FIRAYALAL PUBLIC SCHOOL, RANCHI

Grade- XII SC **Module- 1st**

SUBJECT: Computer Science

Link- http://www.firayalalpublicschool.edu.in/about/homework.php

https://www.extramarks.com

NOTE:- Any query related to link and content, text us on the given e-mail-

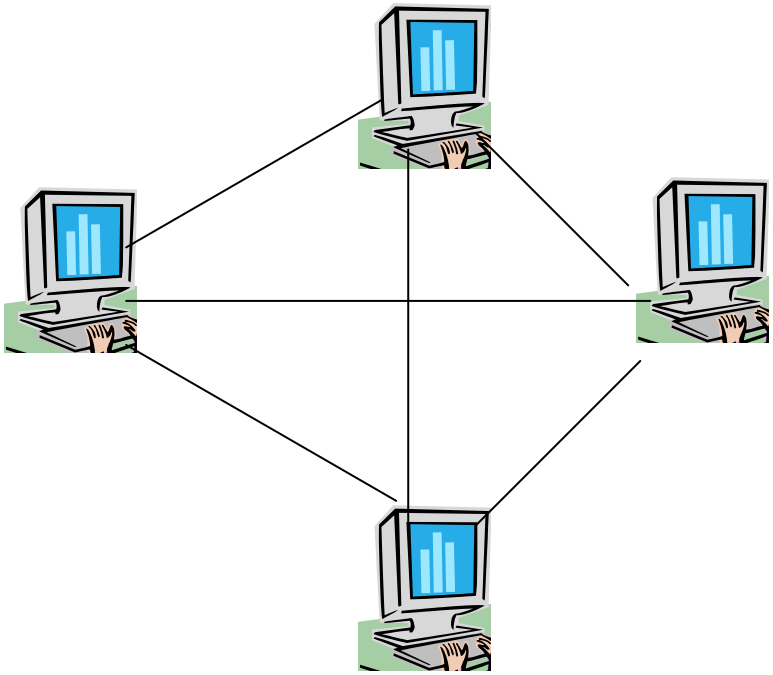
fpsprincipal2020@gmail.com

Please find herewith the web links of the chapters along with the written assignment we wish you to cover up by the end of this break. The entire assignment will form a part of your subject enrichment assessment and needs to be done in home-work copy. This assignment will be a part of subject enrichment. In case of any clarification please feel free to get in touch with your subject teachers, once the school reopens or else mail it to principal@firayalalpublicschool.com

TUTORIALS:

INTRODUCTION ABOUT NETWORK:

Network is the connection of two or more autonomous computer with each other to share their resources (hardware as well as software).

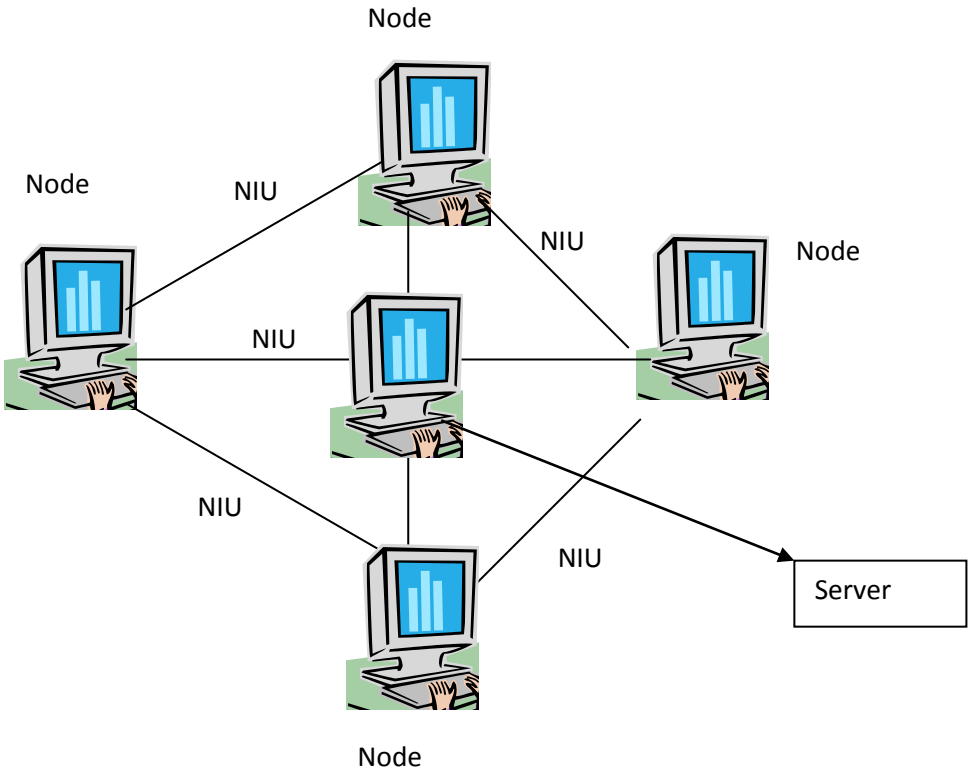


Advantages of computer network:

1) **Resource Sharing**: The Primary use of a network is to share among users programs/ applications, data and peripherals devices connected to the network. For example: we can share database, printer etc.
2) **Improve communication**: A computer network enables fast, reliable and secure communication between users. It saves time and offers easy communication method.
3) **Reduced Cost**: Sharing resources also reduces cost. Using public network we can send a large quantity of data at a low cosr. Internet and Mobile networks are playing a very important role in sending and receiving data at a low cost
4) **Central Storage of Data**: Files can be stored on a central computer(node/ server) that can be shared and made available to each and every user in the organization.

Elementary Terminology of Computer Network(Components):

1) **Node**: The term node refers to computers that are attached to a network and are seeking to share resources. Node is also known as workstation or client
2) **Server**: A computer that facilitates the sharing of data, software and hardware resources on the network.
3) **NIU(Network Interface Unit):** A network interface unit is a n interpreter that helps in estabilishing communication between the server and the client. It may be Wired or Wireless.



STRUCTURE OF A NETWORK:

To form a network a lot of hardware devices are required which are described as:

1) **Sender:** A device or a computer that sends data.
2) **Receiver**: A device or a computer that receives the data.
3) **Message:** Message is the information to be communicated. It may be text, image, audio or video.
4) **Transmission Medium:** A transmission medium is a physical path through which the data flows from sender to receiver. A cable or wire or waves can be the medium.
5) **Protocol:** A set of rules that governs data transmission. It represents the communication methods which are to be followed by the sending and receiving devices.

TYPES OF NETWORK:

i) LAN (Local Area Network)
ii) WAN (Wide Area Network)
iii) MAN (Metropolitan Area Network)
iv) PAN (Personal Area Network)

ASSIGNMENT 1:

Q1) Define: i) Network. ii) Client iii) Server iv) NIU

Q2) What are the advantages and disadvantages of network?

Q3) What are the component of Network?

Q4) What are the different types of NIU used in Network?

Q5) Explain the term Protocol.

Q6) Explain the types of Network.

Q7) What are the different uses of Network?

TRANSMISION MEDIUM:

Two types of communication medium are:

Wired And Wireless Network

Wired Communication medium are also known as physical or conducted or guided media. These media use various types of cables. E.g. Twisted Pair Cable, Coaxial Cable and Fibre Optics.

Wireless networks are becoming popular nowadays as they use electromagnetic waves for communication. In a wireless network, devices are connected without any physical medium. It is also known as unguided media.

Wireless communication uses radio waves, microwave, satellite, Bluetooth, infrared etc.

Cloud Computing:

Clouding computing is the technology of distributed data processing in which some scalable information resources and capacities are provided as a service to multiple external customers through Internet technology/ it allows storing, accessing data and programs using the internet.

There are two types of cloud computing: Public Cloud and Private Cloud

NETWORK DEVICES:

Some network devices are used in network: MODEM, HUB, SWITCH.REPEATER, GATEWAY, BRIDGE etc.

Modem is known as Modulation & Demodulation. It is used to connect computer with Internet though telephone cable. In modulation the digital signal is converted into analog signal and in demodulation the analog signal is converted into digital signal.

A Hub is a connecting device which connects multiple computers together to form a Local Area Network.

A switch is a network device which is used to interconnect computers or devices on a network. Switch is faster than Hub.

Repeater is a device that regenerates the receiving signals and retransmits to its destination. It is just like an amplifier.

Routers are networking devices that forward data packets from the source machine to the destination machine using the shortest path.

Bridge is a network device that use to connect two or more LAN's with each other whose logical(platform) structure must be same. Physical (Topology) may be different.

Gateway is also a network device that is used to connect two or more LAN's with each other whose logical or physical structure may be different or same.

LEARNING OUTCOME

After studying this topic, students will be able to:

- What is network what is the advantages and disadvantages of network.
- Types of network
- Client server concept
- Hardware used in network
- Concept of cloud computing. Use of cloud computing now a days.

FIRAYALAL PUBLIC SCHOOL, RANCHI

Grade- xii **Module-1/1**

SUBJECT-Biology

CHAPTER NAME- Sexual Reproduction

TOPIC: Stamen, Microsporoangium

Link-

https://youtu.be/u59SiO5zJQQ

https://youtu.be/R-Hd2SnuBAo

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TUTORIALS:- The two parts of a typical Stamen are the long and slender stalk called the filament and the terminal bilobed structure called the anther.
 # Anther is beloved with each lobe having two theca, i .e dithecous. A longitudinal groove runs lengthwise separating the theta.
 # T.S of the anther is a four sided tetragonal structure consisting of four microsporangia located at the corners, two in each lobe.
The microsporangia develop further and become pollen sac
 # Structure of Microsporangium
In a T.S,a typical microsporangium appear near circular in outline.
#It is surrounded by 4 wall layers
The epidermis, endothecium, middle layers and the tapetum.
The outer 3 wall layers perform the function of protection and help in dehiscence of anther.
Tapetum nourishes the developing pollen grains.
Cells of the tapetum possess dense cytoplasm and generally have more than one nucleus.
In young anther compact, homogeneous cells called the sporogenous tissue present in the center of each microsporangium.

Microsporogenesis: Formation of microspores (pollen grain)
The cells of the sporogenous tissue undergo meiotic division to form microscope tetrads. As each cell of the sporogenous tissue capable of giving rise to a microscope tetrads. Each one is a potential pollen or microscope mother cell. The formation of microspores from a pollen mother cell (PMC) through meiosis is called microsporogenesis .
The microspores, as they are formed are arranged in a cluster of four cells the microspore tetrad.
As the anthers mature and dehydrate, the microspores dissociate from each other and develop into pollen grains.

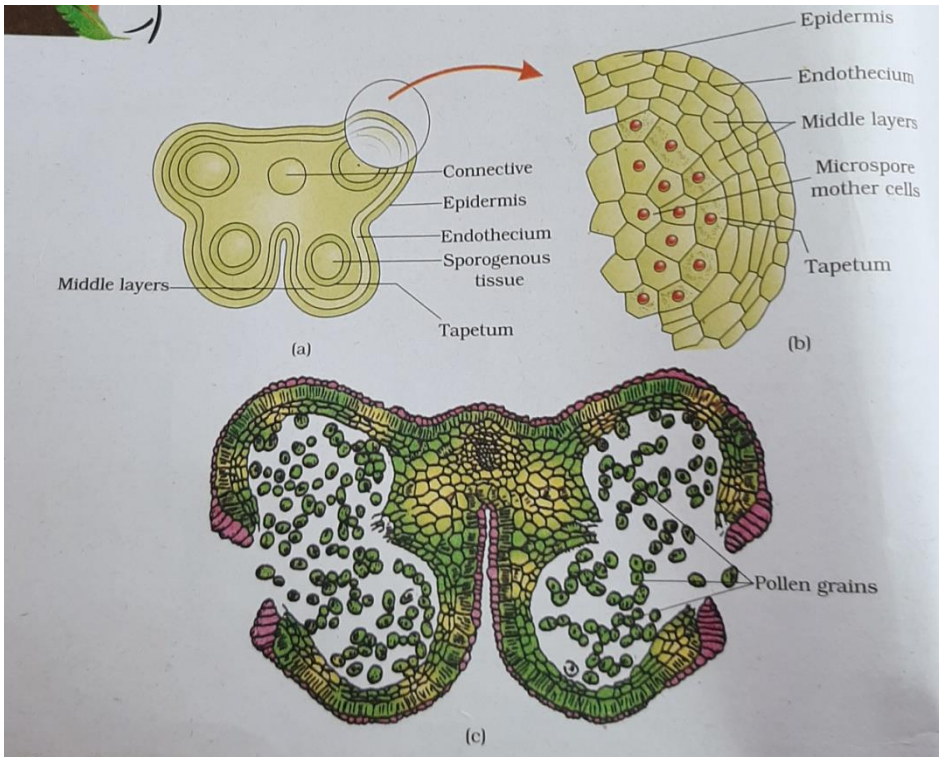

Figure 2.3 (a) Transverse section of a young anther; (b) Enlarged view of one microsporangiu showing wall layers; (c) A mature dehisced anther

Answer the following

1. What would be the ploidy of cells of tetrad
2. What is the example polyploid tissue present in an angiosperms plant
3. What is the main function of endothelium in an anther
4. What are the characteristics of tapetum
5. Which layer of an anther helps in nutrition and dehiscence

LEARNING OUTCOME:-

After studying this topic, students will be able to:

1. Get a first basic concept of sexual reproduction
2. Get to know the reason behind the ploidy of cells like pollen grains , tapetum,
3. Get to know how the Male gamatophytes are formed

FIRAYALAL PUBLIC SCHOOL, RANCHI

Grade- XII **Module-1/1**

SUBJECT-CHEMISTRY (043)

CHAPTER NAME- SOLUTIONS

TOPIC: OSMOSIS, ABNORMAL MOLAR MASS AND VAN'T HOFF FACTOR

Link- http://www.extramarks.com/ncert-solutions/cbse-class-12/chemistry

http://ncert.nic.in/ebooks.html

https://youtu.be/uoKxKM_w6pE

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TUTORIALS:

Students we were at the verge of completing the lesson. But, due to unavoidable circumstances we couldn't. So, here is the last topic of the lesson which was left out.

OSMOSIS

- Osmosis: The phenomenon of flow of solvent molecules through a semi permeable membrane from pure solvent to solution is called osmosis.
- Osmotic pressure: The excess pressure that must be applied to solution to prevent the passage of solvent into solution through a semi-permeable membrane is called osmotic pressure.
- Osmotic pressure is a colligative property as it depends on the number of solute particles and not on their identity.
- Osmotic pressure can also be used to determine the molar mass of

- solute using the equation $M_2 = \frac{w_2 RT}{\pi V}$

- Isotonic solution: Two solutions having same osmotic pressure at a given temperature are called isotonic solution.

- Hypertonic solution: If a solution has more osmotic pressure than other solution it is called hypertonic solution.

- Hypotonic solution: If a solution has less osmotic pressure than other solution it is called hypotonic solution.

- Reverse osmosis: The process of movement of solvent through a semi-permeable membrane from the solution to the pure solvent by applying excess pressure on the solution side is called reverse osmosis.

ABNORMAL MOLAR MASS

Molecular masses of the solute can be easily determined with the help of colligative properties; relative lowering in vapour pressure, boiling point elevation, freezing point depression, and osmotic pressure easily. But, we derived the relation between the molecular mass of solute and colligative properties under some assumptions, which are:

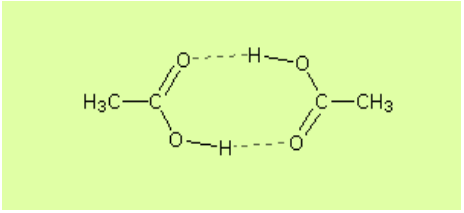
- The solution is diluted that is, solvent is available in large amount in order to obey Raoult's Law
- The solute neither went dissociation or association in the solution

So, how do we determine the molecular mass of solute in case the above assumptions are not valid? Basically, the abnormality is due to:

- Association of Solute Particles
- Dissociation of Solute Particles

ASSOCIATION OF SOLUTE PARTICLES

Some solute molecules start to associate inside the solution. This means now there are less number of solute particles in the solution. As colligative properties vary with solute particles in the solution, they will decrease along with the solute particles. As colligative properties are inversely proportional to the molecular mass of solute, we get a higher molar mass of the solute. **For Example**, ethanoic acid or acetic acid (CH_3COOH) associates in solution to form a dimer due to hydrogen bonding.



Ethanoic Acid dimerise due to hydrogen bonding

DISSOCIATION OF SOLUTE PARTICLES

Some solute molecules, generally electrolytes dissociate into two or more ions/particles when dissolved in a solution. This leads to increase in solute particles in the solution, thereby increase in colligative properties of solutions. As colligative properties and molecular mass of solute varies inversely, we get a lower molar mass of the solute.

NaCl dissociate into two ions when dissolved in water

Such a molar mass, whose value is higher or lower than its expected value is known as **ABNORMAL MOLAR MASS**.

VAN'T HOFF FACTOR

To determine colligative properties for solutions which undergo association and dissociation, a Dutch chemist Jacobus Henricus Van't Hoff in the year 1880 introduced the concept of Van't Hoff Factor ' i to sort out association and dissociation problem while calculating the molar mass of solute.

The Van't Hoff factor is denoted by 'i' and is obtained when we divide normal mass with an abnormal mass of solute.

Mathematically, it is represented in three forms:

$$i = \frac{\text{Normal Molar Mass}}{\text{Abnormal Molar Mass}}$$

$$i = \frac{\text{Observed Colligative property}}{\text{Calculated Colligative property}}$$

$$i = \frac{\text{Total Number of Moles of Particles after Association/Dissociation}}{\text{Total Number of Moles of Particles before Association/Dissociation}}$$

CALCULATION OF i

- First, we write an equation of the solute being associated or dissociated
- In case of dissociation, i = 1 + (n-1) α where n is number of particles dissociated and α is degree of dissociation.

	$A \longrightarrow$	nP
Initially	**1 mol**	**0**
At eq.	$1-\alpha$	$n\alpha$

Total number of moles at equilibrium

$$= 1 - \alpha + n\alpha$$

$$\therefore \quad i = \frac{1 - \alpha + n\alpha}{1}$$

$$\Rightarrow \quad \alpha = \frac{i-1}{n-1}$$

- In case of association, i = 1 + (1/n – 1) α where n is the number of particles dissociated and α is degree of dissociation, the derivation is as follows:

$$n\,A \longrightarrow A_n$$

Initial Moles: 1 mol 0

At equilibrium $1-\alpha$ α/n

Total moles = $1 - \alpha + \alpha/n$

$$i = 1 - \alpha + \alpha/n$$

$$\alpha = \frac{i-1}{\frac{1}{n}-1}$$

❖For solutes depicting Association, the Van't Hoff factor is always less than 1.
For Example - when benzoic acid associates in benzene.

❖For solutes showing dissociation, the Van't Hoff factor is always greater than 1.

For Example-KCl and NaCl both have Van't Hoff factor 2

❖For particles showing neither dissociation nor association, the Van't Hoff Factor is taken as 1.

Hence, the modified equations which can be used in the determination of molar mass in case of association or dissociation are as follows:-

❖**Relative Lowering of Vapour pressure of Solvent**

$$\frac{\Delta P_1}{P_1^0} = \frac{i\, n_2}{n_1 + n_2}$$

❖**Boiling Point Elevation**

$$\Delta T_b = i\, K_b\, m$$

❖**Freezing Point Depression**

$$\Delta T_f = i\, K_f\, m$$

❖**Osmotic Pressure**

$$\pi = iCRT$$

QUESTIONS:-  **Let's solve:**

1. Find the Van't Hoff factor for $Sr(OH)_2$.
2. Calculate the amount of KCl which must be added to 1 kg of water so that the freezing point is depressed by 2K. Assume that KCl undergoes complete dissociation.
3. A decimolar solution of potassium ferrocyanide at 300 K is 50% dissociated. Calculate the osmotic pressure of the solution.
4. 2.0g of benzoic acid (C_6H_5COOH) dissolved in 25 g of benzene shows a depression in freezing point equal to 1.62 K. Molal depression constant for benzene is 4.9 K kg mol^{-1}. What is the percentage association of acid if it dimerise in solution.

LEARNING OUTCOME:-

After studying this topic, students will be able to:

- Define osmosis, reverse osmosis, different types of osmotic solutions etc.
- Understand the concepts of abnormal molar mass and Van't Hoff Factor.
- Solve numerical on osmotic pressure and abnormal molar mass.
- Derive equations for association and dissociation constant.

FIRAYALAL PUBLIC SCHOOL, RANCHI

Grade- XII **Module-1**

SUBJECT- MATHS

CHAPTER NAME- RELATIONS AND FUNCTIONS

TOPIC: RELATION AND FUNCTION

Link- https://www.extramarks.com
http://ncert.nic.in/ebooks.html
https://www.youtube.com/watch?v=RR_HdW5XQiE

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TUTORIALS:-

Before starting the main topics we should know about some useful definitions which is already explained in class XI.

RELATION – A relation R from set X to Y is defined as a subset of the Cartesian product X x Y. We can also write as $R \subseteq \{(x, y) \in X \times Y : x \, R \, y\}$.

Equivalence Relation- A relation R defined on set A is said to be an equivalence relation if R is reflexive, symmetric and transitive.

Reflexive Relation- A relation R defined on set A is said to be reflexive $if \ (x,x) \in R, \forall x \in A$ or we can say $xRx, for \ every \ x \in A$.

Symmetric Relation- A relation R defined on a set A is said to be symmetric if $(x, y) \in R \Rightarrow (y, x) \in R, for \ every \ x, y \in A$.

Transitive relation- A relation R defined on a set A is said to be transitive $if \ (x, y) \in R \ and \ (y, z) \in R \Rightarrow (x, z) \in R \ \forall x, y, z \in A$.

SOME NCERT PROBLEMS BASED ON ABOVE

(1) Determine whether the following relations are reflexive, symmetric and transitive:

a) Relation R in the set $A = \{1,2,3, \ldots \ldots \ldots \ldots \ldots .13,14\}$ $defined \ as \ R = \{(x, y) : 3x - y = 0\}$.

b) Relation R in the set Z of all integers defined $R = \{(x, y) : (x - y) \ is \ an \ integer\}$.

Solution-

(i) Here, $A = \{1,2,3, \ldots \ldots \ldots \ldots \ldots .13,14\}$ $and \ R = \{(x, y) : 3x - y = 0\}$.
$\therefore Relation \ is \ possible \ between \ \{(1,3), (2,6), (3,9), (4,12)\}$

Reflexive- $As \ 1 \in A \ but \ (1,1) \notin A \quad \therefore R \ is \ not \ Reflexive.$

Symmetric: - $Here \ (1,3) \in R \ but \ (3,1) \notin R, \therefore R \ is \ not \ symmetric.$

Transitive: - $Here\ (1,3) \in R\ and\ (3,9) \in R\ but\ (1,9) \notin R, \therefore R\ is\ not\ transitive.$

(ii) Z= Set of integers and R= { (x,y): (x-y) is an integer }.

Reflexive: - $If\ a \in z, then\ (a-a) = 0, which\ is\ an\ integer.$

$\Rightarrow (a,a) \in R, \forall a \in z, \quad \therefore R\ is\ reflexive.$

Symmetric : – $Let\ x, y \in z, then\ (x,y) \in R \Rightarrow x - y\ is\ an\ integer.$

$\Rightarrow (y-x)\ is\ also\ an\ integer \quad [as\ if\ a-b=p$

$\Rightarrow b-a = -p\ again\ is\ an\ integer\ ]$

$\Rightarrow (y-x) \in R$

$\therefore R\ is\ symmetric$

Transitive: - $Let\ x, y, z \in Z\ then\ (x,y) \in R\ and\ (y,z) \in R$

$Then\ (x-y) + (y - z)\ is\ also\ an\ integer.\ [sum\ of\ two\ integers\ is\ also\ an\ integer]$

$\Rightarrow X - z\ is\ an\ integer$

$\Rightarrow (x,z) \in R$

$\therefore R\ is\ Transitive.$

ADDITIONAL PROBLEMS TO SOLVE BY STUDENTS

(1) Show that the relation R in the set $\{1,2,3\}\ given\ by\ R = \{(1,2),(2,1)\}$ is symmetric but neither reflexive nor transitive.

(2) Show that the relation R in the set $A = \{1,2,3,4,5\}\ given\ by\ R = \{(a,b): |a-b|\ is\ even\}$ is an equivalence relation.

(3) Show that each of the relation in the set $A = (x \in Z : 0 \leq x \leq 12\}$ given by
(i)
(ii)

FUNCTIONS

Let X and Y be two non-empty sets, A function from X into Y written as f: X→Y by which each element of x∈X is associated to a unique element y ∈Y. Then f is said to be a function of X to Y.

The element of X is called the domain of f

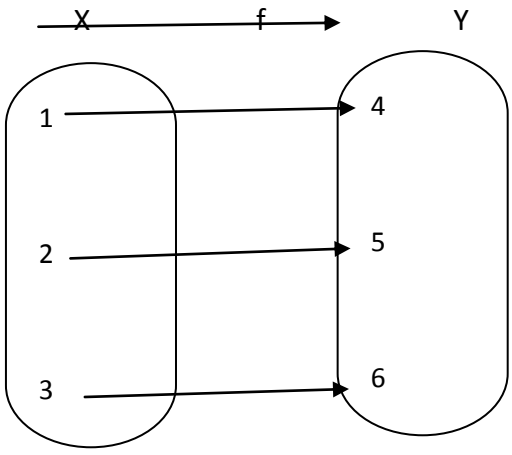
And the element of Y is called the co-domain of f.

The image of the element of X is called the range of X

Which is subset of Y.

Note:- Every function is a relation but every relation

Need not be a function.



TYPES OF FUNCTIONS:-

(a)**One-One function or injective function-**

$A\ function\ f: X \rightarrow Y\ is\ said\ to\ be\ a\ one-one\ function\ if\ f(x1) = f(x2)$

$\Rightarrow x1 = x2 \quad \forall\ x1, x2 \in X$

Note:- A function which is not a one-one is known as many-one function.

(b)**Onto function or Surjective function**- A function f:X→Y is said to be a onto function if every element of Y is image of some element of set X under f. In other words a function is said to be an onto function if its range is equal to co-domain.

$$i.e.\, f: X \rightarrow Y \text{ is onto}, iff \text{ range of } f = Y$$

(c)**Invertible Function: -** A function f:X→Y is said to be invertible function if there exists g: Y→X such that

$Gof = Ix \text{ and } fog = Iy$. The function 'g' is called the inverse of function f and is denoted by f^{-1}.

Questions based on above

1.
2.
3.

$$F(x) = \begin{cases} n+1 \text{ if } n \text{ is even} \\ n-1 \text{ if } n \text{ is odd} \end{cases}$$

Is a bijective function.

LEARNING OUTCOME: -

After studying this topic, students will be able to:

- Define relation and types of relation
- Define function and types of function
- Prove equivalence relation
- Prove the function is one-one, onto or not.
- Solve the questions related to relation and function.

FIRAYALAL PUBLIC SCHOOL, RANCHI

Grade- XII **Module- 1**

SUBJECT:- PHE

Planning In sports

Contents of Chapter

- Meaning & Objectives Of Planning
- Various Committees & its Responsibilities (pre; during & post)
- Tournament – Knock-Out, League Or Round Robin & Combination
- Procedure To Draw Fixtures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)
- Intramural & Extramural – Meaning, Objectives & Its Significance
- Specific Sports Programme (Sports Day, Health Run, Run For Fun, Run For Specific Cause & Run For Unity)

Meaning and Objectives of Planning

Planning is deciding in advance what to do and how to do. So we can say that planning involves setting objectives and developing appropriate course of action to achieve the task. Planning provides a common approach for achieving predetermined objectives. All the members , therefore need to work towards achieving organizational goals. Therefore planning means setting objectives and targets and formulating an action plan to achieve them. It is concerned with both ends and means i.e. what is to be done and how is to be done.

- **According to Kennith H. Killen, *"Planning is the process of deciding in advance what is to be done and when is to be done, who is to do it, how it is to be done and when it is to be done."***
- **Mary Cushing Nile defines that *"Planning is the process of selecting and developing the best course of action to accomplish an objective. It is the basis from which future management actions spring."***
- ***Importance of Planning in Sports***
- **Increase Efficiency**
- **Provide proper coordination**
- **Aids in organizing**
- **Right directions**
- **Good control**
- **Helps to achieve objectives**
- **Helps in decision making**

- **Increase Efficiency:** Planning makes optimum utilisation of all available resources. It helps reduce wastage of important resources. It aims at the highest possible available resources at the lowest possible cost. Thus Planning increases the overall work efficiency of the sports.

- **Provide proper coordination :** The plans of all departments of an sports organisation are well coordinated with each other. Similarly, the short terms, medium term, and long-term plans of an organisation are also coordinated with each other.

- **Aids in organising :** Organising means bringing together all available resources i.e. Commonwealth Games, National Games, Olympic Games etc. organisation cannot be done without any prior planning. This is because planning tells us how many resources are required, when they are required and so on.

- **Right directions :** Direction means to give proper information, accurate instruction and right guidance to the subordinates. Direction in sports cannot be achieved without planning. This is because planning tells us what to do, how to do and when to do it. Therefore, planning in sports help to give right direction.

- **Good control :** In control, the actual work done by the team is compared with the plans and deviations (if any) are found out and corrected. It is impossible to achieve such a control without right planning. Therefore, planning becomes important in keeping a good control and achieving the target in sports.

In Practice Our Planning Objectives

- **Protect existing facilities**
- **Enhance the quality, accessibility and management of existing facilities:**
- **Provide new facilities to meet demand**
- **Supportive advice**
- **Forward planning**
- **Undertstanding people**

Various Committees and Their Responsibilities

- **Pre-Work Organizing Committee**
- **During Work**
- **Post Meet Work**

<u>Committees before the event</u>

- There should be an organizing committee which should be responsible for the successful and smooth conduct of the sports competitions. There are several other sub-committees that shall function under this organizing committee.

The various organizing sub-committees and their duties will be as follows:

- **Publicity Committee:** This committee should be responsible for the announcement of date, place, and venue of event where events shall be organized and for announcing the various programmes of the competition by using the various types of media like newspaper, internet, television and through letters to various known institutions etc.
- **Committee for the ground and equipment:** The ground and equipment committee shall secure the grounds and make arrangement for laying out of the field of international standard. The committee shall also make ready all the necessary equipment required to organize sports competition. It is the responsibility of the committee to keep the equipment and other related material at a safe place so that the equipment may be given to the officials of the meet and taken back in time.
- **Committee for Accommodation and Sitting Arrangements:** This committee shall arrange for the accommodation of the competition, coaches, managers and other officials coming from outstation. This committee shall manage the proper sitting arrangement around the competition area. Seats are made available for the competitors, coaches, managers, officials, media persons, guess and other dignitaries. Arrangement should also be made for the parking of general public as well as for VIP's.
-
- **Reception Committee:** It is the responsibility of the reception committee to see that the special invitees are welcomed and taken to the seat reserved for them. The reception committee should also arrange food for the guests.
- **Committee for Entries:** This shall send entry forms well before the competition and also receive them in time allotted for competition of track and field events and then arrange kits, filling the record sheet with the names and numbers of the competitors. The committee shall be responsible for making proper programme. Before despatching the programme it should be checked thoroughly so that there is no duplicacy of the events published in the programme list.

- **Committee for opening ceremony and decoration**: - To see the preparation of opening Ceremony decoration of venue (playing and accommodation). To check all the participants must be lineup during opening ceremony.

Committees during the event

- **Committee for First-Aid**: - The duty of this committee is to arrange medical facilities on the playing venue with all the necessary medication in the presence of qualified doctor and nurses and also have a provision of ambulance in case of emergency.
- **Committee for Refreshment**: - To arrange the refreshment for the players, officials and other coaches and managers who accompany the teams. Refreshment committee is also responsible to take care for VVIPS and guest who came to witness the event during the event.
- **Committee for officials**: - To see that all the officials report on time at the venue and check the playable conditions and equipment. The technical committee will examine all the technical aspects in advance. The competitors shall receive their number, programme copies and necessary instructions.
- **Committee for news and report writing**:- To prepare press release on daily basis to update about the event to general public and also prepare the report of the event for distribution to all the concerned persons.
- **Committee for Information and announcement**: - All these instructions and messages should be announced by the announcer well in time. The meet shall be then started with an opening ceremony which usually consists of the march past by the participants, oath taking etc.
- **Committee for tabulation of result**: - To prepare the result analysis of the score of the team as well as on individual basis to find out best player or highest score of the tournament it also helps to break the tie in case of team having equal point in league matches.
- **Committees after the event**
- **Committee for closing ceremony**: - To line up the team for victory ceremony, arrangement of medals and trophies. Preparation of any cultural programme, Felicitation of Guests and VVIPS.
- **Evaluaton**:-After the competition is over, it is necessary to settle all the accounts and return equipment and other material borrowed from others in good condition. Further, thanks giving letter must be sent to those who helped in conduct of competition.
- A record can be made and kept in the records and same copy be sent to the concerned authority. A brief report concerning the entire championship be prepared and the copies to be sent to the various concerned authorities.

TOURNAMENTS

A tournament is a competition between various teams playing a particular game according to a fixed schedule by following a set of rules and regulation and under the supervision of an organising committee in which a team finally wins and rest of the participating teams lose the matches.

- Importance of Tournament

1. Development of Sports Skills:- By participating in competitive sports the skill are become advanced.

2. Popularisation of Sports:- Through the tournament the game become popular, as people watch and came to know about the game through electronic, print and social media.

3. Development of social and Qualities:- Social quality like sympathy, cooperation brotherhood and discipline are developd through tournament.
4. Selection of Player:- It help in the selection of player for the higher level of competitons.
5. Economic Development:- It also provie living to a large number of peoples through the means of, match fees, media, shops, advertising , sponsorship etc.

- TYPES OF TOURNAMENTS
- Knock-out Tournament
- League or Round Robin Tournament
- Combination Tournament
- Knock-out tournament

Knock-Out Tournament : In knock out tournament team once defeated gets eliminated fro the competitions. A defeated team is not allowed to continue in the tournament only the winner team play with each other until one team emerges as a winner.

Advantage of Knock out tournament:

- Less Expensive
- Time Saving
- Less number of officials are required
- Each team or player give their best performance in every match.

Disadvantage of Knock Out Tournament:-

- Good teams may get eliminated in first or second round of the tournament .
- Weak team may get chance to reach up to the last stage of tournament.
- Some time final matches are looses the interest of the spectators due to weak opponent.
- LEAGUE TOURNAMENT
- **League or Round Robin Tournament :** In such tournament each team gets a chance to play with all other participating teams irrespective of victory and defeat.

There are two types of tournaments single league and double league.

- **Single League :**- each team play with other team only once.
- **Double League:**- Each team is suppose to play two matches with every other participating teams. E.g IPL

Advantage of League or Round Robin Tournament

- Greater possibility of good teams emerging as winners.
- Equal Chance to all teams.
- Greater Chance for Spectators to watch the game.

Disadvantage of League or Round Robin Tournament are :

Time Consuming: Since Round Robin Tournaments last for a longer period of time, the organizer need more time. Organising League Tournaments poses problems because the institutions do not readily agree to give so much of time to the Physical Education Instructor

Expensive : If a tournament lasts for a longer duration, more money is needed to organize it properly. Since the Physical Education departments of educational institutions have limited funds, they find it very difficult to organise league tournaments.

Losers get disheartened: The team that goes on losing continuously is most likely to get disheartened. Its morale goes down because the losing team does not earn any points and the winners are decided on the basis of points. The team that goes on losing, loses all interest in the tournament.

- Combination Tournament

Combination Tournament are those tournament in which initial round of tournament are played on particular basis either knock out or league and rest of the tournament played on another

particular basis.It depend upon the time and budget of the organising authority. Combination tournament are following types:-

a. Knock out cum league
b. League cum Knock out
c. League cum league
d. Knockout cum knock out

- **Procedure To Draw Fixtures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)**

Fixture is a schedule of the matches made by organising committee in the presence of team managers / coaches other officials to decide that which team going to play against which team with place, court, date, ground etc. It also considered the previous year result if available ,on the basis of that team gets seeding.

Bye is an advantage given to a team who will directly play in the next round of the tournament. Bye is only calculated when the teams are not in multiple of 2 as 2X2X2X2 means when the team are in the multiple of 2 there is not need to calculate bye. e.g when the teams are 4,8,16,32,64 there is no need to calculate bye.

Procedure to draw fixture

Total no of matches = N — 1

Teams in upper half = $\frac{N+1}{2}$ (if teams are odd)

Teams in lower half = $\frac{N-- 1}{2}$ (if teams are odd)

No of Byes = Next power of total number of teams – N

e.g.

If the n= 23

Bye = 32 – 23 as 32 is the next higher multiple of 2 from 23 (2x2x2x2x2 = 32)

No of byes in upper half = $\frac{N-- 1}{2}$ (if teams are odd)

No of byes in lower half = $\frac{N + 1}{2}$ (if teams are odd)

Q) Draw a fixture of 25 teams?

A) Total No of matches = N-1= 25-1 = 24

Teams in upper half = $\frac{N+1}{2}$ (if teams are odd) = $\frac{25+1}{2}$ = 13

Teams in lower half = $\frac{N - 1}{2}$ $\frac{= 25 – 1}{2}$

Total no of byes = 32- 25 = 7 (as 32 is the next higher value of multiple of 2 than 25)

The placement of byes are shown in example of 25 knock out teams . The same will be follow whether the no of bye are more or less.

Bye 1 is given to the lowest team like here 25^{th} team is given Bye 1

Bye 2 is given to the topmost team i.e. team 1 is given Bye 2

Bye 3 is given to the topmost team of lower half like in this case team 14^{th} is given Bye 3

Bye 4 is given to lowest team of upper half like in this case team 13^{th} is given Bye 4

Bye 5 is given to second lowest team in the lower half like in this case it is team 24^{th} which is given Bye 5

Bye 6 to second top most team from upper half

Bye 7 second top most team from lower half

Bye 8 to second lowest team from upper half

Methods of drawing fixtures for league tournament

In league tournament every team place one time with all other participating team single league and twice if doing double league irrespective of winning or losing

There are 2 methods of making league fixtures

Staircase Method

Cyclic Method

Deciding the number of matches played in Single league

Formula:- N(N-1)/2

E.g. :- With total Number of 8 teams the number of matches played will be:-

N(N-1)/2:- 8(8-1)/2= 8(7)/2 = 56/2 = 28 total number of matches to be played

Example:- single league fixture of 5 teams by cyclic and stair case method

Staircase Method

N=5

Total number of matches = 5(5-1) /2 = 10

Let the 5 teams are A,B,C,D & E

Cyclic Method

N=7

Total number of matches = 7(7-1) /2 = 21

Let the 7 teams are 1,2,3,4,5,6 & 7

Number of matches to be played in the double league:-

Formula:- N(N-1) where if the number of teams are 8 then 8(8-1) = 56, so total number of matches will be 56

Following points to be implemented when doing the round robin system

Number of rounds to be played, subtract 1 from total number of teams , so if total teams are 8, 7 rounds will be played in a tournament

If the number of team participating is odd the number of rounds will be same as number of teams.

Procedures of deciding the winners in the league tournament

The winner is decided on the basis of the points scored by the respective teams in the following manner

For a Win 2 points

For a Defeat 0 points

For a Draw Match 1 point to each team

2 ways of deciding the league winner are

- BRITISH METHOD
- AMERICAN METHOD

British method in this the total points scored by the team are divided by the total possible points

For example total points of a team from the matches they win, lost or draw is 14 out of total 10 matches or 20 points

Percentage of points= (14/20)×100 = 70%

American Method in this method the percentage of matches won is calculated

For example any team won 5 matches out of 10 it played in a tournament will be 50%

Percentage of matches = (5/10)×100 = 50%

In this way the percentage of all the teams are calculated to decide the winner and runners up.

Intramural & Extramural – Meaning,
Objectives & Its Significance

Meaning of Intramural:- The word intramural is derived from a Latin word "Intra" means within and "Murals" means wall. Thus Intramurals means the activity within the boundary wall of the institution within the student of same institution.

Objectives /Advantage of Intramurals

1. **All round development**:- These activities help to develop the physical, mental, social and emotional aspects of personality.
2. **To provide opportunity to every student to participate in games and sports**:- Generally only few students are able to take part in competitive sports and represent school team but intramural provide ample opportunities to each and every student to take part in games and sports.
3. **Development of leadership qualities**:- Intramural activities help in developing leadership qualities among the students as these activities are organised by the student for the student under the guidance of physical education teacher and other staff members.

4. **To develop sportsmanship**:- It develop the sportsmanship among the student.
5. **Helps in selection for school team**:- Intramural activities help physical education teachers.
6. **Channelizing surplus energy**:- These activities help in channelizing the surplus energy of students and calms down the fighting instinct of the children.

Significance of Intramurals:-

1. Intramural provide opportunity to the students to complete with similar level competition.
2. Intramural help to develop the knowledge of student about the basics of any sports activity.
3. Intramural are significant to develop overall personality of the students.

Meaning of Extramural :- derived from Latin word means outside the wall. These are the inter school/college/state activities. Such competitions give the opportunity to the players of various school, institution, state to show their skill/talent and bring honour to the institution they represent.

<u>Objectives/Advantage</u>

1. **To improve the standard of sports:-** by participating in extramurals, the students become technically and tactically efficient in respective sports.
2. **To develop sportsmanship**:- Competition tend to develop the traits of sportsmanship in students.
3. **To provide knowledge** of new rules and advanced techniques:- Students come to know about new rules and regulations of the game and sports. The students learn new technique as well as tactics by meeting new teams and players.

Significance of Extramurals:-

1. Extramurals are significant to provide opportunities to students of different institutions to compete with each other to display their abilities.
2. These activities also helps to develop mental toughness.
3. Social development is always possible through extramurals.
4. Extramurals have great impact on enhancement of technical aspects of the game.

- Specific Sports Programme

- Sports Day
- Health Run
- Run For Fun
- Run For Specific Cause
- Run for Unity

Sports Day

Sports day is commonly celebrated in all institutions, primarily in schools and colleges. This day is dedicated to sports of all kinds. This is also the display of the training received by the students in various sports disciplines. It has great importance in the life of a student. Along with great fun, it is also a good learning experience. Apart from games and sports, students learn to have a sporting spirit also.

Importance of Annual Sports Day in School:

- It's proven to be important and basic for the development and growth of a student.
- Health will also be good, and a child will be active all day.
- Playing fairly and respect for others is also taught by playing sports.
- Mental and physical development happens due to playing sports.
- Teamwork is learned by many students, and it will help in their character building.
- The players gain confidence.
- Health Run

Health runs are organized in almost every part of the world. In India health runs are organized in almost every state to make people health conscious. Health runs in the countries are organized to make people aware of the deadly and dangerous diseases like AIDS, Swine flu, Tuberculosis, Polio, Dengue etc. World Health Organization (WHO) gives aid to the nations and lays stress to remove the deadly diseases not only from a particular country but from the world because many thousand of people die every year of these deadly diseases. World health organization allots sufficient funds to different organizations and non-profitable organizations for different health programmes and these organizations organize and promote health runs.

- Run For Fun

Runs of this kind are organized by the various organizations for the people of all ages. Run for Fun can be organized by non-governmental organization, educational institutions, sports federation, sports directorate etc. The main purpose of these types of runs are just fun and to help students and children imbibe habits such as running and walking for the sake of their good health. Running and walking are good for everyone. It is very important for players. Running builds children's endurance, strength, speed and other physical fitness components . Run for fun is good for health because running decreases the chances of heart failure, keeps blood pressure normal, decreases obesity, improves circulation of blood, improves skin tone etc. It is suggested to everyone that one should run for fun for a healthy and long life.

- Run for Specific Cause

There are many organizations and institutions in the world and in our country who usually organize "run for specific cause". The words "Run For Specific Cause" tells itself that running or walking by the group of people for a specific cause. The cause may vary and differ from one another. The run for specific cause may be to control pollution, to save environment, national integration, save earth, save water, and so on. They feel that some of the things that are at present available on earth may vanish tomorrow if used unnecessarily. Just to inform the general public and children about the importance of some items such run for specific cause are organized from time to time. These runs should be well planned by the organization and institution who take initiative to organize.

- Run For Unity

Run for unity is organized by different nations by their central government, state government, sports federations and institutions etc. to create a feeling of unity among the people. Our country has many states. Every state has own language and culture. By organizing such type of runs for all ages, the feeling of unity among the people and communities is made stronger. Such runs can develop the feeling of patriotism in the children and students that they all belong to one nation, they all are one and not only part of their state only. When there are communal riots in any part of the country or there is crisis of any kind in the country such kind of runs are helpful in creating the feeling of unity among the people that they belong to one Nation. Nation is their first priority not the state, language etc. A country can only be strong and healthy if there is unity among its people, specially the young who are the future of nation and work for the country. Unity is also important in team sports. If every member of the team plays with unity, definitely the team and team work will be promoted.

Questions:-

1. What do you mean by tournament?
2. Elucidate the importance of tournament s in details ?
3. What do you mean by knock -out tournament ?draw the fixtures of 21 teams on knock –out basis?
4. What is league tournament ? Explain the merits and demerits of league tournament?
5. What do you mean by combination tournament ?Discuss league cum knock out and knock- out cum league with the help of example .
6. What do you mean by specific sport programmes ? Explain any three .
7. What is league tournament ? Draw a fixtures of six teams using round robin method .
8. Elucidate the pre, during and post game responsibility of officials of various committees for organising a sports tournament smoothly .
9. Draw a knock out fixtures of 27 teams and explain the advantage of knock -out tournament .
10. Explain any three objective of intramural.
11. Explain any three objective of extramural.
12. How many byes are given if 15 teams is participating in a knock -out tournament?

Source : ***https://byjus.com/cbse-notes/cbse-class-12-physics-notes-chapter-1-electric-charges-and-fields***

Electric Charge

The term "electricity" is derived from Elektron, a Greek word meaning amber. The properties of matter, atoms and molecules are determined by the magnetic and electric forces present in them. There are also only 2 kinds of an entity called the electric charge.

An experiment conducted also suggested that there are two kinds of electrification wherein (i) like charges repel and (ii) unlike charges attract each other. The property that differentiates these 2 kinds of charges is called the polarity of charge.

Conductors and Insulators

When an experiment was conducted on electric charges due to frictional electricity, it was found that conductors assist in the movement of electric charge, but insulators do not behave in the same manner. Metal, Earth, Human Bodies are all examples of conductors, while porcelain, nylon, wood all offer high resistance to the passage of electricity through them, as they are insulators.

What are the properties of Electric charge?

An electric charge has three fundamental properties:

- **Quantization-** This property states that the total charge of a body represents the integral multiple of a basic quantum of charge.
- **Additive-** This property of electric charges represents the total charge of a body as the algebraic sum all the singular charges acting on the system.
- **Conservation-** This property states that the total charge of a system remains unaffected with time. In other words, when objects get charged due to friction, a transfer of charge from the one object to another occurs. Charges can neither be created nor destroyed.

Coulomb's Law

The coulomb‟s law states that the mutual electrostatic force exist ing between two point charges A and B is proportional to their product which is AB and inversely proportional to the square of the distance between them (r_{AB}). The equation is : $F_{BA} = force\ on\ B\ due\ to\ A = k\,(AB) \div r^{2AB}$

Mathematically,

This law consists of constant terms which are also called a constant of proportionality and is represented by „k‟ and its values are $k = 9*10^{9} Nm^{2}C^{--2}\ Nm^{2}C^{--2}$

Forces Between Multiple Charges

Even if the mutual electric force between two charges is given by Columb"s law, it does not help to calculate
the force on a charge where there are not one but several charges around. It is have been proved via an experiment that force on any charge due to a number of other charges is the vector sum of a ll the forces on that charge due to the other charges, taken one at a time.

Superposition Principles

According to the superposition principle, the property of two charges to repel and attract each other remains unaffected even though there is a presence of third additional charge.

Consider $q_{1,}$ $q_{2\ and}$ q_3 as three charges of a system. Here, if the force on q_1 due to q_2

is denoted by $F_{12.}$

Then,
Likewise, the force on q_1 due to $q_{3,}$ denoted by F_{13} is

Thus, the total force F_1 on q_1 due to 2

charges $q_{2\ and}$ q_3 is **Properties of**

Electric Field Lines

Some of the general properties of field lines are:

- Field lines show a continuous curve without having any breakage in a charge-free region · Two-line never cross each other
- These electric field lines start on the positive charge and end in the negative charge · Electrostatic field lines do not form any closed loops

Electric Flux

The total number of electric field lines passing a given area in a unit time is defined as the electric flux.
However, we note that there is no flow of a physically observable quantity like in the case of liquid flow.
Coming to the definition, Electric flux $\Delta\theta$ through an area element ΔS is defined by $\boldsymbol{\Delta\theta = E.\Delta S = E\,\Delta S\ cos\theta}$

This is proportional to the number of field lines cutting the area element. The angle θ here is the angle between
E and ΔS. In a closed surface, where the convention is already stated, θ is the angle between E and the outward
normal to the area element. To calculate the total flux through any given surface divide the surface into small
area elements, calculate the flux at each element and add them up. Thus, the total flux θ through a surfa ce S is
$\boldsymbol{\theta \sim \Sigma\, E.\ \Delta S}$. The approximation symbol is used because the electric field E is taken to be constant over the
small area element.

Electric Dipole

It is a pair of equal or opposite charges A and -B which are separated by distance 2x. The dipole moment vector (let‟s assume it as **p**) has a magnitude 2Ax and is in the direction of the dipole axis from -B to A

Important Question

1. Answer
   (a) The Statement needs explanation „electric charge of a body is quantized‟.
   (b) Why can one ignore the quantization of electric charge when dealing with macroscopic i.e., large-
   scale charges?

2. Explain how the law of conservation of charge works on this phenomenon when charges appear on both the silk cloth and the glass rod when they are rubbed together.?

   (a)Why electrostatic field line is not a continuous curve and cannot have sudden breaks?
   (b) Why two field lines never cross each other at any point?