

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
Monday, 30/11/2022	11.00 to 12.00 AM	B.Sc. – II (Astrophysics)	Paper – I
			Paper – II
Monday, 28/11/2022	10.00 to 11.00 AM	B.Sc. – I	Physics Paper – I
			Physics Paper – II
Monday, 28/11/2022	10.00 to 11.00 AM	B.Sc. – II	Physics Paper – V
			Physics Paper – VI

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




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

Shri Swami Vivekanand Shikshan Sanstha's
Vivekanand College, Kolhapur (Autonomous)

Internal Examination 2022-23

PHYSICS-DSC -1001 A

B.Sc. – I, Sem – I (Mechanics – I and Mechanics – II)

Time: 30 Minutes

Marks: 30

Q. 1. Select Correct Alternatives

(10)

- 1) When a beam is fixed at one end and loaded at the other, the middle filament which is neither elongated nor compressed is called
 - a) Plane of Bending
 - b) Neutral Axis
 - c) Neutral Surface
 - d) Neutral Filament
- 2) A beam is supported at both the ends and loaded at the centre is equivalent to
 - a) a Cantilever
 - b) Two Cantilevers
 - c) Two Inverted Cantilevers
 - d) Four Cantilevers
- 3) The motion of a torsional pendulum is
 - a) Uniform Linear Motion
 - b) Accelerated Linear Motion
 - c) Angular S.H.M.
 - d) Linear S.H.M.
- 4) Geometrical moment of inertia of beam of circular cross-section of radius 'r' is
 - a) πr^4
 - b) $\pi r^2/4$
 - c) $\pi r^4/4$
 - d) πr^2
- 5) In equilibrium position of bending of beam
 - a) Bending Couple > Restoring Couple
 - b) Bending Couple < Restoring Couple
 - c) Bending Couple = Restoring Couple
 - d) Bending Couple = 0
- 6) Select the wrong alternative
 - a) Speed
 - b) Temperature
 - c) Velocity
 - d) Mass
- 7) If the angle between the two component vectors is, then they are called the rectangular resolved components of the given vector.
 - a) 180°
 - b) 0°
 - c) 90°
 - d) 45°
- 8) The absolute value of scalar triple product $A \cdot (B \times C)$ is equal to the of parallelepiped whose adjacent sides are the vectors A, B, and C.



- a) Volume
b) Area
c) Side
d) Diagonal
- 9) The vector triple product produces a vector as a result of taking the cross product of one vector with the of two other vectors.
- a) Scalar Product
b) Cross Product
c) Dot Product
d) Addition
- 10) A unit vector is a vector whose magnitude is
- a) Zero
b) Two
c) Ten
d) One

Q. 2. Long Answer Questions

(20)

- 1) What is cantilever? Derive an expression for the depression of the free end of a cantilever due to a load.
- 2) Explain vector product and its characteristics in detail.



Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur

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Department of Physics

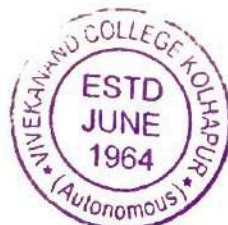
Internal exam (2022-23)

B.Sc.I Sem I

Date:- 28/11/2022

Attendance Sheet

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



7127	Pathan Faijan Nazim	
7128	Pathan Mohammed Abrar Mansoor	Faihan M. Pathan
7129	Patil Abhijit Hindurao	Abhil
7130	Patil Abhishek Nivas	Abhishek
7131	Patil Aniket Ananda	Aniket
7132	Patil Anirudha Dilip	A.D. Patil
7133	Patil Asitkumar Uttam	Asit
7134	Patil Asmita Ramesh	Asmita
7135	Patil Avdhoot Laxman	Avdhoot
7136	Patil Harshvardhan Ashok	Harshvardhan
7137	Patil Kalyani Pandurang	Kalyani
7138	Patil Milind Mahadev	M.M. Patil
7139	Patil Niranjan Annasaheb	Niranjan
7140	Patil Pranita Rajendra	Pranita
7141	Patil Prathamesh Rajesh	Prathamesh
7142	Patil Rajvardhan Ashok	Rajvardhan
7143	Patil Rohini Vilas	Rohini
7144	Patil Rushikesh Ramrao	Rushikesh
7145	Patil Sakshi Babgonda	Sakshi
7146	Patil Sarika Sahadev	Sarika
7147	Patil Shreya Shahaji	Shreya
7148	Patil Snehal Suresh	Snehal
7149	Patil Suhas Vikram	Suhas
7150	Patil Sumit Sambhaji	Sumit
7151	Patil Tushar Nayaku	Tushar
7152	Patil Vaishnavi Yuvaraj	Vaishnavi
7153	Patil Viraj Dhanaji	Viraj
7154	Pawar Akshad Mahesh	Akshad
7155	Potdar Abhishek Sharad	Abhishek
7156	Powar Atul Dhondiram	Atul
7157	Powar Samarth Murlidhar	Samarth
7158	Raval Dhanashri Ananda	Dhanashri
7159	Sawant Manish Kishor	Manish
7160	Shetke Viraj Uday	Viraj
7161	Shevale Sushmita Ananda	Sushmita
7162	Shinde Aniket Vasant	Aniket
7163	Shinde Karankumar Ashok	Karankumar
7164	Shirkande Sahil Bhauso	Sahil
7165	Sutar Swagat Dadaso	Swagat
7166	Sutar Yogita Vasant	Yogita
7167	Tahasildar Raj Ramesh	Raj
7168	Yogi Sanjay Badrinath	Sanjay
7169	Avadhut Pradnya Sunil	Pradnya
7170	Awale Dayasagar Rajendra	Dayasagar
7171	Bagade Aditya Kumar	Aditya
7172	Bagade Apoorva Kumar	Apoorva
7173	Bagwan Umrajiya Shakil	Umrajiya



7174	Bedekar Shreyasi Sharad	Bedekar
7175	Bhusnar Shaniraj Dattatray	Bhusnar
7176	Bodake Tejaswini Shahaji	Bodake
7177	Chaluhe Pratap Arjun	Pratap
7178	Chaluhe Swapnil Arjun	Chougale
7179	Chougale Shivani Vilas	Shivani
7180	Chougale Suvarna Shivaji	Chougale
7181	Chougale Sapana Anil	Sapana
7182	Darvan Kunal Kumar	Kunal D
7183	Desai Shrawani Sudhakar	Desai
7184	Deshmukh Harshwardhan Diliprao	Deshmukh
7185	Doke Siddheshwar Shivaji	Doke
7186	Dsouza Priya Motes	Priya
7187	Fakir Juveriya Dastgir	Fakir
7188	Falle Nilam Ramchandra	Falle
7189	Gharage Ashutosh Kiran	Kharage
7190	Ghodke Ganesh Nandakishor	Ghodke
7191	Ghule Poonam Manik	Ghule
7192	Godhade Gajanan Jayvant	Godhade
7193	Gurav Amruta Krishnat	Gurav
7194	Heble Sanika Prashant	Sanika
7195	Jadhav Aarati Sunil	Jadhav
7196	Jadhav Ankita Raghunath	Ankita
7197	Jadhav Monali Santosh	Monali
7198	Jadhav Pranoti Prakash	Jadhav
7199	Jadhav Shila Thavaru	Shila
7200	Jagtap Shital Bharat	Jagtap
7201	Kadam Shrutkirti Rangrao	Kadam
7202	Kalantre Neha Namdev	Kalantre
7203	Kalkutaki Vishal Babasaheb	Kalkutaki
7204	Kamble Amruta Suresh	Kamble
7205	Kamble Anjali Sanjay	Kamble
7206	Kamble Harsha Babaso	Kamble
7207	Kamble Manoj Sanjay	Kamble
7208	Kamble Shirish Sanjay	Kamble
7209	Kamble Shridhar Balu	Kamble
7210	Kamble Swapnagandha Dilip	Kamble
7211	Kamble Vishal Natha	Kamble
7212	Karale Priyanka Bharat	Karale
7213	Kawthekar Safia Mohammad Rafiq	Safia
7214	Khandekar Rutuja Narayan	Khandekar
7215	Kharase Rushikesh Dayanand	Kharase
7216	Kharat Akanksha Rajendra	Kharat
7217	Khot Swapnil Sanjay	Khot
7218	Kokate Pratik Pralhad	Kokate
7219	Koli Rugveda Vijay	Koli
7220	Kumar Praveen Ranaram	Kumar



7221	Kurkute Parth Lalaji	Kurkute
7222	Lohar Prajakta Prakash	Lohar
7223	Lohar Sushma Madhukar	Lohar
7224	Magdum Pranali Manik	Magdum
7225	Mahadik Ishwari Sadashiv	Mahadik
7226	Mohite Prerana Pravin	Mohite
7227	Mujawar Aaliya Altaf	Mujawar
7228	Mujawar Asifa Ramjan	Mujawar
7229	Mujawar Fahim Sajid	Mujawar
7230	Mulani Arbaz Yunus	Mulani
7231	Nalawade Poonam Prakash	Nalawade
7232	Navale Sumit Rajendra	Navale
7233	Nimbalkar Samiksha Ramchandra	Nimbalkar
7234	Oswal Chaitali Pravin	Oswal
7235	Parit Shivani Tanaji	Patil
7236	Patil Aditi Atul	Patil
7237	Patil Dhairyashil Sagar	Patil
7238	Patil Harshada Hambirrao	Patil
7239	Patil Kirti Vijay	Patil
7240	Patil Manasvi Sardar	Patil
7241	Patil Radhika Nivas	Patil
7242	Patil Rajvardhini Jaysing	Rajvardhini
7243	Patil Samrudhi Rajendra	Patil
7244	Patil Shivani Keraba	Patil
7245	Patil Shreyas Eknath	Patil
7246	Patil Snehal Maruti	Patil
7247	Patil Swaraj Shivaji	Patil
7248	Pattankude Chaitali Shital	Pattankude
7249	Phonde Pandurang Baburao	Phonde
7250	Pingale Vaishnavi Satish	Pingale
7251	Pol Mrunal Rakesh	Pol
7252	Ranage Snehal Kundan	Ranage
7253	Sakhare Aaishwarya Rajendra	Sakhare
7254	Salavi Akanksha Rajaram	Salavi
7255	Salavi Sonali Mahadev	Sonali
7256	Salvi Pratiksha Prakash	Salvi
7257	Sarvagode Priti Vikas	Sarvagode
7258	Savtekar Priyanka Shekhar	Savtekar
7259	Sawant Shreya Gopal	Sawant
7260	Sayyad Aarzo Salim	Sayyad
7261	Sayyad Zeenat Salim	Sayyad
7262	Shelar Samiksha Umesh	Shelar
7263	Shevale Yogiraj Shivaji	Yogiraj
7264	Shinde Abhishek Sunil	Shinde
7265	Shinde Nayan Harishchandra	Nayan
7266	Shinde Tejasvinee Sunil	Shinde
7267	Shivatankar Shubham Anant	Shubham



7268	Suryawanshi Pratiksha Suryakant	Pratiksha
7269	Talkar Akanksha Vijay	Talkar
7270	Talkar Pratiksha Vijay	Talkar
7271	Tirale Samiksha Dattatray	Samiksha
7272	Vanjari Koustubh Appasaheb	Vanjari
7273	Waghmare Pratik Pandit	Waghmare
7274	Wakrushe Divya Vitthal	Divya
7275	Yadav Aditi Sudhir	Yadav
7276	Yevaluje Swapnali Madhukar	Yevaluje
7277	Zende Manaswini Milind	Zende
7278	Bhopale Animesh Sunil	Bhopale
7279	Chavan Aishwarya Sunil	Chavan
7280	Chougale Ketan Krishnat	Chougale
7281	Dabade Shweta Shivaji	Dabade
7282	Desai Akanksha Anil	Desai
7283	Dinde Rutuja Amar	Dinde
7284	Ekal Sanket Sarjerao	Ekal
7285	Garadi Saniya Harun	Garadi
7286	Jadhav Vaishnavi Ravaso	Jadhav
7287	Jamadar Tasmiya Kasim	Jamadar
7288	Kharat Komal Laxman	Kharat
7289	Korde Shreya Rahul	Korde
7290	Kugaji Bhargavi Ramling	Kugaji
7291	Magdum Rajvardhan Satappa	Magdum
7292	Nikalje Aarti Fulchand	Nikalje
7294	Patil Sakshi Pramod	Patil
7295	Patil Sujit Sunil	Patil
7296	Patil Sunil Suresh	Patil
7297	Powar Saraswati Ajit	Powar
7298	Sagaonkar Tejashree Ssarang	Sagaonkar
7299	Shintre Pranjal Prakash	Shintre
7300	Shivane Ashutosh Dhanaji	Shivane
7301	Arade Samadhan Anil	Arade
7302	Chavan Pratik Pradip	Chavan
7303	Dabade Amruta Shahaji	Dabade
7304	Giri Poonam Sanjay	Giri
7305	Inamdar Raturaj Sharad	Inamdar
7306	Jadhav Sayali Vijay	Jadhav
7307	Kadwale Ananya Balwant	Kadwale
7308	Katiyar Kajal Lakhmichand	Katiyar
7309	Katyar Preeti Manohar	Katyar
7310	Khandare Pankaj Vishnu	Khandare
7311	Khurandle Vaishnavi Rajendra	Khurandle
7312	Mahadik Akshata Suhas	Mahadik
7313	Mali Karishma Ratanlalji	Mali
7314	Mulla Ashrafalli Akhtarhusen	Mulla
7315	Patil Aadesh Satish	Patil



7449	Shinde Sairaj Jaywant	Shinde
7450	Shingare Sandesh Yashwant	Shingare
7451	Shirale Manasi Vinod	Mansur
7452	Sing Priya Gopal	Singh
7454	Tope Priti Pravin	Tope
7455	Ulape Tanveer Uday	Ulape
7456	Ustad Rifat Nasirkhan	Rifat
7457	Vadd Shruti Yashwant	Vadd
7458	Varute Omkar Sambhaji	Varute
7459	Yadav Aditya Amar	Yadav
7460	Zinrange Rupali Uttam	Zinrange
7550	Daddikar Gaurav Nitin	Daddikar
7551	Altekar Aditya Mahesh	Altekar
7552	Pujari Sumit Balaji	Pujari
7553	Ranmale Samruddhi Subhash	Ranmale
7557	Mulla Irfan Llai	Mulla
7558	Shete Rohit Jeevan	Shete
7560	Sharma Sejal Vikasdutt	Sharma
7561	Mishra Shambhavi Mukeshkumar	Mishra
7565	Mansuri Sahida Allauddin	Mansuri
7566	Chougale Vinay Vijay	Chougale
7567	Patil Swapnil Suresh	Patil
7569	Shinde Rugved Tanaji	Shinde
7570	Jadhav Anosh Rohit	Jadhav
7571	Jadhav Suyash Kuber	Jadhav
7572	Patil Rutika Appaso	Patil
7574	Chougale Vrushabh Rajendra	Chougale
7577	Patil Dhanashree Ravasaheb	Patil
7579	Gongane Snehal Nandkumar	Gongane
7580	Sutar Nandini Raghunath	Sutar
7581	Patil Om Chandrakant	Patil
7582	Bandgar Atharv Sandeep	Bandgar
7583	Lohar Sanika Digambar	Lohar
7584	Patil Prathmesh Kallappa	Patil
7587	Kolekar Prathmesh Dilip	Kolekar
7588	Shaikh Ayesha Aslam	Shaikh
7589	Tamgave Suhani Vinayak	Tamgave
7592	Maner Iqra Hidayatulla	Maner
7593	Diwase Anirudha Rajendra	Diwase
7594	Jarag Harshvardhan Devendra	Jarag
7595	Mali Swapnil Mohan	Mali
7596	Mulik Amruta Ajay	Mulik
7600	Kurane Shraddha Sandip	Kurane
7601	Khondal Sandip Navlu	Khondal
7602	Padalkar Harshvardhan Vijay	Padalkar

Internal Examiner... sslatte



॥ ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार ॥

- शिक्षणमहर्षी डॉ. बापूजी साळुंखे

27641

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

SUPPLIMENT

Signature
of
Supervisor

Suppliment No. :

Roll No. : 7225

Class : B.Sc I sem I

Subject : Mechanics I and II

Test / Tutorial No. : Internal exam

Div. :

17
30

Q.1

1. ~~d.~~ Neutral filament

2. ~~a.~~ a cantilever

3. ~~c.~~ Angular S.H.M

4. ~~d.~~ πr^2

5. ~~c.~~ Bending couple = Restoring couple

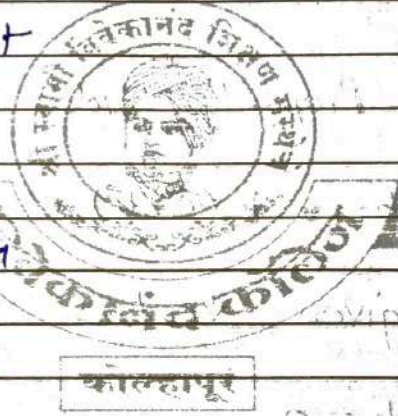
6. ~~b.~~ Temperature

7.

8.

9. ~~c.~~ Dot product

10. ~~d.~~ one



Q.2

2. Vector product

Vector product of two vectors can be defined as resultant vector \perp^{er} to both vectors. It is also known as cross product of two vectors and is denoted by $a \times b$

Properties of vector product

i) Vector product is do not have commutative property

$$a \times b = -(b \times a)$$

ii) The following Property holds true in case of vector multiplication

$$(k a) \times b = k(a \times b) = a \times (k b)$$

iii) If the given vectors are collinear

$$a \times b = 0$$

iv) following the above property

$$a \times a = |a||a| \sin 0 \hat{n} = 0$$

Also in terms of unit vector notation

$$i \times i = j \times j = k \times k = 0$$

v) $a \times b$ in terms of unit vectors can be represented as,

$$a = a_1 \hat{i} + a_2 \hat{j} + a_3 \hat{k}$$



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27637

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

SUPPLIMENT

Suppliment No. :

19/30

Roll No. :

7237

Class :

B.Sc I, Sem I

Signature
of
Supervisor

Subject : Mechanics I and II

Test / Tutorial No. :

Div. :

Q1.

1.

d. Neutral filament

2.

a. a Cantilever

3.

c. Angula S.H.M

4.

d πr^2

5.

c. Bending Couple = Restoring Couple

6.

b. Temperature

7.

c. 90°

8.

b. Area

9.

c. Dot product

10.

d. One



Q2.

2. Vector product and its characteristic in detail

→

Vector product -

Vector product of two vectors can be defined as resultant vector perpendicular to both vectors. It is also known as cross product of two vectors and is denoted by $a \times b$

* Properties of Vector product -

i. Vector product is do not have Commutative property

$$a \times b = -(b \times a)$$

ii The following Property holds true in case of vector multiplication

$$(ka) \times b = k(a \times b) = a \times (kb)$$

iii If the given vectors are collinear

$$a \times b = 0$$

iv Following the above property

$$a \times a = |a||a| \sin 0 \hat{n} = 0$$

Also in terms of unit vector notation

$$i \times i = j \times j = k \times k = 0$$

v) $a \times b$ in terms of unit vectors can be represent as,

$$a = a_1 \hat{i} + a_2 \hat{j} + a_3 \hat{k}$$



Siddharth. Deepak. NCSarkar

Alamir

॥ ज्ञान, विज्ञान आणि सुसंस्कार यासाठी शिक्षण प्रसार ॥

- शिक्षणमहर्षी डॉ. बापूजी साळुंखे

27803

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

SUPPLIMENT

Signature
of
Supervisor

15 Ashwinic

Suppliment No. : 0

Roll No. : 7211

Class : BSC I

Subject : Physics

Test / Tutorial No. : Sem II Internal

Div. : A

$$8 + 3 + 4 = 15$$

Q1. select most correct alternative.

1) \rightarrow c) zero

2) \rightarrow a) $V = IR$

3) \rightarrow c) charge

4) \rightarrow b) in parallel with resistance R_N

5) \rightarrow b) $R_N = R_{Th}$, $I_N = V_{Th} / R_{Th}$

6) \rightarrow b) square of its magnitude

7) \rightarrow c) $w = v \times r$

8) \rightarrow a) the maximum rate of change of the function in Space.

9) \rightarrow b) a scalar



10) \rightarrow a) per unit volume

Q3. Attempt any Two

i) State and explain Kirchhoff's First Law.

\rightarrow ① Law can be stated that the algebraic sum of all current flowing through a point in a circuit is always likely to zero.

② where we consider a point or node in a circuit we consider signs of current flowing through the point follows as:

a) current flowing towards the point are always considered as positive

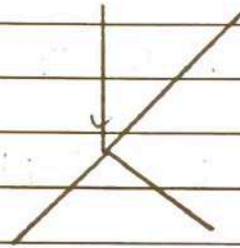
b) current flowing away from the circuit are considered as negative.

③ whenever we take sum of all these current flowing away from the point and towards the point it's occurs zero.

④ Consider the given point in a circuit at point (P) according to the Kirchhoff's first law.

$$I_1 + I_2 + I_3 + I_4 = 0$$

$$\text{i.e. } I_1 + I_2 + (-I_3) + I_4 = 0$$



Q2. Attempt any one

2)

→ Statement: The vectors integrent in the divergence of vector Function F over closing vectors v/c always equal to surface integral of a \vec{F} over the closed surface S inclosing the volume.

F_1, F_2, F_3 are function of x, y, z there derivatives are assume to

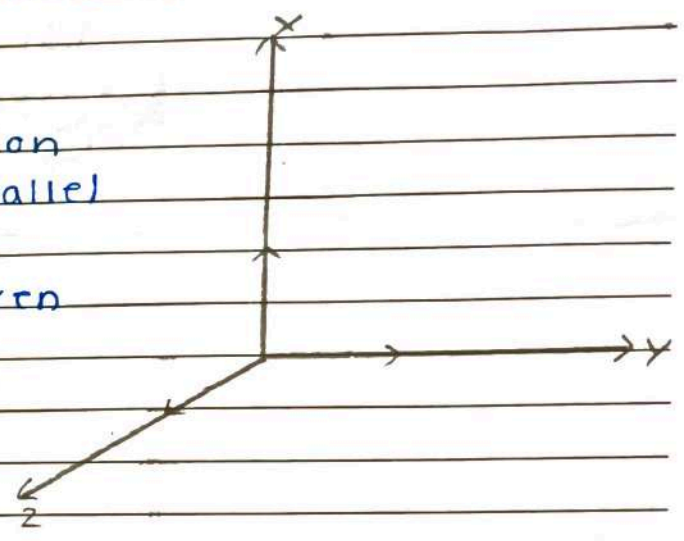
$$\iiint_V dV \vec{A} = \iint_S \vec{A} d\vec{S}$$

be uniform finite contains in all direction suppose S closed surface such that any line parallel to any co-ordinate axis cuts its at the most two points

Consider the inter reaction of surface S by a line parallel to the z -axis

let z co-ordinate is given point

$$z_1 = F_1(x, y)$$
$$z_2 = F_2(x, y)$$
$$z_1 = z_2$$



∴ The upper and lower small Function z_1 and z_2 are of a about two point are given by $z_1 = F_1(x, y)$ and $z_2 = F_2(x, y)$ respectively.

$$\iiint_V dV \vec{A} \text{ doing Function } F$$

