Department of Physics

Vivekanand College, Kolhapur (Autonomous)

Notice for Internal Examination in Physics for B.Sc. – I and II

It is hereby informed that, students of B.Sc. – I and II should note that their Internal Examination in Physics will be conducted as per following time – table.

Date	Time	Class	Subject	Topics
Monday, 10/04/2023	11.00 to 12.00 AM	B.Sc. – II (Astrophysics)	Paper – III	Galaxies
			Paper – IV	Fluids
Tuesday, 11/04/2023	10.00 to 11.00 AM	B.Sc. – I	Physics Paper – III	Network Theorem
			Physics Paper – IV	Vector Algebra
Tuesday, 11/04/2023	10.00 to 11.00 AM	B.Sc. – II	Physics Paper – VII	Theory of Radiation
			Physics Paper – VIII	Interference

Seating Arrangement (Engineering Building)

Sr. No.	Class	Room / Block No.	Roll No.
1)	B.Sc. – I	301 (03rd Floor)	7201 to 7252
2)		312 (03rd Floor)	7253 to 7285
3)		313 (03rd Floor)	7286 to 7318
4)		314 (03rd Floor)	7319 to 7352
5)		315 (03rd Floor)	7353 to 7390
6)		319 (03rd Floor)	7392 to 7422
7)		B.Sc./MSc Hall 01 (04th Floor)	7428 to 7557
8)		B.Sc./MSc Hall 02 (04th Floor)	7558 to 7602
9)	B.Sc. – II	BCS Lecture Hall (04th Floor)	7701 to 7740
10)		B.Sc./MSc Hall 02 (04th Floor)	7741 to 7777, 7976, 7983, 7984, 7990
11)	B.Sc. – II (Astrophysics)	Physics Practical Lab 02	

Nature of Question Paper

Q.1) Select correct alternative (10 Marks)
Q.2) Long answer type question (10 Marks, Attempt any One)
Q.3) Short answer type question (10 Marks, Attempt any Two)
Total Marks: 30 Marks

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR - 416003

HOD, Physics
Head of the
Department of Physics
Vivekanand College, Kolhapur

"Education for Knowledge, Science and Culture"
-Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous).

Department of Physics

B.Sc. Part-I SEM II Internal Examination (2022-23)

Electricity, Magnetism and Electromagnetic Theory

(Paper code: **DSC-1001B1**) Paper II

Date :
Day :

Total Marks: 30
Time :-

Q.1) Attempt the following **(5)**

A] Choose the correct alternative

1. The A potential due to point charge at a distance r from it is proportional to -----

(a) r (b) 1/r

(c) r^2 (d) $1/r^2$

2. According Norton's theorem, the entire network can be replaced by a single current source I_N ---------

(a) In series with a single resistance R_{TH}

(b) b) In parallel with a resistance R_N

(c) In series with initial source V

(d) In parallel with initial source V

3. The factor j rotates a vector through -----

(a) π (b) $\frac{\pi}{2}$

(c) 2π (d) $\frac{3\pi}{2}$

4. Electric flux due to electric field E passing through the surface area S is given as -------

(a) $\emptyset = \frac{E}{S}$ (b) $\emptyset = E \times S$

(c) $\emptyset = E.S$ (d) $\emptyset = E - S$

5. Figure of merit of ballistic galvanometer is measured in --------.

(a) $^{\mu A}/_{mm}$ (b) $^{mm}/_{\mu A}$

(c) $^{cm}/_{\mu V}$ (d) $mm.\mu V$

6. The At resonance in series LCR circuit the circuit is ---------.

(a) Purely resistive (b) Purely inductive

(c) Purely capacitive (d) purely reactive

7. According to Thevenin's theorem, the entire network can be replaced by single voltage V_{TH}-----.

(a) In series with a single resistance R_{TH}

(b) In series with current I_N

(c) In series with initial source V

(d) In parallel with single resistance R_m

8. The total number of electric field line passing a given area in a unit time is known as -----
   (a) electric field (b) electric flux
   (c) electric potential (d) electric charge

9. If F is the force acting on test charge q_0 electric field intensity E would be given by -------
   (a) $E = F - q_o$ (b) $E = F/q_o$
   (c) $CE = F + q_o$ (d) $E = q_o/F$

10. Voltage sensitivity is measured in --------.
   (a) $^{\mu V}/_{mm}$ (b) $^{mm}/_{\mu V}$
   (c) $^{cm}/_{\mu V}$ (d) $mm.\mu V$

Q.2 Attempt any ONE **(10)**

1. What is electric dipole? Obtain an expression for electric potential due to electric dipole at a point at a distance r from center of dipole.
2. Discuss damping in galvanometer. Explain how it can be corrected with the help of log decrement.

Q.3 Attempt any TWO **(10)**

1) Explain Kirchhoff's first law.
2) Explain resonance in series LCR circuit.
3) Define i) Figure of merit ii) current sensitivity iii) voltage sensitivity

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Vivekanand College, Kolhapur

(Autonomous)

Department of Physics

Internal exam (2022-23)

B.Sc.I Sem II

Date:- 11/04/2023

Attendance Sheet

Roll No.	Name Of The Student	Signature
7201	Awati Shreyash Dilip	
7203	Choudhari Sharmila Ghanshyam	
7204	Kamble Saurabh Sanjay	
7205	Kolapate Sakshi Vitthal	
7206	Kolekar Pushparaj Narayan	
7207	Lokhande Sujal Sandip	
7208	Mangaonkar Vedant Prashant	
7209	Misal Omkar Sunil	
7210	Mujawar Zahir Jamir	
7211	Nesarkar Siddharth Deepak	
7212	Nikam Prasad Manohar	
7213	Patel Irfan Samsherlal	
7214	Patil Harshad Rajgonda	
7215	Patil Harshvardhan Dhananjay	
7219	Shelke Rupali Prakash	
7220	Sonikar Darshan Sharad	
7221	Varma Arjun Ramesh	
7222	Vyavahare Sujal Kalyan	
7223	Warange Niraj Rajesh	
7224	Yadav Harsh Nivas	
7225	Ardalkar Aditya Ashok	
7227	Bangade Saurami Kushappa	
7229	Bhadarage Abhishek Sunil	
7230	Bhogam Sujata Krishnat	
7231	Bhosale Mayuresh Dilip	
7232	Biranje Sakshi Raju	
7233	Buchade Vaibhav Sanjay	
7234	Chand Rutuja Pralhad	
7235	Chavan Aishwarya Vishnu	
7236	Chougule Prateek Anil	
7237	Chougule Vishakha Mahadev	

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7033	Koli Nandini Siddharthshankar	
7034	Koshti Shweta Jitendra	
7035	Kumathekar Kedar Sanjay	
7036	Lohar Siddhesh Ravindra	
7037	Magdum Samruddhi Gunda	
7038	Mane Supriya Narayan	
7039	Mathew Jisna Anoop	
7040	More Akshada Vijay	
7041	More Madhumati Tanaji	
7042	More Pranav Ashok	
7043	Mudrale Shweta Rahul	
7044	Mugdar Akanksha Nilesh	
7045	Mukkanawar Siddharth Sadanand	
7046	Naik Atharv Ajit	
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7048	Pareek Sangeeta Ramawatar	
7049	Parit Sumit Dipak	
7050	Patil Aditya Tatyaso	
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7053	Patil Prajakta Pandurang	
7054	Patil Rajnandini Pratap	
7055	Patil Rasika Shahaji	
7056	Patil Rutuja Anant	
7057	Patil Samruddhi Arun	
7058	Patil Shriya Suresh	
7059	Powar Mrunali Ramchandra	
7060	Rajput Ajay Ravasaheb	
7061	Ramchandani Khushi Deepak	
7062	Randive Rutuja Arvind	
7063	Rukadikar Sudhanshu Dilip	
7064	Sarnaik Yoesh Shivaji	
7065	Sayyed Tabassum Aijaz	
7066	Shidvankar Siraj Yasin	
7067	Shinde Sejal Sudhir	
7068	Shirke Pranali Pradeep	
7069	Solase Sakshi Subhash	
7070	Sutar Pravin Rajendra	
7071	Terdale Pranjali Anandkumar	
7072	Thanekar Vaibhav Mahendra	
7073	Tonpe Sejal Vijay	
7074	Ubare Sakshi Sanjay	
7075	Vadicharla Sandhya Krushnamurti	
7076	Veer Vikram Sarjerao	
7077	Vetale Rohit Bapu	
7078	Wadar Pramod Deepak	
7079	Warake Sakshi Sanjay	

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7174	Bedekar Shreyasi Sharad	
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7176	Bodake Tejaswini Shahaji	
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7181	Chougule Sapana Anil	
7182	Darvan Kunal Kumar	
7183	Desai Shrawani Sudhakar	
7184	Deshmukh Harshwardhan Diliprao	
7185	Doke Siddheshwar Shivaji	
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7191	Ghule Poonam Manik	
7192	Godhade Gajanan Jayvant	
7193	Gurav Amruta Krishnat	
7194	Heble Sanika Prashant	
7195	Jadhav Aarati Sunil	
7196	Jadhav Ankita Raghunath	
7197	Jadhav Monali Santosh	
7198	Jadhav Pranoti Prakash	
7199	Jadhav Shila Thavaru	
7200	Jagtap Shital Bharat	
7201	Kadam Shrutkirti Rangrao	
7202	Kalantre Neha Namdev	
7203	Kalkutaki Vishal Babasaheb	
7204	Kamble Amruta Suresh	
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7206	Kamble Harsha Babaso	
7207	Kamble Manoj Sanjay	
7208	Kamble Shirish Sanjay	
7209	Kamble Shridhar Balu	
7210	Kamble Swapnagandha Dilip	
7211	Kamble Vishal Natha	
7212	Karale Priyanka Bharat	
7213	Kawthekar Safia Mohammad Rafiq	
7214	Khandekar Rutuja Narayan	
7215	Kharase Rushikesh Dayanand	
7216	Kharat Akanksha Rajendra	
7217	Khot Swapnil Sanjay	
7218	Kokate Pratik Pralhad	
7219	Koli Rugveda Vijay	
7220	Kumar Praveen Ranaram	

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7221	Kurkute Parth Lalaji	
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7223	Lohar Sushma Madhukar	
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7226	Mohite Prerana Pravin	
7227	Mujawar Aaliya Altaf	
7228	Mujawar Asifa Ramjan	
7229	Mujawar Fahim Sajid	
7230	Mulani Arbaz Yunus	
7231	Nalawade Poonam Prakash	
7232	Navale Sumit Rajendra	
7233	Nimbalkar Samiksha Ramchandra	
7234	Oswal Chaitali Pravin	
7235	Parit Shivani Tanaji	
7236	Patil Aditi Atul	
7237	Patil Dhairyashil Sagar	
7238	Patil Harshada Hambirrao	
7239	Patil Kirti Vijay	
7240	Patil Manasvi Sardar	
7241	Patil Radhika Nivas	
7242	Patil Rajvardhini Jaysing	
7243	Patil Samrudhi Rajendra	
7244	Patil Shivani Keraba	
7245	Patil Shreyas Eknath	
7246	Patil Snehal Maruti	
7247	Patil Swaraj Shivaji	
7248	Pattankude Chaitali Shital	
7249	Phonde Pandurang Baburao	
7250	Pingale Vaishnavi Satish	
7251	Pol Mrunal Rakesh	
7252	Ranage Snehal Kundan	
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7254	Salavi Akanksha Rajaram	
7255	Salavi Sonali Mahadev	
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7261	Sayyad Zeenat Salim	
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7265	Shinde Nayan Harishchandra	
7266	Shinde Tejasvinee Sunil	
7267	Shivatankar Shubham Anant	

7268	Suryawanshi Pratiksha Suryakant	
7269	Talkar Akanksha Vijay	
7270	Talkar Pratiksha Vijay	
7271	Tirale Samiksha Dattatray	
7272	Vanjari Koustubh Appasaheb	
7273	Waghmare Pratik Pandit	
7274	Wakrushe Divya Vitthal	
7275	Yadav Aditi Sudhir	
7276	Yevaluje Swapnali Madhukar	
7277	Zende Manaswini Milind	
7278	Bhopale Animesh Sunil	
7279	Chavan Aishwarya Sunil	
7280	Chougale Ketan Krishnat	
7281	Dabade Shweta Shivaji	
7282	Desai Akanksha Anil	
7283	Dinde Rutuja Amar	
7284	Ekal Sanket Sarjerao	
7285	Garadi Saniya Harun	
7286	Jadhav Vaishnavi Ravaso	
7287	Jamadar Tasmiya Kasim	
7288	Kharat Komal Laxman	
7289	Korde Shreya Rahul	
7290	Kugaji Bhargavi Ramling	
7291	Magdum Rajvardhan Satappa	
7292	Nikalje Aarti Fulchand	
7294	Patil Sakshi Pramod	
7295	Patil Sujit Sunil	
7296	Patil Sunil Suresh	
7297	Powar Saraswati Ajit	
7298	Sagaonkar Tejashree Ssarang	
7299	Shintre Pranjal Prakash	
7300	Shivane Ashutosh Dhanaji	
7301	Arade Samadhan Anil	
7302	Chavan Pratik Pradip	
7303	Dabade Amruta Shahaji	
7304	Giri Poonam Sanjay	
7305	Inamdar Ruturaj Sharad	
7306	Jadhav Sayali Vijay	
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7308	Katiyar Kajal Lakhmichand	
7309	Katyar Preeti Manohar	
7310	Khandare Pankaj Vishnu	
7311	Khurandle Vaishnavi Rajendra	
7312	Mahadik Akshata Suhas	
7313	Mali Karishma Ratanlalji	
7314	Mulla Ashrafalli Akhtarhusen	
7315	Patil Aadesh Satish	

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7455	Ulape Tanveer Uday	
7456	Ustad Rifat Nasirkhan	
7457	Vadd Shruti Yashwant	
7458	Varute Omkar Sambhaji	
7459	Yadav Aditya Amar	
7460	Zinrange Rupali Uttam	
7550	Daddikar Gaurav Nitin	
7551	Altekar Aditya Mahesh	
7552	Pujari Sumit Balaji	
7553	Ranmale Samruddhi Subhash	
7557	Mulla Irfan Llai	
7558	Shete Rohit Jeevan	
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7561	Mishra Shambhavi Mukeshkumar	
7565	Mansuri Sahida Allauddin	
7566	Chougale Vinay Vijay	
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7579	Gongane Snehal Nandkumar	
7580	Sutar Nandini Raghunath	
7581	Patil Om Chandrakant	
7582	Bandgar Atharv Sandeep	
7583	Lohar Sanika Digambar	
7584	Patil Prathmesh Kallappa	
7587	Kolekar Prathmesh Dilip	
7588	Shaikh Ayesha Aslam	
7589	Tamgave Suhani Vinayak	
7592	Maner Iqra Hidyatulla	
7593	Diwase Anirudha Rajendra	
7594	Jarag Harshvardhan Devendra	
7595	Mali Swapnil Mohan	
7596	Mulik Amruta Ajay	
7600	Kurane Shraddha Sandip	
7601	Khondal Sandip Navlu	
7602	Padalkar Harshvardhan Vijay	

Internal Examinar.....

ESTD JUNE 1964 (Autonomous) KOLHAPUR

Name : Harshvardhan Dhananjay Patil

॥ ज्ञान, विज्ञान आणि सुसंस्कार यातीतो शिक्षण प्रसार ॥
– शिक्षणमहर्षी डॉ. बापूजी साळुंखे

27802

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

SUPPLIMENT

Signature of Supervisor	21 Ashwini
Suppliment No. :	
Roll No. :	72015
Class :	Bsc - I
Subject :	Physics
Test / Tutorial No. :	
Div. :	A

10 + 9 + 2 = 21

Q1]

i] → c] zero

ii] → b] $J = \sigma E$

iii] → c] charge

iv] → b] in parallel with resistance R_{iv}

v] → b] $R_N = R_{Th}$, $I_N = V_{Th}/R_{Th}$

vi] → b] square of its magnetude

vii] → b] $V = w \times r$

viii] → a] The maximum rat of change of the fuction in space

Ix] → b] a scalar

x] → a] per unit volume

Q2] Thevenin's theorem.

The thevenin's theoram is used to convert complicated circuit in to simple circuit Cosisting of an voltage source with series resistal resistance

Statement
Inter network circuit can be replaced by connecting of two

Statement:
Inter network circuit connect to two terminals can be replace by ~~two~~ single voltage source V_{th} with single resistance R_{th} in series connected to same to terminals.

Method to find equivalent thevenin's equivalent circuit

1. Remove the load resistance make circuit open.
2. find the open circuit voltage V_{th} by any method
3. Now remove voltage source by internal resistance find R_{th}
4. Now apply load resistance & make thevenins equvalent circuit with the opencircuit voltag with the series resistace R_{th}

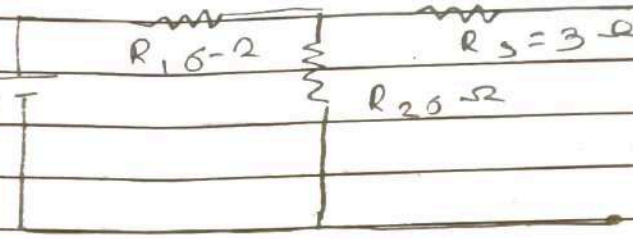
V_{the} → is know as Thevenins voltage which is actually open circuit voltage

R_{th} → knowas thevenins resistance which is Resistance when all voltage source remov

Soln^n

we have to fine thevenins equivalent circuit

step 1 : remove the load resistance



step II : find the V_{th}

calculate open circuit voltage by any method

$$V_{th} = \frac{V R_2}{R_1 + R_2} = \frac{6 \times 6}{6+6} = \frac{36}{12} = 3V$$

step3 : To find R_{th}

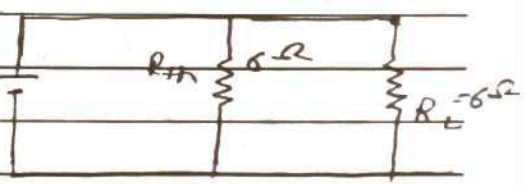
Remove the voltage source

$$R_{th} = \frac{R_1 R_2}{R_1 + R_2} + R_3$$

$$= \frac{6 \times 6}{6+6} + 3$$

$$= 6\Omega$$

Step 4 : Thevenins equivalent circuit



Q:] 2] vector product

vector product of or cross product of two vector defind as the product of magnitude of two vectors & sin betn them & ~~sing~~ ~~beta~~ direction is given right hand thumb

Q3] krishoff's first law

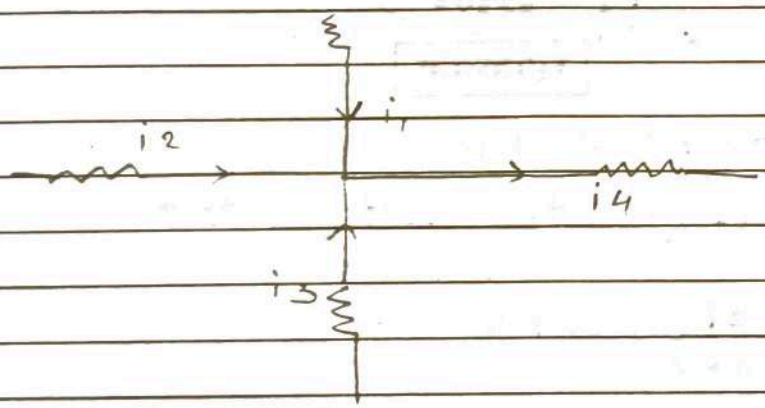
krichoff's first law / current law / juction law

statement

At any junction the sum of all curent entering in the juction is equal to the sum of all currents leaving the juction

i.e $\Sigma i = 0$

(2)



$i_1 + i_2 + i_3 = i_4$

$i_1 + i_2 + i_3 - i_4 = 0$

$\therefore \Sigma i = 0$

in other word

the intering current in the juction is 0.

Name:- Abhijeet Laxman Kalake.

।। ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार ।।
– शिक्षणमहर्षी डॉ. बापूजी साळुंखे

27786

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

SUPPLIMENT

Signature of Supervisor	25 Abhijeet
Suppliment No. :	
Roll No. : 7249	Subject : physics
Class : B.Sc- I	Test / Tutorial No. : intranal
	Div. : A

Q.1 $10 + 6 + 9 = 25$

1] ✗ c] zero

2] ✗ b] $J = \sigma E$

3] ✗ c] charge

4] ✓ b] in parallel with resistance R_N

5] ✓ b] $R_N = R_{TH}$, $I_N = V_{TH}/R_{TH}$

6] ✓ b] square of its magnitude

7] ✓ b] $v = \omega \times r$

8] ✓ a] the maximum rate of change of the function in space

9] ✓ b] a scalar

10] ✓ a] per unit volume

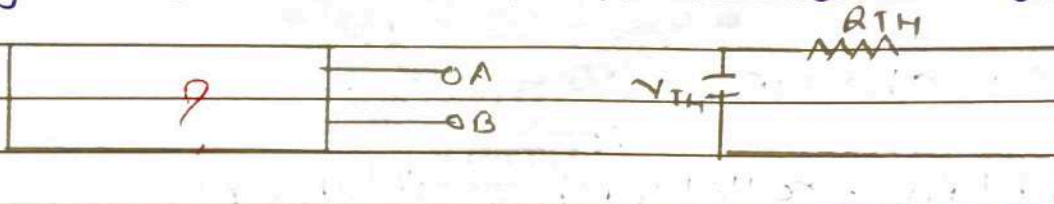
Q. 2

1 Thevenins theorem -

In this theorem most suitable for converting compuicutade network consisting of voltage source in series with equivalent.

statement - The entire network connected in to two terminals can be replaced by the voltage source V_{TH} in series with a single resistance R_{Th} is connected to the same two terminals.

consider a box containing complex circuite connected to the two terminals A & B are show in fig. Then the th according to the thevenins theorem is connected to the A & B can be replaced by a voltage source V_{TH} in series with a single resistance. R_{TH} is across the show in fig



The term of V_{TH} is known as thevenins theorem which is actually open circuite voltage exist between terminals A & B. The R_{TH} is know as thevenins theorem equivalent resistance it is the resistance of the circuite of terminals A & B when the remove have a voltage source by the internal resistance

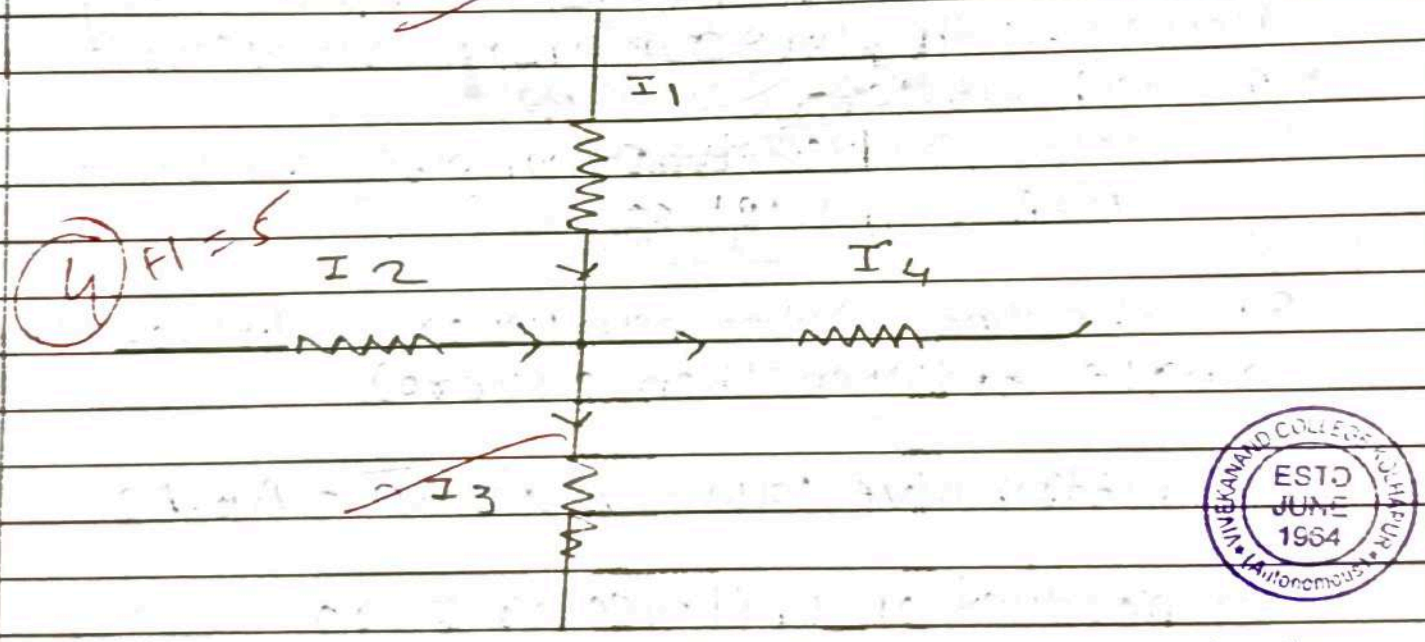
$$V_{TH} = \frac{V \times R_2}{R_1 + R_2} \qquad R_{TH} = \frac{R_1 \cdot R_2}{R_1 + R_2} + R_3$$

① The method of out the thevenins theorem equivalent circuite by calculate any given network first remove the load by an given network and make the circuite open

(2) calculate the open circuite voltage of the out put terminals by any method and this V_{TH}
(3) replaced by the voltage by a internal resistance if any (if not given) replaced the voltage source by a short circuite and calculate equivelent resistance
(4) The thevenins equivalent resistance is a voltage source V_{TH} in this series with a equivalent resistance R_{TH}.

Q.3) Krichoff's first law-

Krichoff's first law state that the total current containing toward the juction is equal to the total current going away from the circuite of juction.



If we consider the current coming towards the juctions is positive and current going away from circuite is negative then the algebric sum of current coming toward the juction and going away from juction is zero

If the fig (A) we assume current coming towards

Q.2 2] ~~In the order to understand physical significance of gra~~

the juction is I_1 + and I_2 and current going away from juction is $-I_3$ and $-I_4$

$$\therefore I = I_1 + I_2 + I_3 - I_4$$
$$= 0$$
$$\therefore \Sigma I = 0$$

Thus law is dependance on the principale of conservation of charge

Q.3

2] vector product - The multiplication of magnitude of two vector and $\overline{A}$ & $\overline{B}$ and the sine angl between them is called vector poduct. The resultant vector of the vector product is perpen dicular to the plane containing two vectors

*Characthersitics -

(1) vector product duse not obey commutative law

$$\overline{A} \times \overline{B} = |A|\,|B| \cos\theta.$$

(4)

(2) The two vectors parallel or anti-peller the angle between then 0 (zero)

(3) Distributive law : $\overline{A} \times \overline{B} \times \overline{C} = AB.AC$

(4) product of unit vector is zero.