(Type, Id)
monitor	(Inches quality, Id)
Mouse	(DPI, buttons, Id)
Software	(company, Software_Id, Type, Computer Id)
operating System	(Software_id, Version)
Components	(warranty, id, price, computer id)

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Memory (size, id)
Sound card (Quality, id)
Vedio card (Quality, id)
Desktop (computer_id)
laptop (computer id)

Description :-

- A computer can be one of laptop or dekstop.
- Accessories include all types like mouse, keyboard, monitor.
- A desktop can have various components like memory, vedeocard or sound cevd.
- A laptop have memory options
- Computer may or may not have software.

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Q.4.

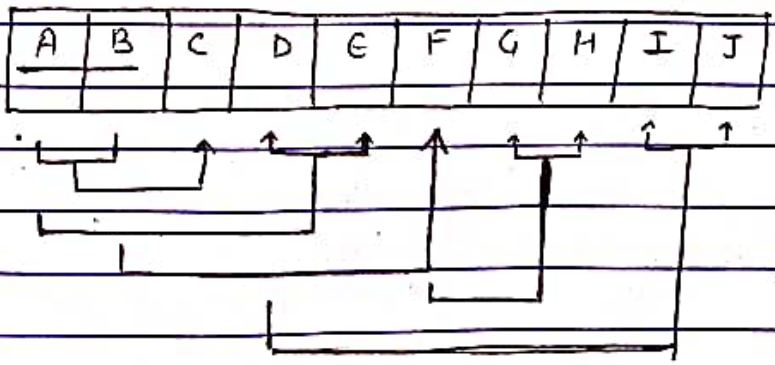
Physical data Independence	Logical Independence
→ It mainly concerns about how data is stored into systems	→ It mainly concerns about the structure on the changing data definition.
→ It is easy to retrieve	→ It is difficult to retrieve because the data is mainly dependent on the logical structure of data as compared to the logical independence it is easy to achieve physical data independence

Q.5. (a) $R = \{A, B, C, D, E, F, G, H, I, J\}$

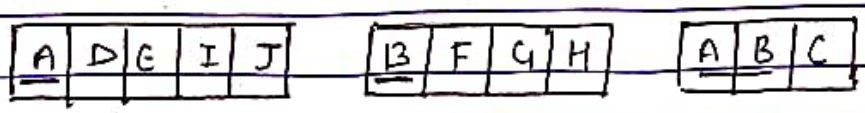
$F = \{AB \to C,\ A \to DE,\ B \to F,\ F \to GH,\ D \to IJ\}$

$(AB+) = \{A, B, C, D, E, F, G, H, I, J\}$

AB is a Candidate key.



2NF



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3NF

A	D	E

D	I	J

B	F

E	G	H

A	B	C

(b) $\{ P \to QR , Q \to R , P \to Q , PQ \to R \}$

$\{ P \to Q , P \to R , Q \to R , P \to Q , PQ \to R \}$

$\{ P \to R , Q \to R , P \to R \}$

$\{ P \to R , Q \to R \}$ Ans