## Lab mot worksheet \* auantum physic

Page No.

Date 25 03 2

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Branch - cse-rot

subject - avantum and semiconductor physics.

\* Aim of 'experiment -

To determine the resistivity of semicond--uctor by four probe method.

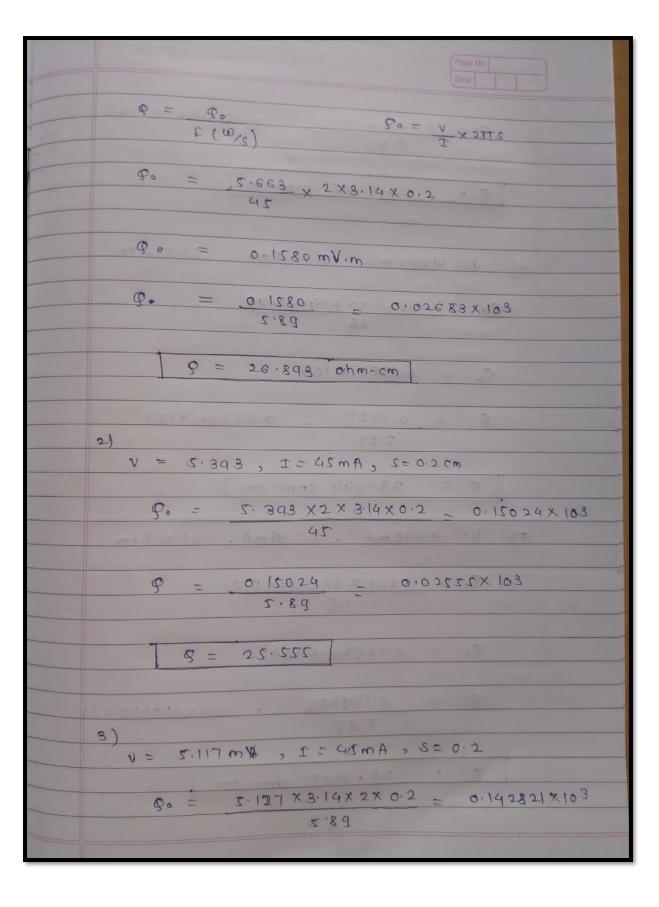
\* Apparatus -

			- Chartest .			
	sr. no.	equipment	Pange	accontity		
d	1.	power supply	220 V	1		
	2,	oven	0+0200°c	1		
	3.	n-type crystal	NA	1		
	4.	mill-Ammeter 4	0-20mA	1		
	aldah	milli voltage.	0-250mA			

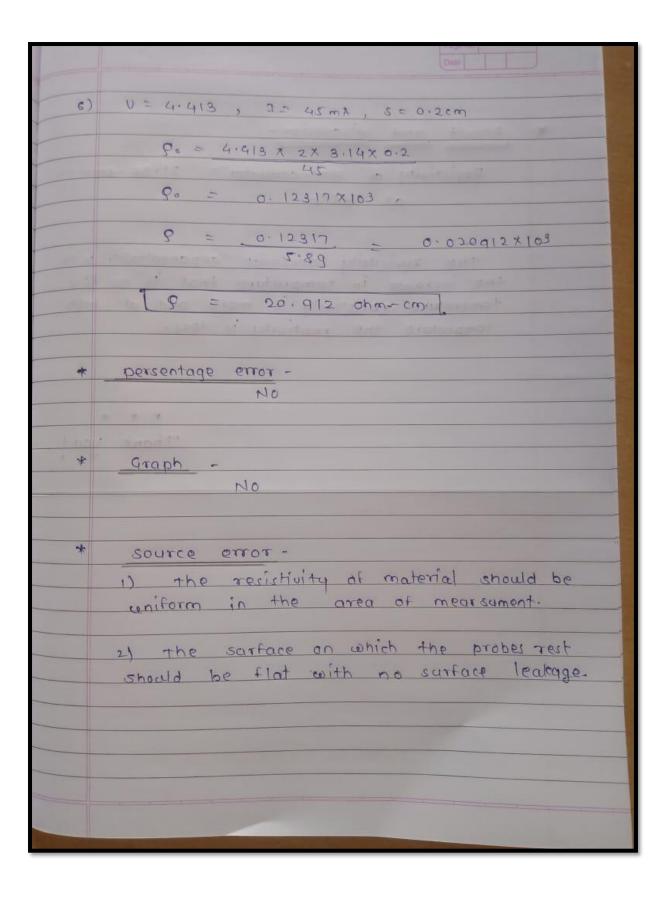
## \* observation -

- s. material used for the experiment silicon
- 2. Distance between two probes 0.2 cm
- 3. Thickness used for the experiment 0.05cm
- 4. current ct) used for the experiment 45mA

	Date							
	in alma sman							
	observation table -							
	-	- and anottope		voltage	Resistivity (9) (2-10)			
	ST. NO.	Temp.		5-663mV	26.8396			
427	2 2 4 1		298	5.393 mV	25.5598			
	2.	30°c	303	5.117 mV	24.2497			
	3.	35°c	3 08	4.863 mV	23.6456			
	4.	40°c	313	4.629 mV	21.9363			
	2.	45°c		4.413 mV	20.9123			
1527.00	6.	20°C			volum -			
	than saar a root and rolant							
A.	+ zwiospadA w							
The same of	* -formula -							
36								
1	$f(\underline{w}) \qquad f = 1$							
2	f(w)							
1	f → correction factor							
	F = 5.89 form standard table.							
	Sidney Table.							
*	calcul	lations -			Hankenda A			
	cal	culation	for resit	ivity -				
	100 110 6	* 100m 10	320 904		is strong of			
	١							
	N = 2.663 MV							
200	1 = 45mA							
	\$ = 0.2							
200	So = 5							
	The same and the same of the same of							
			- I was					



Date 9 = 0.142821 × 103 = 0.02424 × 103 2.89 9 = 24.2495 ohm-cm 4) U= 4,863 mU, I = 45mA S=0.2 cm 90 = 4.683x 2x3.14x 0.28 48 9. = 6.1357 x 103 9 = 0.1357 = 0.02304 × 103 5.89 9 = 23.044 ohm-cm 5) V= 4.629 mV, 1= 45 mA, 5=0.2 cm 90 = 4.62g x 2x 3.14x 0:2 45 90 = 0.129200x103 = 0.129200 - 0.0219355 X 103 2.89 g = 21.9355 ohm-cm



Result and discussion -Resistivity of semiconductor = 21.96 ohm-cm at 45°C The resistivity - decrease exponentially with the increase in tempreture that is as low tempreture resistivity is more and at high tempreture the resitivity is less. Thank you!