UNIT - 2
WEB APPLICATION : Networking Fundamentals

Network: A computer network is a collection of computers and other hardware components interconnected by communication channels (cables or satellites) that allow sharing of resources and information.

Networks are designed using the following architecture:

Peer to peer (P2P): Networkn which all computers have an equal status are called peer to peer networks. Generally in such a network each terminal has an equally competent CPU.

Client-Server: Networks, in which certain computers have special dedicated tasks, providing services to other computers (in the network) are called client server networks. The computer(s) which provide services are called servers and the ones that use these services are called clients.

Types of Network:

There are 2 major types of network:-

1) **LAN:-** LAN is Local Area Network. It is used to connect computers and devices within a small geographical area such as home, school etc.

2) **WAN:-** WAN is Wide Area Network. It is used to connect computers in a broad area such as national and international boundaries.
   Eg. Internet.

Internet: Internet is a global system of interconnected computer networks that use the standard Internet protocol suite to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks.

World Wide Web: World Wide Web (abbreviated as WWW or W3, commonly known as the Web), is a system of interlinked hypertext documents accessed via the Internet.

Web Browser: A Web Browser is software used to view Web sites and acts as an interface between the user and the World Wide Web.
Web Server: A Web server is a computer that stores web sites and their related files for viewing on the Internet.

Uses of Network:-

1) **Data Sharing:** We can share data like text files, documents, audio and video files to other users with the help of Networking.
2) **Hardware Sharing:** Hardware components like printers, scanners etc. can also be shared with the help of networking.
3) **Internet Access Sharing:** Through networking we can access a single internet connection on multiple computers within a network.
4) **Usage of Network Based Applications:** Applications like chat applications, audio and video calling is an another advantage.

Getting Access to the Internet:-

To use Internet we need the following:-

1) **ISP:-** ISP is Internet Service Provider. It is an organization which provides us with the access of Internet. For eg. BSNL, Airtel, MTNL etc.
2) **Modem:**- The word modem is derived from its function Modulator/DEModulator. It is a device which is used to convert digital computer signals into analog signals and vice-versa.

Types of Internet Connectivity

Types of Internet Connectivity can be broadly categorized into Wired Technology and Wireless Technology.

Wired Technology:-

1) **Dial-up:-** It uses the facilities of the Public Switched Telephone Network (PSTN) to establish a internet connection via telephone lines using a device called MODEM. Users dial a number and get access to internet. Dial-up connections are extremely slow.
2) **DSL:**- DSL is Digital Subscriber Line provides internet connectivity by transmitting digital data over wires of a local telephone network. It enables the use of Telephone and Data Transmission on a single telephone line. For using DSL Connection, we need a DSL modem and a subscription.

3) **Cable Internet Access:**- It is a form of broadband Internet access that uses the cable TV infrastructure. It is provided through existing cable TV networks and it is similar to DSL.

Wireless Technology:-

1) **3G:-** 3G, is short for 3rd Generation. It is a set of standards used for Mobile devices and mobile telecommunication services and networks. If the phone supports 3G, then high speed internet connectivity can be accessed through its subscription.
   High-Speed Downlink Packet Access (HSDPA) is a 3G protocol (standard) that allows higher data transfer speeds and capacity.
2) **WiMAX:-** WiMAX is Worldwide Interoperability for Microwave Access is a wireless communications standard designed to provide mobile broadband connectivity across cities and countries through variety of devices. It is a long range system. It is beneficial where there is a difficulty in laying out cables and wires.
3) **Wi-Fi:-** It is a popular technology used to transfer data wirelessly over a network. Wi-Fi stands for Wireless Fidelity. The wireless network is formed through a device called Wireless Access Point (WAP). It is beneficial as there is no need of laying out wires for transferring data.

Data Transfer On the Internet :-

- The data is broken up into bits of same sized pieces called packets.
- A header is added to each packet explaining where the data has come from, where it should end up and where it fits in with the rest of the packets.
- Each packet is sent from computer to computer until it finds its destination. All packets may not take the same route.
- At the destination, the packets are examined. If any packets are missing or damaged, a message is sent asking for them to be resent. This continues until all packets have been received intact.
- The packets are now reassembled into their original form. All this done in seconds!

Session 3 : INTRODUCTION TO THE INSTANT MESSAGING

INSTANT MESSAGING

Instant Messaging (IM) is a form of communication over the internet that offers an instantaneous transmission of text-based messages from sender to receiver. Most IM software includes the option to transfer files, audio chat, video, images etc.

Key Features of IM are :-

1) Text message can be sent from one person to another(similar to SMS)
2) Audio calling and conferencing
3) Video calling and conferencing
4) File Transfers
5) Message History (Save messages for future reference)

Types of Instant Messaging Software

There are two kinds of IM Software:-

1) **Application Based:-** These software are downloaded and installed on user's computer. Eg. Google Talk , Yahoo! Messenger , Skype , Window Live Messenger , Rediff Bol etc.
2) **Web Based:**- They are accessed using browsers such as Internet Explorer etc. Eg. MSN Web Messenger , Yahoo! Messenger for the Web , Meebo , IMO etc.

BLOG

A blog is a discussion style site used by non-technical users for creating personal web pages. Blog is similar to an online personal diary and similar to use. A blog is used to convey messages, events, news, announcements etc.

Blogs are usually managed through web browser which needs an internet connection. A blog can also be created through Offline Blog Software and later publish the content when the internet connection is available.

Examples of Websites that offer blog services:-

www.blogger.com
www.wordpress.com
www.weebly.com
www.blog.com

ONLINE TRANSACTIONS

The transactions over the internet are called Online Transactions

Like purchasing of goods, selling of goods, booking a ticket, payment of fees etc. all comes under the category of Online transactions.

Examples of Online Transaction websites:-

1) **For Buying Goods :-** amazon, jabong, myntra, flipkart , ebay etc.
2) **For Booking of Tickets :-** IRCTC , Redbus etc.
3) **For Payment of School Fee :-** epay.unionbankofindia.co.in/kvfee

Payment Tools to use Online Transactions:-

For completing an online transaction we must need:-

1) Valid Debit Card
2) Valid Credit Card
3) Net Banking Subscription

INTERNET SECURITY

It is a branch of computer security specifically related to the internet, involving browser security and also network security.

Objectives of Internet Security:-

The main objective of internet security is to establish rules and measures to use against attacks over the internet.

Online Threats

The threats / vulnerabilities that uses World Wide Web (Internet) to facilitate crimes are called Online Threats.

Like:-

1) **Phishing :-** The act of acquiring personal / private and sensitive data from personal computers for use in fraudulent activities. For eg. Mails from unknown persons that ask for your credit / debit card details.
2) **Email spoofing :-** It is the creation of email messages with a forged sender address. For eg. Sending an email with a forged email address which appears to be original. These mails are infected mails which contain worms.
3) **Chat Spoofing:-** Spoofing means hoax, trick, or deceive which contains false information. Hiding / Faking the identity of another person over the internet is called chat spoofing.

BEST PRACTICES FOR SECURITY OVER INTERNET

1. **Use strong passwords:** A combination of alphanumeric and special characters could be used for creating a password that is not so easy to crack or guessed by other users.

   General guidelines for strong password

   a) Keep the length of the password at least 12-14 characters if permitted.
   b) Avoid keeping passwords based on repetition words, dictionary words, usernames, pet names etc.
   c) Include numbers and symbols in passwords.
   d) Use Capital and lowercase letters.
   e) Avoid using same password for multiple sites or purposes.
   f) Avoid using something that the public or workmates know you strongly like or dislikes.
2. **Backup your data:** Always keep copies of data in CD, pendrives etc, so it could be helpful in situation when there is a loss of data.
3. **Use Encryption software:** Use encrypted software available within the operating software to protect data from unauthorized users.
4. **Keep username and password private:** Never save passwords or usernames on computers that are used in shared environments like net café.
5. **Registering with website:** Read privacy policy whenever you register with a website, the policy will include information about how the website use personal data.
6. **Do not share personal information:** Be cautious when filling out forms on internet. Because your personal information or emails could be used by unauthorized users to send fake or unwanted emails. So, first research and verify if it's a trusted website or not before providing personal information to any website.
7. **Secure transactions:** It is always recommended to use only secure websites for online shopping or transactions, because these websites store your credit card or online banking personal information. Verify if the website uses secure transaction, usually it is indicated through a digital certificate represented as a golden lock in the web browser's address bar.
8. **Use Antivirus and antispyware software:** These softwares protect your computer from any changes by malwares/threats. Keep these softwares up to date.
9. **Do not immediately respond to mails from unknown users:** Some mails, that promise you jobs or announce lottery results, may contain virus or

scripts or they can try to gather your personal information. Never open the attachments from unknown persons.

10. **Install firewalls:** Firewalls keep your system and network secure. They could be software or hardware. So, Install and configure your firewall.
11. Regularly update your operating system and software applications.
12. When you visit websites, cookies are created on your system that may contain your personal or logon details. Clear browser cookies frequently so that your logon details could not be tracked by unauthorized users.

SESSION 1:-WORKING WITH ACCESSIBILITY OPTIONS

Computer Accessibility :- It refers to the user friendliness of a computer system for all, regardless of their disability. It enables a person with a disability or impairment to use a computer. It is also known as Assistive Technology.

There are numerous types of impairment that impact computer usage. These includes:-

1) Cognitive impairments and learning disabilities, such as dyslexia, autism, and attention deficit-hyperactivity disorder (ADHD).
2) Visual impairment, such as low-vision, complete or partial blindness, and color blindness.
3) Hearing impairment including deafness.
4) Motor or dexterity impairment, such as paralysis, cerebral palsy, or carpal tunnel syndrome and repetitive strain injury.

These accessibility options are used to customize the way your keyboard, display, or mouse function.

Various Accessibility Options

1) **Sticky Keys:-** It is an accessibility feature to help computer users with physical disabilities. It allows the user to press and release a modifier key, such as Ctrl, Alt, Shift etc. and have it remain active until any other key is pressed.
2) **Filter Keys:**- It is an accessibility feature that tells the keyboard to ignore repeated key strokes, making typing easier for people with hand tremors.
3) **Toggle Keys:**- It is an accessibility feature which is designed for people who have vision impairment or cognitive disabilities. When toggle keys are turned on, the computer emits a high sound when the locking keys, such as Caps Lock, Num Lock, Scroll Lock are switched on and a low sound when they are switched off.

4) **Sound Sentry:-** It is designed for the users with auditory impairments. It generates warnings, such as blinking title bar or a flashing border, whenever the computer generates a sound.
5) **Show Sounds:**- It instructs applications that convey information by sound, to also provide information visually, through text captions or informative icons.
6) **High Contrast:**- It is an accessibility feature to assist people with vision impairment. It can change the size and color of fonts and the background for ease of viewing.
7) **Cursor Options:**- It is an accessibility feature that assists people with vision impairment by changing the blink rate and width of the cursor.
8) **Mouse Keys:**- It is an accessibility feature that assists people who have difficulty using a mouse. This option uses the keyboard as a pointing device instead of a mouse.
9) **Serial keys:**- It is an accessibility feature that assists people that have difficulty in using a keyboard or a mouse or both. They can use special devices such as Sip, Puff and Breath Switches to provide input to the computer through serial ports.

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Unit - 3
Word Processing

Session 1: Modifying Layout of a paragraph

Steps to Set the paragraph layout:-

1. Open a word document. Click on **Page Layout tab** on the ribbon.
2. Click on ⧄the icon under ***Paragraph*** group. A paragraph dialog box will appear.
3. Select the desired alignment, line spacing etc.
4. Click on **Tab button.** A tab dialog box will appear.
5. Specify the tab stop position by mentioning the stopping position in the **Tab stop position** box. After specifying the tab stop position click on **Set** button and the **Tabs** window appears.
6. Click ***OK.*** The ruler of the document will be marked with a L shaped symbol at 2", meaning that the tab stop position has been set at that position.
   (Now when you press the tab key, the cursor will automatically jump from its initial position to the next tab stop position.)

Session 2 : Managing Headers

Header:- Headers are text or images included at the top of the page. They usually contain important information such as company or department name, logo, page numbers etc.

Steps to include header in a document

1. Click on the ***Insert*** tab on the ***Ribbon.***
2. *C*lick on the option ***Header*** in the ***Header & Footer*** group.
3. A drop down list will appear. Insert any of the predefined options from the list.
4. You can insert Page number, Date & Time or any picture or clip art in the header area.

Session 3 : Managing Footers

Footer :- Footers are text or image included at the bottom of the page and may repeat in all pages of the document. You can include page number, date & time, pictures or clip art in the footer area.

Steps to include footer in a document

1. Click on the ***Insert*** tab on the ***Ribbon.***
2. *C*lick on the option ***Footer*** in the ***Header & Footer*** group.
3. A drop down list will appear. Insert any of the predefined footer options from the list.

Session 4: Managing Styles

Styles:- Styles or Style sets are pre-defined or customized options used for creating good looking profession documents with least efforts.

Steps to apply and manage styles:

1. Locate the ***Style*** group under ***Home*** tab.You can view list of styles in Styles Group.
2. To view the list of style sets available, point to ***Style Set*** under ***Change Styles*** option. A drop down with different styles will be displayed.
3. Select any of the styles listed by clicking it.

Session 5:- Document Template

Template:- Templates or document templates refer to a sample fill-in-the-blank document that can help in saving time. They may have sample content, themes, etc.

Steps to view & use sample templates:-

1. Go to File->New. Different types of templates will be displayed.
2. Select any of the templates by double-clicking on it. Now you can use this template and customize the contents according to your needs.

Steps to create a template are:-

1. Create a word document that will serve as the template.
2. Click on ***File->Save As*** and give the template a name. Select **Word Template** from the **Save as type:** drop down list.
3. Click on **Save.**

Session 6 : Working with Page and Section Breaks

Page and Section Breaks can be used to separate a document into sections. To separate a section in a portion use Section Break. To start a new page in a document use Page Break.

Steps to Use Section Break and Page Break :-

1. Click on the **Page Layout** tab on the ribbon.
2. Click on the option **Breaks** in the **Page Setup group.**
3. A dropdown list with options of different types of breaks appears.

Steps to Delete Section / Page Break

1. Click on the Section / Page Break.
2. Press Delete on your keyboard and the section / page break is removed.

Use of Page Break:- A page break can be inserted anywhere in a document to force the end of a page and the beginning of a new one.

Use of Section Break :- Section Break add flexibility to formatting your document. You can create different headers and footers, different footnote numbering, change the layout of columns, change page borders for different pages and even change the page layout of the same document. **Using Section breaks is like having mini-documents in one large document.**

Session 7: Applying Character Formats

Character Formatting:- To change look and design of characters is called character formatting.

Different options to make changes to a character or word:-

1. **Font Face**
2. **Font Size**
3. **Grow Font -** to make font size larger than the current size by the specified point.
4. **Shrink Font -** to make font size smaller than the current size by the specified point.
5. **Strikethrough –** to make a strike through the middle of the selected text.
6. **Subscript –** to make the selected text lower than the normal text position.
7. **Superscript –** to make the selected text higher than the normal text position.
8. **Clear Formatting –** used to clear the character formatting.
9. **Text Highlight Colour -** used to change the background colour of the text.
10. **Font Colour –** used to change the colour of the text.
11. **Change Case –** helps us to change the text case to capital letters or small letter. Different change case options are :-
    (i) **Sentence Case**:- the first character in the First word of the selected sentence will be in Upper case and rest of characters will be in small case.
    (ii) **Lowercase:-** selected text will be converted to small letters.
    (iii) **Uppercase:**- selected text will be converted to Capital letters.
    (iv) **Capitalize Each Word:**- the first character in all the words of the selected sentence will be converted to Capital letter.
    (v) **tOGGLE cASE:**- the small letters in the selected text will be converted to capital letters and capital letters will be converted to small letter.

SESSION 8: INSERT GRAPHICAL OBJECTS AND ILLUSTRATIONS

Most Word processors has support for inserting illustrations in the form of Clip Arts, Shapes, pictures, charts, etc.

Clip Art: Clip Art can help in making a document look colourful and presentable. Clip arts are pre-defined images available for use in documents. For example, if you would like to create a greeting card for your friend, you can use clip arts such as balloon, flowers, etc. along with text message. You can use the clip art gallery built-in within the word processor; you can also download clipart from websites. Some of the websites that have free clip arts are:

- www.openclipart.org
- www.pdclipart.org

Steps to insert a clip art in a document,

1. Click on the Insert tab on the *Ribbon.*
2. Click on the option *Clip Art* in the Illustrations group
3. The Clip Art Task Pane appears. Enter the clipart category name in the search box and Click Go.
4. Select the clipart that you want to use, double-click on it and it will be inserted into your document

Steps to insert a clip art in a document from websites

Sometimes, you may need clip arts that may not be available within the word processor application. In such cases, you can visit websites that offer clip arts such as OpenClipart.org.

To download a clip art from www.openclipart.org,

1. Open the web browser, Type www.openclipart.org in the address bar and press Enter

You can use the search box available on the website for viewing the list of clip arts to suit your needs.

Now you can select the clip art you like, download it to your computer and insert it using the photo option in the word processor.

SESSION 9: TEXT WRAPPING

Text Wrapping enables you to surround a picture with text. The text wraps around the graphic or a picture.

Steps to insert Text Wrapping

1. Insert the picture / graphic / clipart in the document.
2. Click on the wrap text option under Text section of the Insert tab after double clicking on the picture.
3. Alternatively, select the picture then select the ***Text Wrapping*** dropdown arrow in the ***Arrange*** group under the ***Format*** tab.

Different Wrap Text Options

The different wrap text options available in word processing software are:-

1. ***Square***
2. ***Tight***
3. ***Through***

SESSION 10: INSERTING OBJECTS

In addition to graphic images, to add a personal touch to a special message or to illustrate a special feature, you may want to embed sound files or maybe even actual files from other software applications in your document. For example, you can insert a PDF file or a spread sheet within the word processor.

Steps to insert an object,

1. Select Insert Tab
2. Click Object under Text section. A dialog box will be displayed
3. Select ***Create from File*** Tab
4. Click ***Browse*** and select a file such as a spread sheet or a PDF document that is available on your computer, Click ***Open*** and Click ***OK***

Note: If you would like to edit the embedded document, double-click on it. It will automatically open it for editing using respective application.

Demerits of embedding an object

1. The embedded objects cannot be printed.
2. The person opening your document must have the relevant software loaded on their computer to operate the embedded file.
3. If you embed an object, the size of your document increases significantly and this may cause problems in emailing the document as an attachment.
4. If you link an object, the person opening that document must have a direct connection to the original file location of the object.

SESSION 11: INSERT SHAPES, SYMBOLS AND SPECIAL CHARACTERS

We can insert objects that have different shapes such as lines, basic geometric shapes, arrows, Equations, shapes, flowchart shapes, stars, banners, and callouts using the shape option.

Steps to Insert Shapes Click on the ***Insert*** tab on the Ribbon.

1. Click on the option ***Shapes*** in the ***Illustrations*** group
2. Once you click the Shapes option a dropdown list with pre-defined shape such as box, circle, etc. appears.
3. You can select the shape from the list of shapes available and draw the shape by dragging the mouse with the left button clicked

Steps to Insert Symbols and Special Characters

1. Click on the ***Insert*** tab on the Ribbon.
2. Click on the option ***Symbol*** in the ***Symbols*** group
3. A dropdown list appears
4. Select a symbol from the list and double-click on to insert the symbol into the document

Note: If you would like to view more symbols and special characters for inserting into a document, click on the **More Symbols… option** in the **Symbols** Dropdown list.

Unit 2 – Web Applications (Basics)

Session 1 - WORKING WITH ACCESSIBILITY OPTIONS

1. The option in Microsoft Windows XP used for helping users with physical disabilities and to reduce repetitive strain is **Accessibility option**.
2. Sound Sentry is designed to help users with **auditory** impairments.
3. The High Contrast option in Microsoft Windows XP is designed to assist people with **vision** impairments.
4. **Serial Keys** is designed to assist people that have difficulty using a keyboard or a mouse.

Session 1 – NETWORKING FUNDAMENTALS

1. The acronym for LAN is **Local Area Network**.
2. Three types of Wired Internet Connectivity are **Dial-Up**, **DSL** & **Cable Internet Access**.
3. Three types of Wireless Internet Connectivity are **3G**, **WIMAX** & **Wi-Fi**.

Q1 - What is the definition of networking?
Answer - A computer network is a collection of computers and other hardware components interconnected by communication channels (cables or satellites) that allow sharing of resources and information.

Q2 - What are the advantages of networking?
Answer – Some of the advantages associated with networking are:
Data Sharing: One of the most important uses of networking is to allow the sharing of data. Users can send text files, spread sheets, documents, presentations, audio files, video files, etc. to other users.
Hardware Sharing: Hardware components such as printers, scanners, etc. can also be shared. For example, instead of purchasing 10 printers for each user, one printer can be purchased and shared among multiple users thus saving cost.
Internet Access Sharing: You can purchase a single Internet connection and share it among other computers in a network instead of purchasing multiple Internet connection for each computer. This is very commonly found in Internet café (browsing centres), schools, colleges, companies, etc.
Usage of network based applications: Such as web browsers, email clients, chat application, audio & video calling, etc. is another advantage.

Q3 - What are the different types of networking?
Answer – There are two major types of network Local Area Network (LAN) and Wide Area Network (WAN).
Local Area Network
A local area network (LAN) is one which connects computers and devices in a limited geographical area such as home, school, computer laboratory, office building, or closely positioned group of buildings. Usually local area networks offer very high speeds and are used for connecting computers and peripherals such as printers, scanners, etc.

Wide Area Network
A wide area network (WAN) is one which covers a broad area (i.e., any network that links across metropolitan, regional, or national boundaries). The Internet is the most popular WAN, and is used by businesses, governments, non-profit organizations, individual consumers, artists, entertainers, and many others.

Q4 - Explain LAN and WAN.
Answer –
Local Area Network
A local area network (LAN) is one which connects computers and devices in a limited geographical area such as home, school, computer laboratory, office building, or closely positioned group of buildings. Usually local area networks offer very high speeds and are used for connecting computers and peripherals such as printers, scanners, etc.

Wide Area Network
A wide area network (WAN) is one which covers a broad area (i.e., any network that links across metropolitan, regional, or national boundaries). The Internet is the most popular WAN, and is used by businesses, governments, non-profit organizations, individual consumers, artists, entertainers, and many others.

Session 3 – INTRODUCTION TO INSTANT MESSAGING

1. **Instant messaging (IM)** is a form of communication over the Internet that offers an instantaneous transmission of text-based messages from sender to receiver.
2. **Microphones**, **Headsets**, **Speakers** & Web Camera are required for audio and video conferencing.

Q1 - List any five application based instant messaging software.
Answer - Application based instant messaging software is downloaded and installed on user's computer. Some of the popular instant messaging software are:

1. Google Talk
2. Yahoo! Messenger
3. Skype
4. Windows Live Messenger
5. Rediff Bol

Q2 - What do you mean by instant messages?
Answer - Instant messaging (IM) is a form of communication over the Internet that offers an instantaneous transmission of text-based messages from sender to receiver.
Most instant messaging software include the option for performing file transfers, audio chat, video calling and conferencing, sharing desktops, etc. apart from standard text chat.
Instant messaging software is widely used for personal and commercial use.

Session 4 – CHATTING WITH A CONTACT – GOOGLE TALK

Q1 - State any 03 rules and etiquettes to be followed while chatting on the Internet.

Answer - There are some general rules and etiquettes to be followed while chatting. They are almost the same as those that apply for emails.

1. Messages should be short and to the point.
2. Always introduce yourself by name if your screen name doesn't reflect it.
3. Always ask if the other person has time to chat first - regardless of how important you think what you have to say is, it's not going to be well received if the recipient is busy.
4. In a business environment, know exactly what you want to discuss.
5. Typing your messages in uppercase is extremely rude - it's considered shouting and very aggressive.
6. Give people time to respond - Multiple questions sent to a recipient before they've had a chance to answer can seem more like an interrogation rather than a conversation.
7. Wherever possible, give the person you are communicating with your undivided attention. It's not just a sign of respect, but if you have multiple conversations happening or are allowing other issues to distract you, you may miss an important point in the other person's messages or lose the gist of the conversation.
8. It's important to properly end an IM conversation - you may think the chat is over, but the other person may not. While you're off doing other things, they may be sitting there staring at the screen waiting for further communication from you!!

Q2 - What are the basic needs to use instant messaging (chat) softwares.

Answer – Before, start using Yahoo! Messenger, a Yahoo Mail account is required. If you don't have a Yahoo! Mail Account already you can use the built in option for creating a new Yahoo! Mail Account.
You should a list of contacts that are available for chat. If you don't have any contacts, you can add their Yahoo Mail account to your contact list by sending an invite.

Session 5 – CREATING AND PUBLISHING WEB PAGES – BLOG

Q1 - Explain the purpose of a blog.

Answer – A blog is a discussion style site used by non-technical (or technical users) users for creating personal web pages.
Blogs are similar to an online personal diary and simple to use.
We can use a blog to convey messages about events, announcements, news, reviews, etc. Blogs are usually managed using a web browser and this requires active internet connection.

Q2 - List any 5 websites that provide blog service.

Answer – There are hundreds of websites that offer blog service for free. Some of the popular blogs include:

1. www.WordPress.com

2. www.blogger.com
3. www.blog.com
4. www.weebly.com
5. www.blogsome.com

Q3 - Difference between web page and website.

Answer – Web page and Website are relevant but distinct words.

A web page can be considered as a single entity whereas a website is a combination of web pages. Web pages are accessed through a browser while in website HTTP, and DNS protocols are used to access it.

Session 6 – USING OFFLINE BLOG EDITORS

Q1 - Explain the purpose of an offline blog editor.

Answer - If we do not have an active internet connection, we can create blogs using a blog application and publish the blog whenever internet connectivity is available.

Q2 - List any five offline blog editors.

Answer - There are several free offline blog editors available that can be downloaded and installed on the local computer such as

1. Qumana
2. Windows Live Writer
3. Blogdesk
4. MarsEdit
5. BlogJet
6. Blogo

Session 7 – ONLINE TRANSACTION

Q1 - Explain the purpose of online transactions.

Answer - Online shopping is a form of electronic commerce where customers can buy or sell goods over the Internet. Customers need to have an active internet connection for viewing goods or services offered by a seller.

Customers can pay online using a credit, debit card or by internet banking.

Online shopping could be useful in situations when:

- A customer does not have sufficient time to visit stores.
- Visiting a store is more expensive than purchasing a product online.
- A product or service that is not available in the local market is available online.

Q2 - List any five websites that allow online transactions.

Answer - Some of the popular online transaction websites are:

1. IRCTC, an online portal for booking flight and train tickets.
2. Flipkart, an online shopping portal for buying consumer products.
3. EBay, an online portal for buying and selling goods.
4. Redbus, an online portal for booking bus tickets.
5. Paytm, an online portal for recharge and paying bills.

Q3 - List any three payment tools to use online transactions.

Answer - To perform an online transaction, all you need is a web browser and an active internet connection.

In some cases where purchasing is involved, you will need a valid credit card, debit card or online banking support referred to as Net Banking Subscription. Some websites even allow COD (Cash on delivery) where the users can pay once they receive the product or service.

Session 8 – INTERNET SECURITY

Q1 - Explain the purpose of Internet Security.

Answer - Internet security is a branch of computer security specifically related to the Internet, often involving browser security but also network security. Its objective is to establish rules and measures to use against attacks over the Internet. The Internet represents an insecure channel for exchanging information leading to a high risk of intrusion or fraud, such as phishing.

Q2 - Explain different kinds of online threats.

Answer - Online threats such as Phishing, email spoofing, chat spoofing, etc. can increase the chances of users getting compromised.

Spread sheet

UNIT-III

WORD PROCESSOR

1. Write about Font Face?
2. Ans:Font Face: After selecting the text you need to click Font Name in the Font group to select the particular font style from the fonts listed.
3. Write about Font Size?
4. Ans:Font Size: After selecting the text you need to click Font Size in the Font group to select the particular font size from the values given.
5. Write about Grow Font?
   Ans: After selecting the text you need to click the icon in the Font group to make the font size larger than the current font size by the specified point.
6. Write about Shrink Font?
   Ans: Shrink Font: After selecting the text you need to click the icon in the Font group to make the font size smaller than the current font size by the specified point.
7. Write about Strike through?
   Ans: Strikethrough: After selecting the text you need to click the icon in the Font group to make a strike through the middle of the selected text.
8. Write about Subscript & Superscript?
   Ans: Subscript: After selecting the text you need to click the icon in the Font group to make the selected text lower than the normal text position.
   Superscript: After selecting the text you need to click the icon in the Font group to make the selected text higher than the normal text position.
9. Write about Clear Formatting? Ans: Clear Formatting is used to clear the character formatting (such as Bold,Italics ,Underline, font face & size, superscript & subscript etc.) of the selected text. To remove the character formatting, select the text and click on icon in the Font group.
10. Write about Text Highlight Color?
    Ans:Text Highlight Color: Use this option to change the background color. To do so, select the text and click on icon in the Font group. You can choose the background color by clicking on the down arrow on the icon.

11. How to change the Font color?
    Ans: Font Color: Use this option to change the color of the text. To do so, select the text and click on icon in the Font group. You can choose the text color by clicking on the down arrow on the icon.
12. Write about change Case in word Document?
    Ans: Change Case: Word processor helps us to change the text case to capital letters or small letters.
    You can also capitalize each word in the sentence and capitalize the starting word of the sentence using Change Case under Font Group. To do so, after selecting the text you need to click the icon in the Font group
    Sentence Case: On selecting this option from the dropdown list, the first character in the first word of the selected sentence will be converted to Capital Letter (Uppercase).
    Lowercase: On selecting this option from the dropdown list, the selected text will be converted to Small Letters (lowercase).
    UPPERCASE: On selecting this option from the dropdown list, the selected text will be converted to Capital Letters (UPPERCASE).
    Capitalize Each Word: On selecting this option from the dropdown list, the first character in all the words of the selected sentence will be converted to Capital Letter (Uppercase).tOGGLE cASE: On selecting this option from the dropdown list, the small letters in the selected text will be converted into capital letters and capital letters will be converted into small letters.
    Fill in the blanks
    1. After selecting the text you need to click the Font size in the Font group to make the font size larger than the current font size.
    2. To remove the character formatting, select the text and click on Clear Formatting in the Font group.
    3. On selecting Sentence Case, the first character in the first word of the selected sentence will be converted to Capital Letter.
    4. On selecting Upper Case, the first character in all the words of the selected sentence will be converted to Capital Letter.
    SESSION 8: INSERT GRAPHICAL OBJECTS AND ILLUSTRATIONS
    Question and Answers:
1. What is Clip Art?
2. Ans:Clip Art can help in making a document look colourful and presentable. Clip arts are pre-defined images available for use in documents. For example, if you would like to create a greeting card for your friend, you can use clip arts such as balloon, flowers, etc. along with text message.
3. Give Some Websites name which provides free Clip arts?
4. Ans: Some of the websites that have free clip arts are:
   • http://www.openclipart.org
   • http://www.pdclipart.org
   • http://www.clker.com
   • http://www.freeclipartnow.com
   • http://www.wpclipart.com
5. How to download a Clipart from the website?
6. Ans: To download a clip art from http://www.openclipart.org,
   1. Open the web browser, Type http://www.openclipart.org in the address bar and press Enter You can use the search box available on the website for viewing the list of clip arts to suit your needs. For example, Type School Bag in the search box and Click Search. You will be displayed with list of clip arts matching the keyword School bag, Now you can select the clip art you like, download it to your computer and insert it using the photo option in the word processor.

7. What are Objects in a Word processing software?
8. Ans:objects can be almost any form that can be generated as a computer file. Sounds, Music, drawings, documents spreadsheets, etc. are all examples of possible objects that you can include
in a document, or link to a document.

Fill in the blanks:

1. Embedding an object makes it a part of the document while linking an object does not include the object file into the document files.
2. Readers trying to access the linked object must also have direct access to the separate file that forms that object.
3. Clip Art can help in making a document look colorful and Presentable.
4. Clip Art is available under inserting Illustrations group in Insert Tab

SESSION 9: TEXT WRAPPING

Fill in the blanks:

1. T o search for a picture, place the cursor before the text, click Insert Tab, and click Picture under Illustrations.
2. After you have inserted the picture, you can wrap the text by using the Wrap Text option.

Answer the following:

1. List any three word wrapping options available in a word processing software.

Ans: The three word wrapping options available in a word processing software are: **tight, square and through.**

2. List word wrapping options available in a word processing software.

Ans: The following are the word wrapping options available in word processing software:

- In line with text
- Square
- Tight
- Through
- Top and Bottom
- Behind the text
- Infront of text

Session 10: Inserting Objects

Fill in the blanks:

1. To open an embedded document, **double Click on** it.
2. Embedded objects **cannot** be printed.
3. When you embed objects in a document, you may have trouble emailing it because **the size of the document increases significantly**.

Question and answers:

1. How to insert objects in word document?

Ans: To insert an object,

- Open a new word document
- Select Insert Tab
- Click Object under Text section. A dialog box will be displayed.

- Select Create from File Tab
- Click Browse and select a file such as a spread sheet or a PDF document that is

available on your computer, Click Open and Click OK
- Notice the document is available embedded within your word document.

Note: If you would like to edit the embedded document, double-click on it. It will automatically open it for editing using respective application.

2. Mention Key points to embedded object in word document?

Ans:1. The embedded objects cannot be printed.
2. The person opening your document must have the relevant software loaded on their computer to operate the embedded file.
3. If you embed an object, the size of your document increases significantly and this may cause problems in emailing the document as an attachment.
4. If you link an object, the person opening that document must have a direct connection to the original file location of the object.

SESSION 11: INSERT SHAPES, SYMBOLS AND SPECIAL CHARACTERS

Fill in the blanks:

1. You can insert lines, basic geometric shapes, arrows, equation shapes, flowchart shapes, stars, banners, and callouts using the **Shape** option.
2. Symbol option is available under **Symbols** group in the Insert tab.

Question and answers:

1. How to insert Shapes in word Processing software?
   Ans: To work with shapes, open a new document in word processor,
   1. Click on the Insert tab on the Ribbon.
   2. Click on the option Shapes in the Illustrations group, as shown in figure 24.
   3. Once you click the Shapes option a dropdown list with pre-defined shape such as box, circle, etc. appears.
   4. You can select the shape from the list of shapes available and draw the shape by dragging the mouse with the left button clicked. For example, if would like to insert a square, select the box shaped item from the list, click and drag the shape to draw a square.
2. How to insert Special characters or Symbols in word document?
   Ans:To work with symbols or special characters, open a new document in word processor.
   1. Click on the Insert tab on the Ribbon.
   2. Click on the option Symbol in the Symbols group
   3. A dropdown list appears, Select a symbol from the list and double-click on to insert the symbol into the document.

PHYSICS NOTES - CLASS 10

CHAPTER-1

ELECTRICITY

INDEX

Topics in the Chapter

- Introduction
- Current
- Potential Difference
  → Volt definition
  → Voltmeter
- Symbols of some commonly used components in Circuit
- Ohm's Law
  → Mathematical expression for Ohm's law
  → V-I graph for Ohm's law
  → Resistance
  → Ohm
  → Rheostat
- Factors on which the Resistance of a conductor depends
  → Resistivity
- Resistors in Series
  → Total/resultant/overall/effective resistance in series
  → Voltage across each resistor
- Resistors in parallel

• Advantage of parallel combination over series combination

• Heating effect of electric circuit

→ Joule's law Heating effect of electric current

→ Filament of electric bulb is made up of tungsten

→ Electric Fuse

→ Electric Power

Introduction

→ Charge is a fundamental particle in an atom. It may be positive or negative.

→ Like charges repel each other.

→ Unlike charges attract each other.

→ Coulomb (C) : S. I. unit of charge

→ 1 Coulomb charge = Charge present on approx. 6×10^{18} electrons

→ Charge on 1 electron = Negative charge of 1.6×10^{-19} C

i.e. Q = ne

Where, Q = Charge (total)

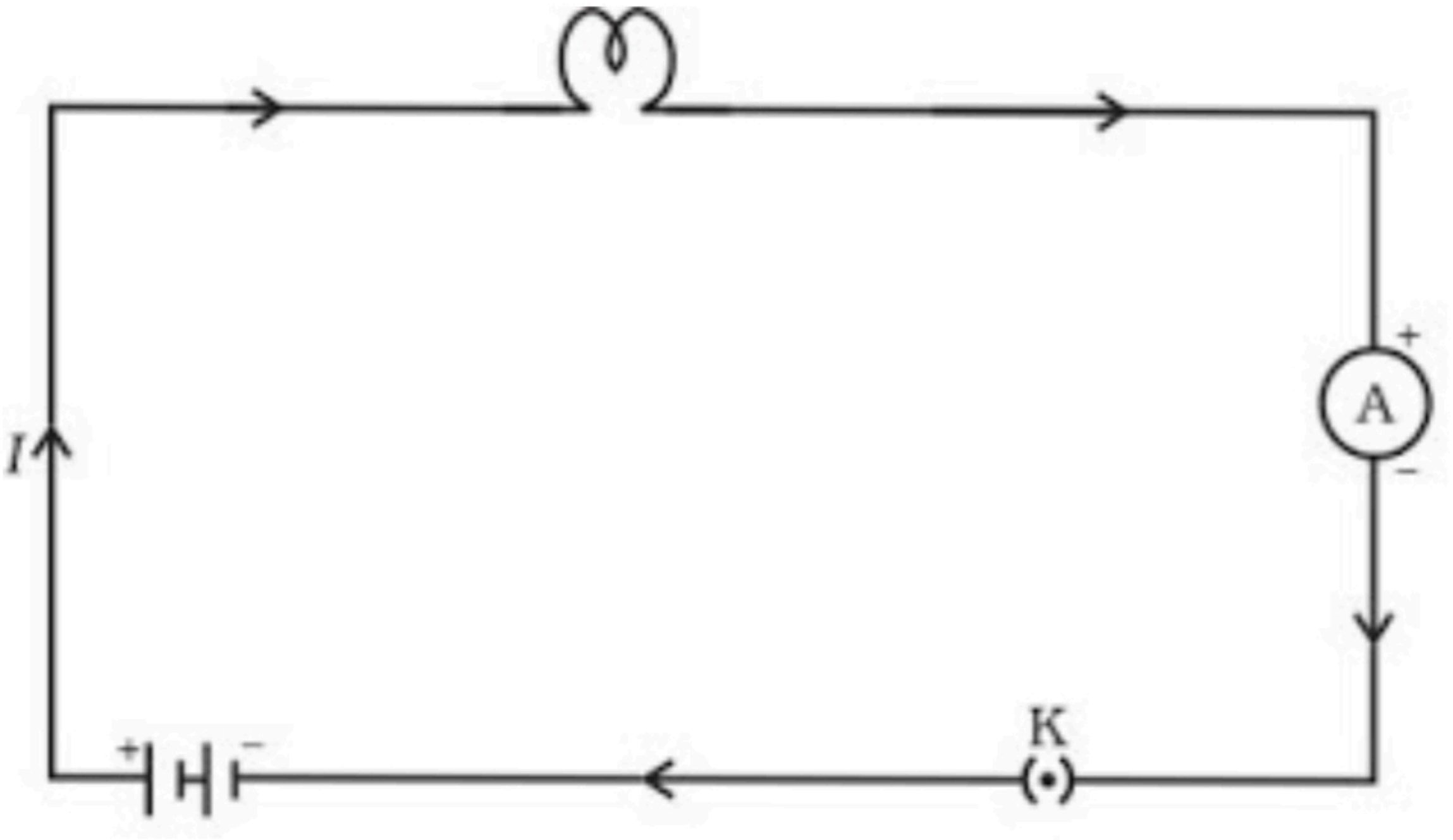
n = No. of electrons

e = Charge on 1 electron

Current

- **Current (I):** The rate of flow of charge is called current.

Current = Charge/Time ⇒ I = Q/T



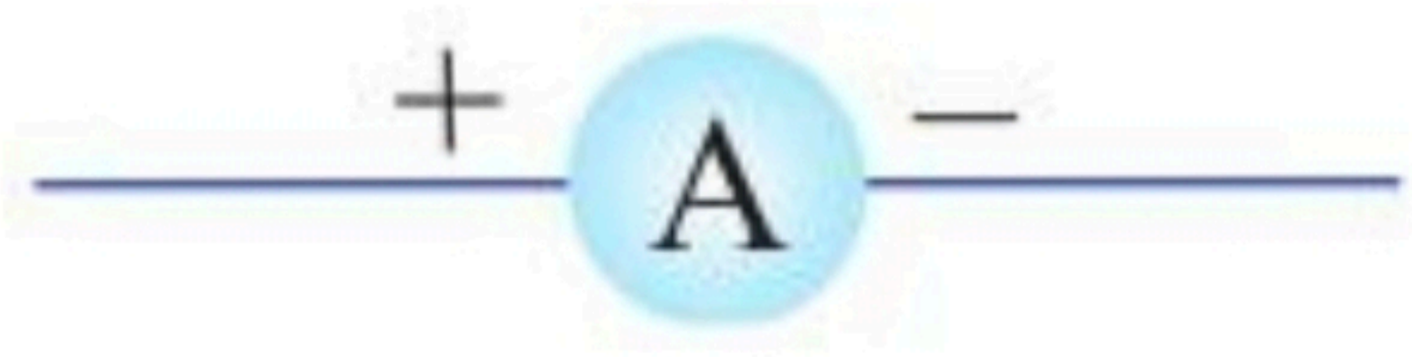
S. I. unit of current = Ampere (A)

$\Rightarrow 1\,A = 1\,Cs^{-1}$

$\Rightarrow 1\,mA = 10^{-3}\,A$

$\Rightarrow 1\,\mu A = 10^{-6}\,A$

→ Current is measured by Ammeter. Its symbol is



→ Ammeter has low resistance and always connected in series.

→ Direction of current is taken opposite to flow of electrons as electrons were not known at the time when the phenomenon of electricity was discovered first and current was considered to be flow of positive charge.

Potential Difference

- **Potential Difference (V):** Work done to move a unit charge from one point to another.

$V = W/Q$

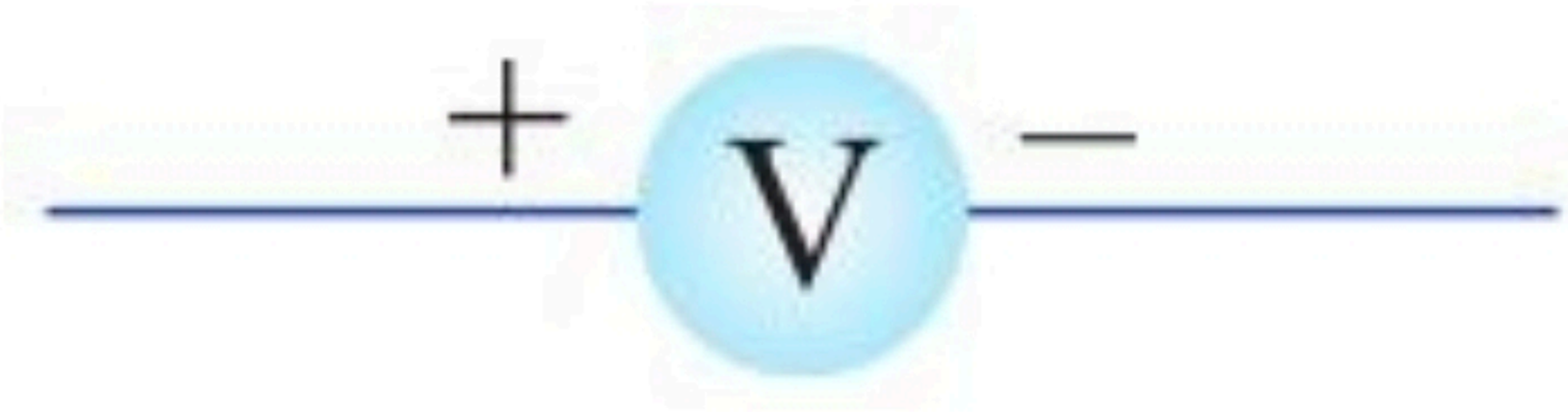
- **1 Volt:** When 1 joule work is done in carrying one Coulomb charge then potential difference is called 1 volt.

→ S. I. unit of Potential difference = Volt (V)

$1\,V = 1\,JC^{-1}$

• **1 Volt:** When 1 joule work is done in carrying one Coulomb charge then potential difference is called 1 volt.
V = W/Q

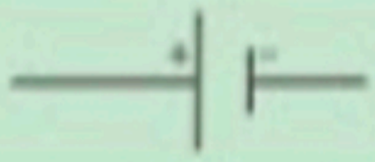
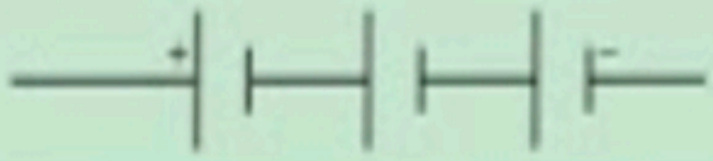
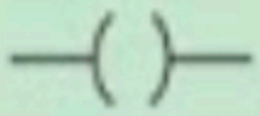
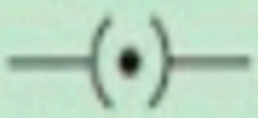
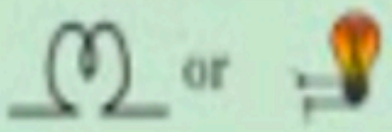
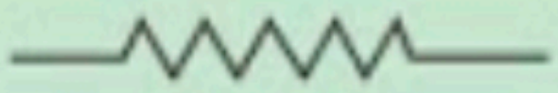
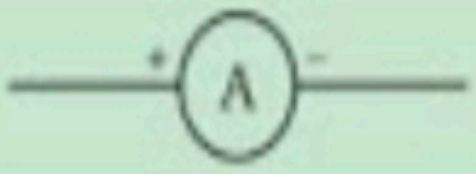
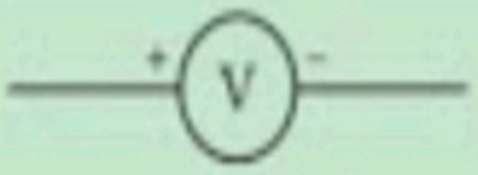
• **Voltmeter:** It is an instrument to measure the potential difference.
→ It has high resistance and always connected in parallel. Symbol is



→ Cell is the simplest device to maintain potential difference.

→ Current always flow from higher potential to lower potential.

Symbols of Some Commonly Used Components in Circuit

Sl. No.	Components	Symbols
1	An electric cell	
2	A battery or a combination of cells	
3	Plug key or switch (open)	
4	Plug key or switch (closed)	
5	A wire joint	
6	Wires crossing without joining	
7	Electric bulb	 or
8	A resistor of resistance R	
9	Variable resistance or rheostat	 or 
10	Ammeter	
11	Voltmeter	

Ohm's Law

Potential difference across the two points of a metallic conductor is directly proportional to current passing through the circuit provided that temperature remains constant.

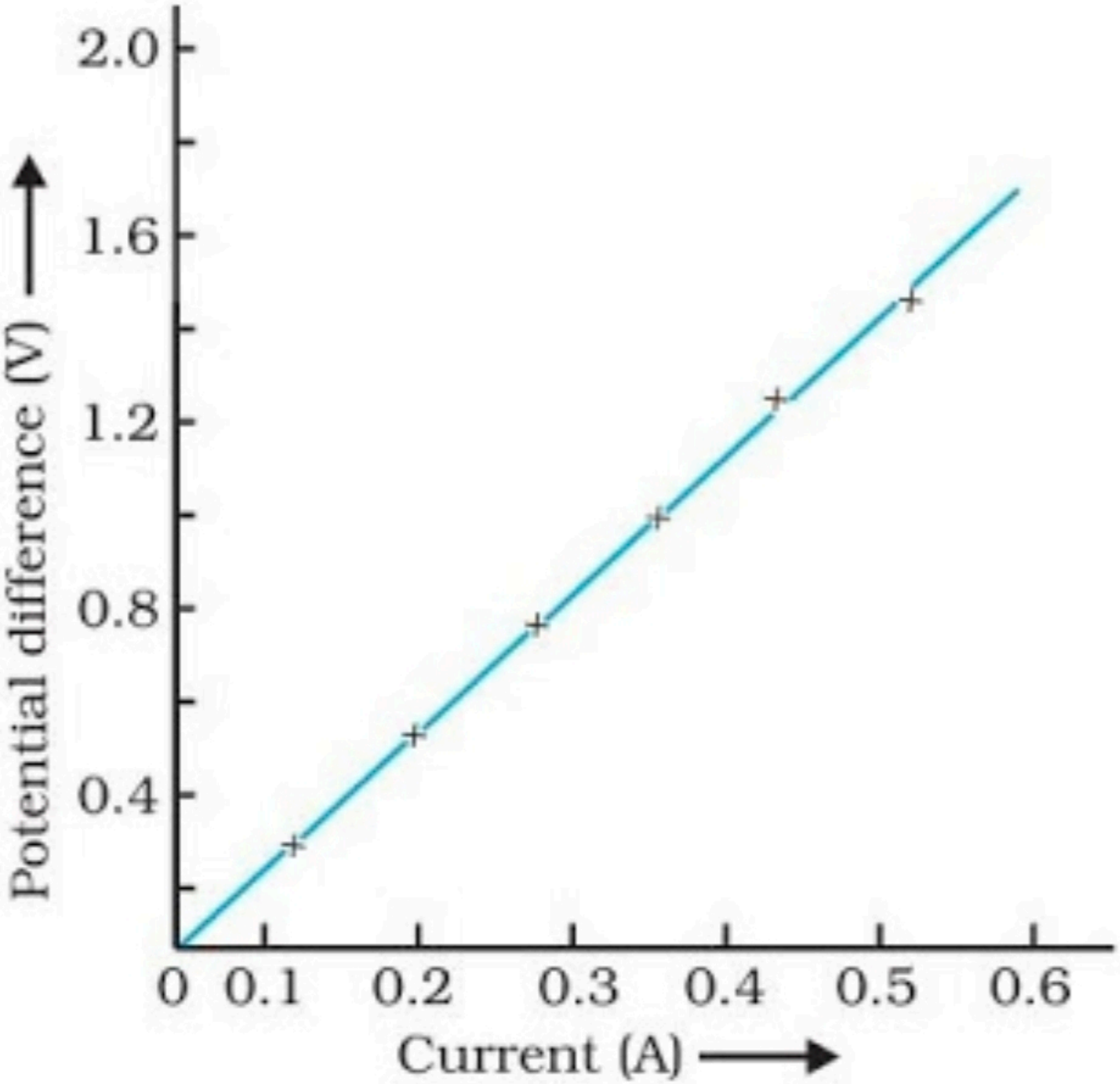
- **Mathematical expression for Ohm's law**

$V \propto I$

$\Rightarrow V = IR$

$\rightarrow$ R is a constant called resistance for a given metal.

- **V–I graph for Ohm's law**



- **Resistance (R):** It is the property of a conductor to resist the flow of charges through it.

- **Ohm (Ω):** S. I. unit of resistance.

- 1 ohm = 1 volt/1ampere

→ When potential difference is 1 V and current through the circuit is 1 A, then resistance is 1 ohm.

- **Rheostat:** Variable resistance is a component used to regulate current without changing the source of voltage.

Factors on which the Resistance of a Conductor depends

- Resistance of a uniform metallic conductor is:

(i) directly proportional to the length of conductor,
(ii) inversely proportional to the area of cross-section,
(iii) directly proportional to the temperature and
(iv) depend on nature of material.

• **Resistivity (P):** It is defined as the resistance offered by a cube of a material of side 1m when current flows perpendicular to its opposite faces.

• Its S.I. unit is ohm-metre (Ωm).

→ Resistivity does not change with change in length or area of cross-section but it changes with change in temperature.

→ Range of resistivity of metals and alloys is 10^{-8} to 10^{-6} Ωm.

→ Range of resistivity of insulators is 10^{12} to 10^{17} Ωm.

→ Resistivity of alloy is generally higher than that of its constituent metals.

→ Alloys do not oxidize (burn) readily at high temperature, so they are commonly used in electrical heating devices.

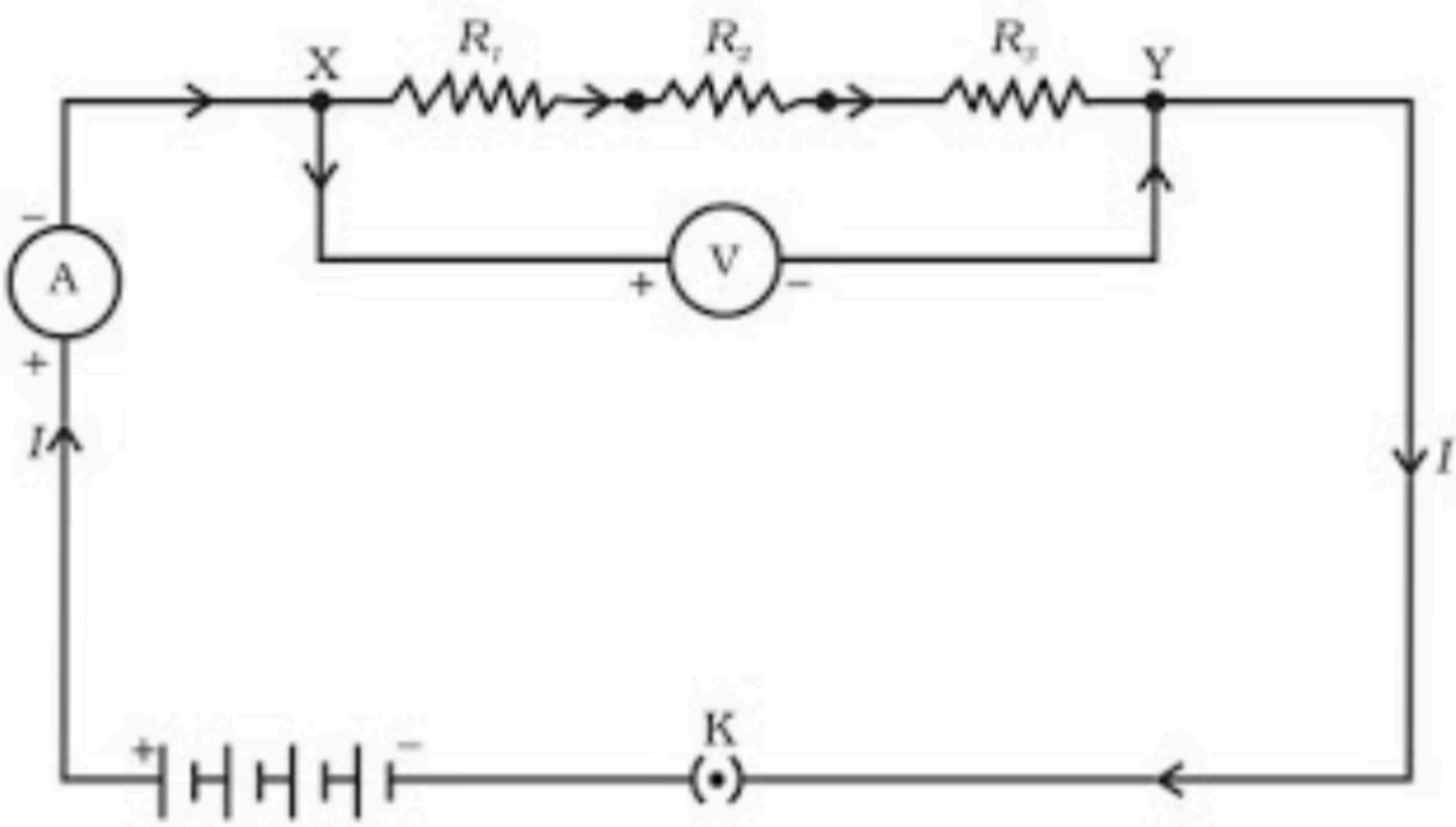
→ Resistivity of alloy is generally higher than that of its constituent metals.

→ Alloys do not oxidize (burn) readily at high temperature, so they are commonly used in electrical heating devices.

→ Copper and aluminium are used for electrical transmission lines as they have low
resistivity.

Resistors in Series

→ When two or more resistors are connected end to end, the arrangement is called series combination.



Total/resultant/overall/effective resistance in series

$R_S = R_1 + R_2 + R_3$

→ Current through each resistor is same.

→ Equivalent resistance is larger than the largest individual resistance.

- **Voltage across each resistor**

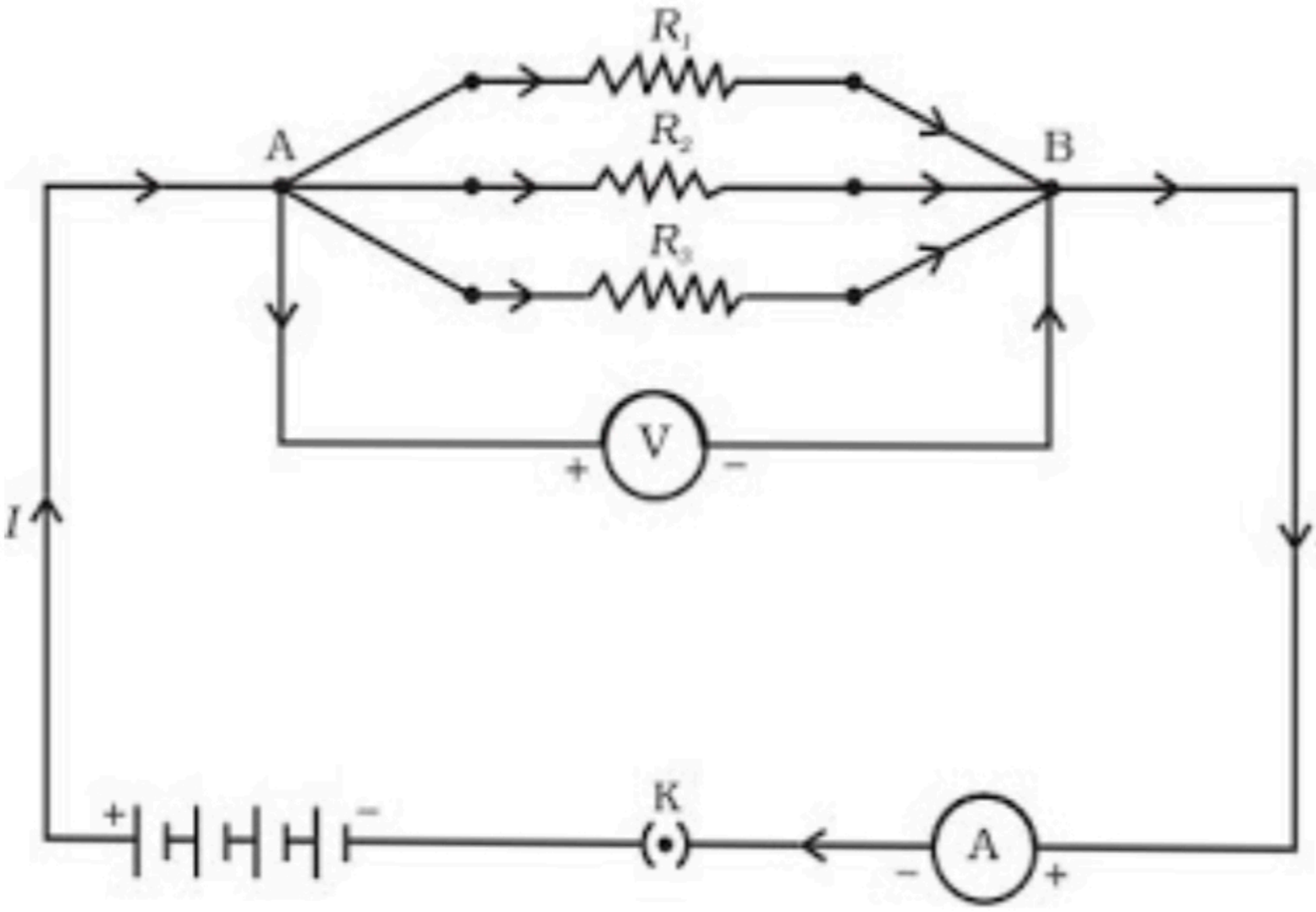
- $V_1 = IR_1$
- $V_2 = IR_2$ $[V_1 + V_2 + V_3 = V]$
- $V_3 = IR_3 V = IR$

$\Rightarrow V = IR_1 + IR_2 + IR_3$

$\propto IR = I(R_1 + R_2 + R_3)$

$\propto R = R_1 + R_2 + R_3$

Resistors in Parallel



→ Voltage across each resistor is same and equal to the applied voltage.

→ Total current is equal to sum of currents through the individual reistances.

- $I = I_1 + I_2 + I_3$

$\Rightarrow V/R = V/R_1 + V/R_2 + V/R_3$

→ Reciprocal of equivalent resistance is equal to sum of reciprocals of individual resistances.

$1/R_p = 1/R_1 + 1/R_2 + 1/R_3$

→ Equivalent resistance is less than the value of the smallest individual resistance in the combination.

Advantages of Parallel Combination over Series Combination

(i) In series circuit, when one component fails, the circuit is broken and none of the component works.

(ii) Different appliances have different requirement of current. This cannot be satisfied in series as current remains same.

(iii) The total resistance in a parallel circuit is decreased.

Heating Effect of Electric Circuit

→ If an electric circuit is purely resistive, the source of energy continually get dissipated entirely in form of heat. This is known as heating effect of electric current.

As $E = P \times T \propto VIt \ \{E = H\}$

Heat produced, $H = VIt \ \{V = IR\}$

Or, Heat produced, $H = I^2Rt$

Joule's Law of Heating Effect of Electric Current

→ It states that the heat produced in a resistor is (i) directly proportional to square of current, $H \propto I^2$

→ It is directly proportional to resistance for a given current, $H \propto R$

→ It is directly proportional to time for which current flows through the conductor. $H \propto t$.

So, $H = I^2Rt$

→ Heating effect is desirable in devices like electric heater, electric iron, electric bulb, electric fuse, etc.

→ Heating effect is undesirable in devices like computers, computer monitors (CRT), TV, refrigerators etc.

→ In electric bulb, most of the power consumed by the filament appears a heat and a small part of it is radiated in form of light.

- **Filament of electric bulb is made up of tungsten because:**

(i) it does not oxidise readily at high temperature.
(ii) it has high melting point (3380° C).

→ The bulbs are filled with chemically inactive gases like nitrogen and argon to prolong the life of filament.

• **Electric Fuse:** It is a safety device that protects our electrical appliances in case of short circuit or overloading.

→ Fuse is made up of pure tin or alloy of copper and tin.

→ Fuse is always connected in series with live wire.

→ Fuse has low melting point.

→ Current capacity of fuse is slightly higher than that of the appliance.

• **Electric Power:** The rate at which electric energy is consumed or dissipated in an electric circuit.

$P = VI$

$\Rightarrow P = I^2R = V^2/R$

S.I. unit of power = Watt (W)

$\Rightarrow$ 1 Watt = 1 volt × 1 ampere

$\rightarrow$ Commercial unit of electric energy = Kilo Watt hour (KWh)

$\Rightarrow 1\ KWh = 3.6 \times 10^6\ J$

$\Rightarrow$ 1 KWh = 1 unit of electric energy

DR. NIDHI SEHGAL

LIFE PROCESSES

DAY-1 ACTIVITY

What you'll need:
TEXT BOOK NCERT (SCIENCE),
NOTE BOOK (SCIENCE),
What you'll do:
First read and understand the notes/NCERT (SCIENCE), then try to solve the given assignments (in NOTE BOOK -SCIENCE), and scale your preparedness for your PA_1 examination.

INTRODUCTION

Life

- Life is the property that distinguishes living beings from the non living objects.
- All living organisms have some fundamental characteristics that make them different from the non living matters These fundamental characteristics are:

Presence of protoplasm

1. Cellular organization
2. Nutrition
3. Metabolism
4. Growth
5. Reproduction….etc

- Earth happens to be the only known planet having a life. There are beings who live, die and become part of nature again.

Life Process

- Maintenance of living organism is essential even if they are moving, resting or even sleeping.
- The processes which together perform the function of maintenance of 'life' are called as life processes.
- Nutrition, respiration, circulation, excretion are examples of essential life processes.
- In unicellular organisms, all these processes are carried out by that single cell.
- In multicellular organisms, well-developed systems are present to carry out the processes.

Nutrition

The process of acquiring food that is needed for nourishment and sustenance of the organism is called nutrition.

- **Nutrition:** The process by which an organism takes food and utilizes it, is called nutrition.
- **Need for Nutrition:** Organisms need the energy to perform various activities. The energy is supplied by the nutrients. Organisms need various raw materials for growth and repair. These raw materials are provided by nutrients.
- **Nutrients:** Materials which provide nutrition to organisms are called nutrients. Carbohydrates, proteins and fats are the main nutrients and are called macronutrients. Minerals and vitamins are required in small amounts and hence are called micronutrients.

- There are two main modes of nutrition, autotrophic and heterotrophic.
- Heterotrophic nutrition has subtypes as holozoic, saprophytic and parasitic nutrition.

- **Modes of Nutrition**
  1. Autotrophic Nutrition.
  2. Heterotrophic Nutrition.

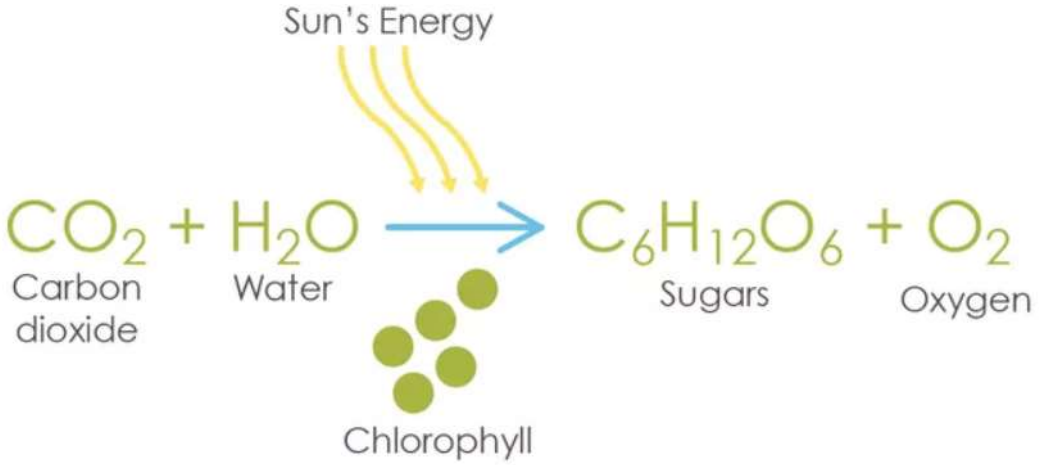
Autotrophic Nutrition – Life Processes Class 10 Notes

The mode of nutrition in which an organism prepares its own food is called autotrophic nutrition. Green plants and blue-green algae follow the autotrophic mode of nutrition.

- The organisms which carry out autotrophic nutrition are called autotrophs (green plants).

Autotrophs $\xrightarrow{\text{Use}}$ **Simple inorganic material** $\xrightarrow{\text{Convert into}}$ **Complex high energy molecules of carbohydrates**

- Autotrophic nutrition is fulfilled by the process, by which autotrophs intake CO_2 and H_2O, and convert these into carbohydrates in the presence of chlorophyll, sunlight is called photosynthesis.
- Equation



Photosynthesis: The process by which green plants prepare food is called photosynthesis.

- During this process, the solar energy is converted into chemical energy and carbohydrates are formed.
- Green leaves are the main site of photosynthesis.
- The green portion of the plant contains a pigment chloroplast, chlorophyll (green pigment).
- The whole process of photosynthesis can be shown by the following equation:

$$\underset{\text{Carbon dioxide}}{6CO_2} + \underset{\text{Water}}{12H_2O} \xrightarrow[\text{Chlorophyll}]{\text{Sunlight}} \underset{\text{Glucose}}{C_6H_{12}O_6} + \underset{\text{Oxygen}}{6O_2} + \underset{\text{Water}}{6H_2O}$$

Raw Materials for Photosynthesis:

- Sunlight
- Chlorophyll: Sunlight absorbed by chloroplast
- CO_2: Enters through stomata, and oxygen (O_2) is released as a byproduct through stomata on the leaf.
- Water: Water + dissolved minerals like nitrogen, phosphorous etc., are taken up by the roots from the soil.

How do raw materials for photosynthesis become available to the plant?

- Water comes from the soil, through the xylem tissue in roots and stems.
- Carbon dioxide comes in the leaves through stomata.

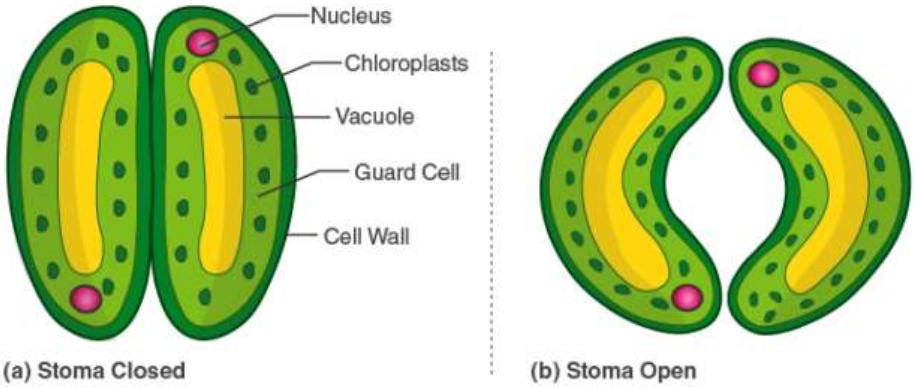
Site of Photosynthesis: Chloroplast in the leaf. Chloroplast contains chlorophyll (green pigment)

Main Events of Photosynthesis:

- Absorption of light energy by chlorophyll.
- Conversion of light energy into chemical energy + splitting (breaking) of water into hydrogen and oxygen.
- Reduction of CO_2 to carbohydrates.
- Sunlight activates chlorophyll, which leads to splitting of the water molecule.
- The hydrogen, released by the splitting of a water molecule is utilized for the reduction of carbon dioxide to produce carbohydrates.
- Oxygen is the by-product of photosynthesis.
- Carbohydrate is subsequently converted into starch and is stored in leaves and other storage parts.
- The splitting of water molecules is a part of the light reaction.

Stomata

- Stomata are pores on the leaves that help in exchange of gases.
- They are mostly found on the underside of the leaf.
- Each stoma is guarded by guard cells, which control the opening and closing of the pore.
- The water content of the guard cells is responsible for their function.



Heterotrophic Nutrition – Life Processes Class 10 Notes

The mode of nutrition in which an organism takes food from another organism is called heterotrophic nutrition. Organisms, other than green plants and blue-green algae follow the heterotrophic mode of nutrition. Heterotrophic nutrition can be further divided into three types, viz. saprophytic nutrition, holozoic nutrition, and parasitic.

- **Saprophytic Nutrition:** In saprophytic nutrition, the organism secretes the digestive juices on the food. The food is digested while it is still to be ingested. The digested food is then ingested by the organism. All the decomposers follow saprophytic nutrition. Some insects, like houseflies, also follow this mode of nutrition.
- **Holozoic Nutrition:** In holozoic nutrition, the digestion happens inside the body of the organism. i.e., after the food is ingested. Most of the animals follow this mode of nutrition.
- **Parasitic Nutrition:** The organism which lives inside or outside another organism (host) and derives nutrition from it is known as parasites and this type of mode of nutrition is called parasitic nutrition. For example Cuscuta, tick etc.

Try the following questions:

Question 1 What are nutrients?

Question 2 What is autotrophic nutrition?

Answer

Question 3 What is heterotrophic nutrition?

Question 4 Why are green plants called producers?

Question 5 What is photosynthesis?

Question 6 What are the raw materials required for photosynthesis?

Answer

Question 7 From where do the green plants get carbon dioxide?

Question 8 How do green plants get water?

Answer

Question 9 Why are minerals essential in photosynthesis?

Answer

Question 10 How do plants obtain minerals?

Answer

Question 11 How do the plants obtain carbon dioxide and water?

Answer

Question 12 Name the different types of heterotrophic nutrition?

Answer

Question 13 What is holozoic nutrition?

Question 14 What are saprotrophs?

Answer.

Question 15 Name two parasitic plants?

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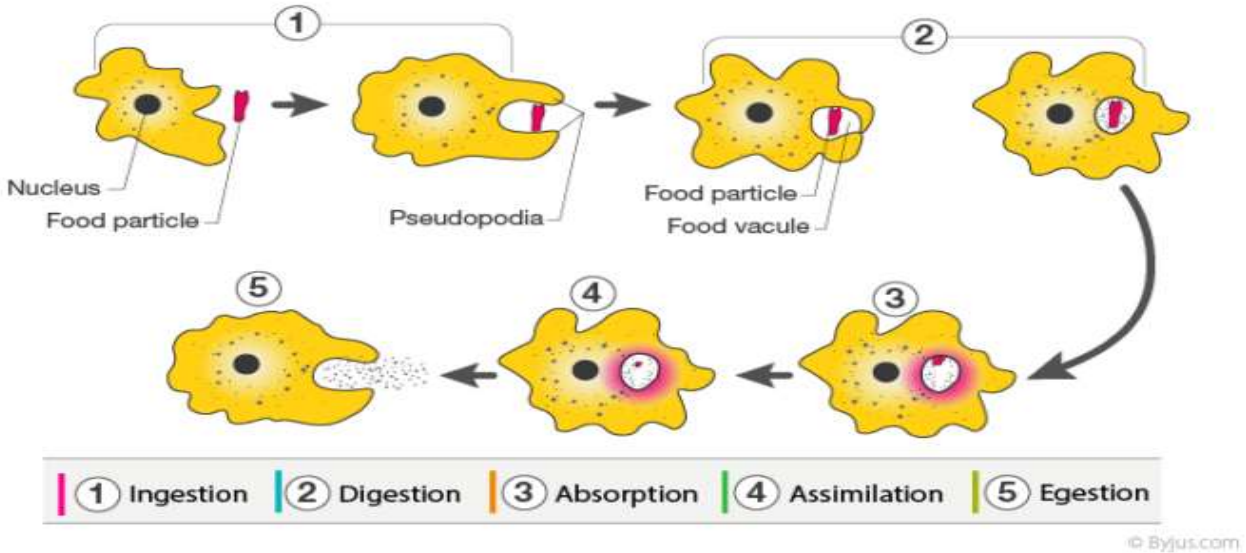
LIFE PROCESSES
DAY-2 ACTIVITY

What you'll need:
TEXT BOOK NCERT (SCIENCE),
NOTE BOOK (SCIENCE),
What you'll do:
First read and understand the notes/NCERT (SCIENCE), then try to solve the given assignments (in NOTE BOOK -SCIENCE), and scale your preparedness for your PA_1 examination.

Nutrition in Amoeba

- Amoeba feeds by holozoic mode of nutrition.
- It engulfs the food particle using pseudopodia, the process is called phagocytosis.
- The engulfed food gets enclosed in a food vacuole.
- As the food vacuole passes through the cytoplasm, digestion, absorption and assimilation take place.
- When the food vacuole opens to outside, egestion of undigested food takes place.

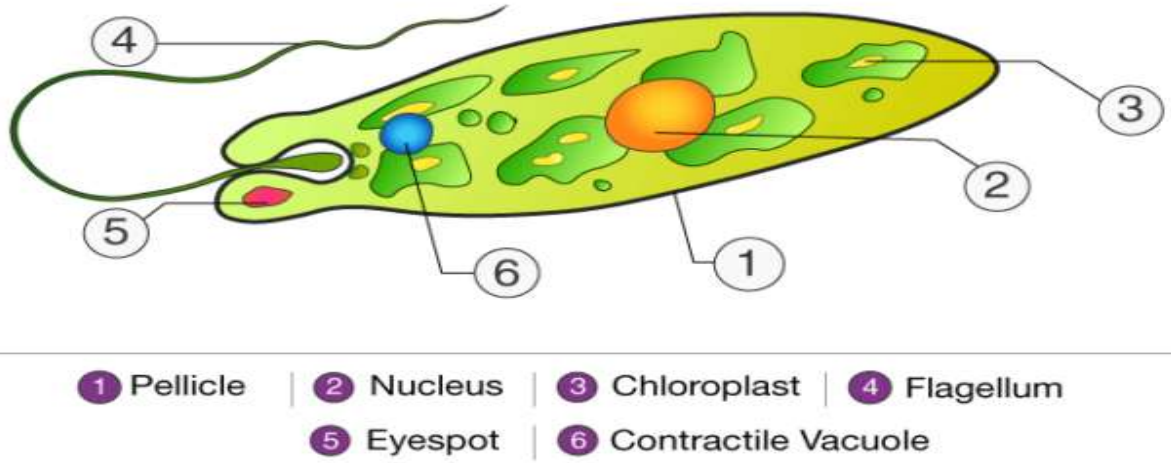


Nutrition in Paramecium

- Paramecium also exhibits holozoic nutrition.

THE AARYANS

- However, they have cilia that help them to engulf the food through the oral groove.
- A food vacuole is created enclosing the food.
- It moves through the cytoplasm, the process is called cyclosis.
- Food digested in the food vacuole is absorbed by the cytoplasm.
- Undigested food is given out to a tiny pore called anal pore or cytopyge.



Try the following questions:

Question 1 What is the importance of nutrients?

Question 2 What are the steps involved in holozoic nutrition?

Question 3 How is food digested in amoeba?

Question 4 What are microphagous feeders?

Question 5 How does ingestion take place in paramecium?

Question 6 Explain the processes of nutrition in Amoeba

Question 7 Give one example of the following:

i) Autotroph, ii) Herbivore, iii) Carnivore, iv) Omnivore

****

THE AARYANS

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LIFE PROCESSES
DAY-3 ACTIVITY

What you'll need:
TEXT BOOK NCERT (SCIENCE),
NOTE BOOK (SCIENCE),
What you'll do:
First read and understand the notes/NCERT (SCIENCE), then try to solve the given assignments (in NOTE BOOK -SCIENCE), and scale your preparedness for your PA_1 examination.

Holozoic Nutrition

The mode of nutrition in which animals take their food as a whole is called as holozoic nutrition.

Nutrition in Humans

- Humans are omnivores, they can eat plant-based food as well as animal-based food.
- Being more complex, humans have a very complicated nutrition system.
- The digestive system has an alimentary canal and associated digestive glands, which together function to nourish the body.
- There are five stages in human nutrition; Ingestion, Digestion, Absorption, Assimilation and Egestion.
- Four stages i.e. ingestion, digestion, absorption and egestion take place in the alimentary canal while assimilation of food takes place in the whole body.

Alimentary Canal

- Alimentary canal in humans is a long tube of varying diameter.
- It starts with the mouth and ends with the anus.
- Oesophagus, stomach, small intestine and large intestine are the parts of the alimentary canal.

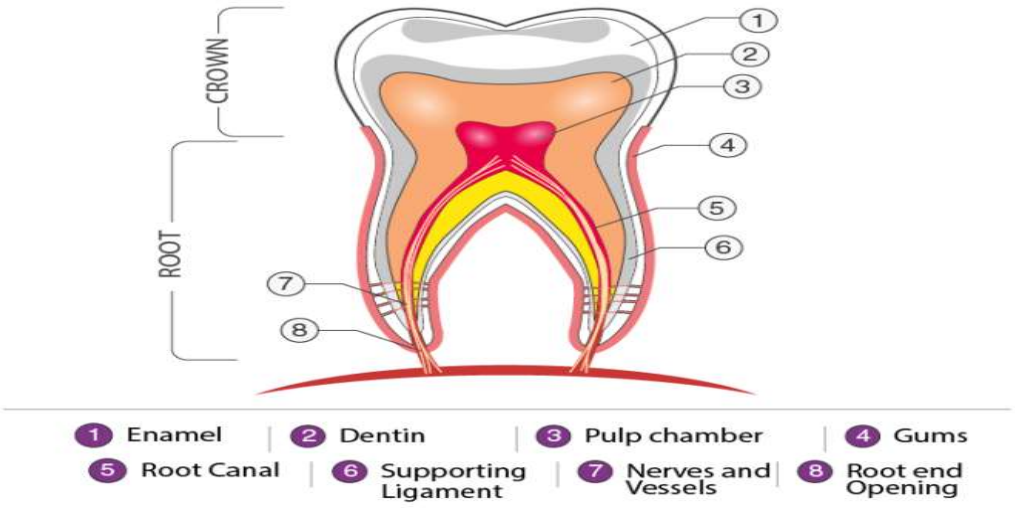
Mouth

- It is the opening of the alimentary canal and helps in ingestion of food.

- The buccal cavity which is present behind the mouth is also commonly referred to as the mouth.
- The buccal cavity has teeth and tongue.
- The set of teeth helps in the mastication of food.
- The tongue has taste buds on it and thus helps in tasting the food.
- The salivary glands open also in the buccal cavity and pour saliva which initiates the process of digestion.

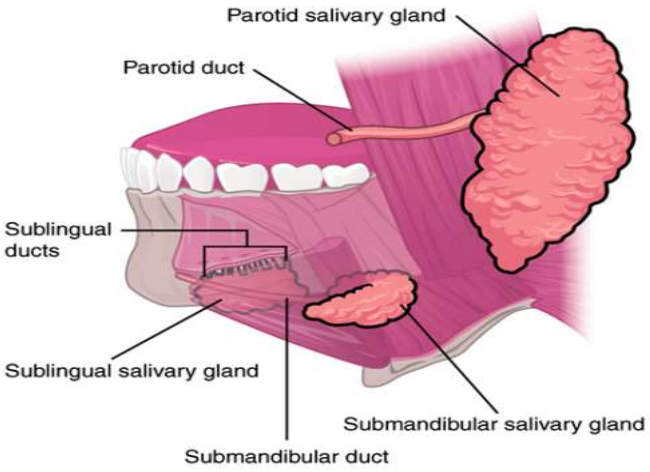
Teeth

- Teeth are the hard structures present in the buccal cavity.
- They help us to cut, shear and masticate the food we eat.
- Vertical section of a tooth shows four layers as enamel, dentine, cement and dental pulp.
- Enamel is outermost, shiny, highly mineralized and hardest part of the human body.
- Dentine makes the bulk of the tooth and contains 70% inorganic salts.
- Cement is present at the lining of a tooth and bony socket.
- The dental pulp is the central soft part of a tooth and contains nerve endings, blood and lymph vessels along with connective tissue.
- There are four types of teeth in humans, Incisors, canines, molars and premolars, each with a specific function.
- Incisors cut the food, canines tear the food while molars and premolars crush it.
- The dental formula in adult humans is 2:1:2:3.



Salivary Glands

- Salivary glands are the exocrine glands that secrete saliva and through a system of ducts, it is poured into the mouth.
- In humans, three major pairs of salivary glands are present, parotid, submandibular and sublingual.
- In healthy individuals between 0.5 to 1.5 litres of saliva is produced per day.
- Saliva serves the following functions in the oral cavity.

1. It lubricates and protects the soft and hard tissues of the oral cavity
2. It also gives protection from dental caries
3. Saliva prevents microbial growth in the oral cavity.
4. Saliva can encourage soft tissue repair by decreasing clotting time and increasing wound contraction
5. Saliva contains the enzyme amylase that hydrolyses starch into maltose and dextrin. Hence saliva allows digestion to occur before the food reaches the stomach
6. Saliva acts as a solvent in which solid particles can dissolve in and enter the taste buds located on the tongue.
7. 

Oesophagus & Stomach

Oesophagus

- The swallowed food passes into the oesophagus.
- It is a muscular tube, about 25 cm long, with a sphincter (valve/opening) at each end.

- Its function is to transport food and fluid, after being swallowed, from the mouth to the stomach.
- Food is pushed down by peristaltic movements.

Peristalsis

A constant wave-like movement of the alimentary canal right from the oesophagus to the small intestine is called as peristalsis.

- Muscles present in the wall of the alimentary canal are responsible for peristalsis.
- This movement helps to push the food through the alimentary canal.

Stomach

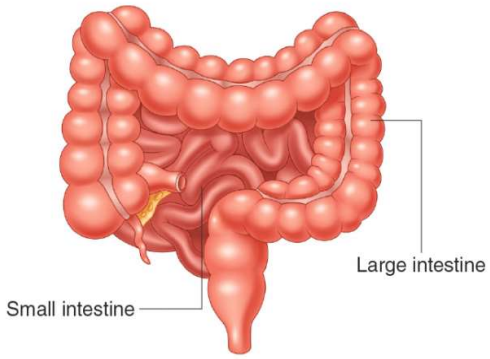
- The stomach is a thick-walled bag-like structure.
- Its receives food from the oesophagus at one end and opens into the small intestine at the other end.
- The inner lining of the stomach secretes mucous, hydrochloric acid and digestive juices.
- Food is churned into a semi-solid mass in the stomach and is called chyme.
- Enzymes present in the gastric juice break down the food.
- Hydrochloric acid helps in partial digestion of proteins and also kills harmful bacteria.
- Mucus secreted by the wall of the stomach resists the action of HCl on itself.

Small Intestine

- The small intestine is the longest part of the alimentary canal, about 20 feet long in humans.
- It has regions, duodenum, the region which follows stomach, jejunum is the middle part and ileum is the later region which continues further into the large intestine.
- The internal surface of the small intestine is folded into finger-like projections called villi.
- A common pancreatic duct from pancreas and liver opens into the duodenum.
- Most of the chemical digestion and absorption takes place in the small intestine.

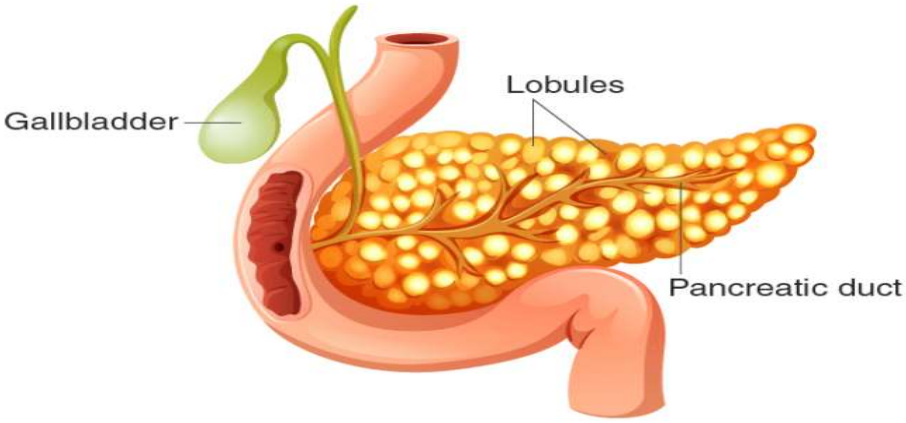
Large Intestine

- The large intestine in humans is about 5 feet long.
- It has two regions, colon (about 1.5 m) and rectum (10 cm in length in the adult).
- The region of large intestine after ileum is called colon while the last part is called the rectum.
- Colon has three regions as, ascending colon, transverse colon and descending colon.
- At the base of the ascending colon, a small finger-like out-growth is seen and is called an appendix.
- It houses many useful bacteria required for digestion of food.
- Rectum opens to outside by anus.
- The anus has internal and external anal sphincters.



Digestive Glands

- Several glands produce digestive juices that help in digestion of the food.
- Salivary glands, Gastric glands, Liver, Gallbladder, Pancreas are few to name.
- Salivary glands secrete saliva which initiates digestion in the mouth itself.
- Gastric glands present in the wall of the stomach secrete hydrochloric acid and enzyme pepsin.
- The liver secretes bile which is stored in the gallbladder. Bile helps in digestion of fats.
- The pancreas secretes many digestive enzymes and its secretion is called as pancreatic juice.
- Enzymes like trypsin, chymotrypsin, lipase, amylase are present in the pancreatic juice.



Pancreas

- The pancreas is a long, flat gland present behind the stomach in humans.
- It is one of the major digestive glands and is of mixed nature i.e. endocrine as well as exocrine.
- As an endocrine organ, it secretes two hormones called insulin and glucagon which maintain the blood sugar level.
- As an exocrine gland, it secretes pancreatic juice which is nothing but a mixture of many digestive enzymes.
- The digestive enzymes secreted by the pancreas include trypsin and chymotrypsin and proteases which digest proteins.

Liver

- The liver is the largest and major digestive gland of humans
- Liver, in humans, is located in the upper right-hand portion of the abdomen.
- This organ is dark reddish-brown in colour due to an extensive blood supply.
- Some of the important functions of the liver are as follows:

1. It secretes bile that helps in digestion.
2. It filters the blood coming from the digestive tract before passing it to the rest of the body.
3. It detoxifies various metabolites and drugs
4. The liver makes proteins important for blood clotting and other functions.

5. It stores and releases glucose as needed.
6. It processes haemoglobin, from the dead and worn out RBCs, for the iron content (the liver stores iron).
7. Conversion of harmful ammonia to urea takes place in the liver.

Digestive Juices

- Pancreatic juice, bile and intestinal juice (succus entericus) are collectively called as digestive juices.
- A common duct from digestive glands pours the secretions into the duodenum.
- Chyme enters into the small intestine where complete digestion takes place due to the action of various enzymes.
- In the duodenum, the acidity of chyme is turned to alkalinity by the action of bile coming from the liver. This is necessary for pancreatic enzyme action.
- Bile also emulsifies the fats into smaller globules.
- Pancreatic and intestinal amylases break down the carbohydrates into glucose.
- Trypsin and chymotrypsin are the proteases responsible for the breakdown of proteins finally into amino acids.
- Lipase is the enzyme which acts on the emulsified fats and breaks them down into glycerol and fatty acids.

Physiology of Digestion

- Mechanical digestion of food takes place in the buccal cavity where teeth masticate the food, saliva gets mixed and it turns into a bolus.
- Digestion of starch starts in the buccal cavity itself, with the action of salivary amylase present in the saliva.
- Salivary amylase converts starch into maltose.
- In the stomach, the churning of food takes place due to the muscular contraction and relaxation of its wall. It breaks down the food into simpler substances.
- Digestion of proteins starts in the stomach with the action of pepsin. Proteins are broken down into smaller fragments called peptide by the action of pepsin.
- The bolus after mixing with gastric juice, turn into a fine soluble form known as the chyme.
- Chyme enters into the small intestine where complete digestion takes place due to the action of various enzymes present in the pancreatic juice, bile and intestinal juice.

- The digested food is completely absorbed by the villi and microvilli of the small intestine.
- Undigested food then enters into the large intestine.
- The colon is responsible for absorption of water and salts whereas rectum stores the undigested food temporarily before defaecation.

Anatomy of Digestive Tract

- The alimentary canal in humans is approximately 30 feet (9m) long.
- It starts with the mouth and ends in the anus.
- Between these two openings, the alimentary canal is the tube of varying diameter.
- Oesophagus, stomach, small intestine (divided into three regions as duodenum, jejunum and ileum) and large intestine(having two regions as colon and rectum) are the parts of the alimentary canal.
- Salivary glands, pancreas and liver act as major digestive glands.
- Glands present in the wall of the stomach and small intestine also contribute towards digestion of food.

Role of HCl

- Hydrochloric acid in the stomach is secreted by the gastric glands present in its wall.
- pH of the gastric acid is usually between 1.5 to 3.5
- This acid serves the following functions:

1. Converts inactive pepsinogen and pro-rennin into active pepsin and rennin respectively.
2. Provides acidic medium for protein digestion.
3. Kills bacteria entered through food and prevents infection.
4. Prevents putrefaction of food in the stomach.

- A thick layer of mucus secreted by the mucous glands of the stomach prevent itself from the action of the gastric acid.
- Excess acid damages gastric mucosa and causes gastric and duodenal ulcers.

Heterotrophic Nutrition

When an organism depends on others for food, such a mode of nutrition is called as a heterotrophic mode of nutrition.

- These organisms depend on autotrophs for their nutritional requirements.
- E.g. Animals which eat plants as their food are called herbivores.
- Animals which eat other animals as their food are called carnivores.
- Holozoic, saprophytic and parasitic nutrition are all types of heterotrophic nutrition.

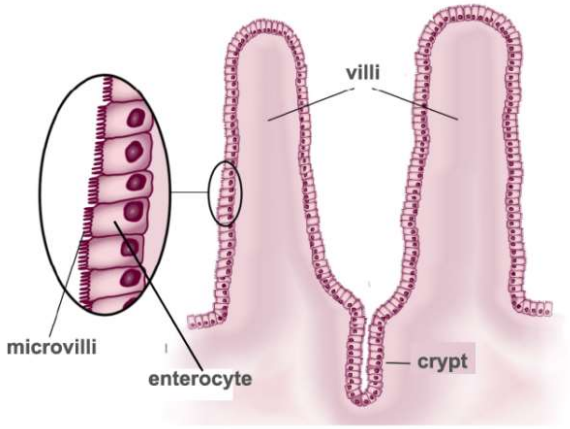
Glandular Epithelium

- Many small glands present in the inner layer of the stomach and intestine take part in the digestion of food.
- These glands are present in the epithelial lining of the stomach and intestine.
- The glands present in different regions of the stomach are called gastric glands.
- They are responsible for the secretion of mucus, hydrochloric acid and enzymes like pepsinogen.
- The glands present in the epithelial lining of the small intestine and large intestine are called intestinal glands.
- Glands of the small intestine are responsible for the secretion of intestinal juice also called succus entericus.
- Intestinal juice contains hormones, digestive enzymes, alkaline mucus, substances to neutralize hydrochloric acid coming from the stomach.
- Intestinal juice completes the digestion started by the pancreatic juice.
- Glands of the large intestine are associated with absorption of water and electrolytes.

Villi and Micro Villi

- Complete digestion and absorption of food take place in the small intestine.
- Pancreatic juice coming from the pancreas, bile from the liver and intestinal juice secreted by the intestinal glands complete the digestion of food material.
- All the digested nutrients are absorbed by the long finger-like projections present in the ileum of the small intestine.

- These small finger-like projections of the inner wall of intestine are called as villi (singular: villus).
- Each villus has its cell membrane of the lumen side again folded into microscopic processes, called microvilli.
- Villi increase the internal surface area of the intestinal walls making available a greater surface area for absorption.
- Digested nutrients pass into the semipermeable villi through diffusion.
- Villi also help in chemical digestion of food by secreting digestive enzymes.



Water Absorption in Large Intestine

- The large intestine is not involved in the digestion of food or absorption of nutrients.
- The major function of the large intestine is to absorb water from the remaining indigestible food matter and make the stool solid.
- The large intestine also helps in absorption of vitamins made by bacteria that normally live in the large intestine.
- The innermost layer of the large intestine also acts as a barrier and protects from microbial infections and invasions.
- Rectum stores the undigested food temporarily until defaecation.

Try the following questions:

Question 1 Which enzyme is present in saliva?What is its function?

Question 2 What is the function of epiglottis?

Question 3 What is the role of HCL in human stomach?

Question 4 What is the fuction of bile?

Question 5 What are the functions of Liver and the Pancreas?

Question 6 Name the main organs of digestive system of grasshopper in the order in which they are involved in digesting food.

Question 7 What is Holozoic mode of nutrition? Give two examples

Question 8 Name the salivary glands present in human mouth?

Question 9 What is the function of intestinal villi?

Question 10 Name the enzymes secreted by Liver and Pancreas.

DR. NIDHI SEHGAL

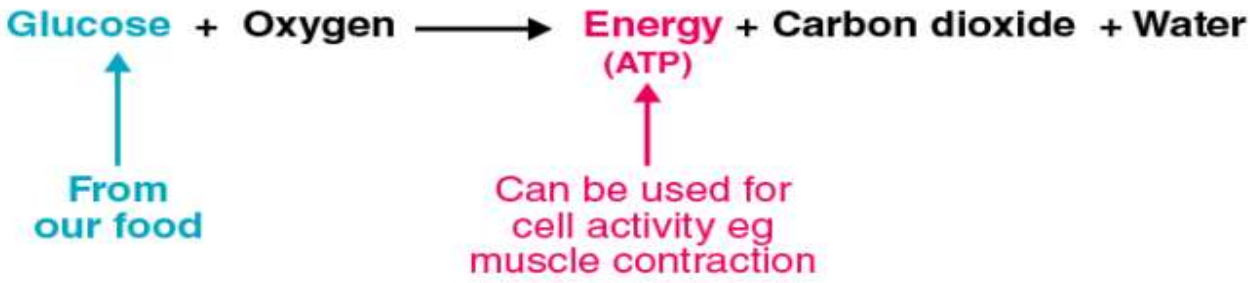
LIFE PROCESSES
DAY-4 ACTIVITY

What you'll need:
TEXT BOOK NCERT (SCIENCE),
NOTE BOOK (SCIENCE),
What you'll do:
First read and understand the notes/NCERT (SCIENCE), then try to solve the given assignments (in NOTE BOOK -SCIENCE), and scale your preparedness for your PA_1 examination.

RESPIRATION

Introduction to Respiration

- Respiration broadly means the exchange of gases.
- Animals and plants have different means of exchange of gases.
- At a cellular level, respiration means the burning of the food at the for generating the energy needed for other life processes.
- Cellular respiration may take place in the presence or absence of oxygen.



Types of Respiration – Life Processes Class 10 Notes

- **Aerobic respiration:** This type of respiration happens in the presence of oxygen. P converted into carbon dioxide. Energy is released and water molecule is also form process.
- **Anaerobic respiration:** This type of respiration happens in the absence of oxygen. either converted into ethyl alcohol or lactic acid. Ethyl alcohol is usually formed in respiration in microbes, like yeast or bacteria. Lactic acid is formed in some micro muscle cells.
  - Glucose (6 carbon molecule) → Pyruvate (3 carbon molecules) + Energy
  - Pyruvate (In yeast, lack of O_2) → Ethyl alcohol + Carbon dioxide + Energy

Respiration in Humans

- The human respiratory system is more complex and involves breathing, exchange of gases and cellular respiration.
- A well defined respiratory system helps breathing and exchange of gases.
- Breathing involves the inhalation of oxygen and exhalation of carbon dioxide.
- The gaseous exchange takes place in the lungs and oxygen is supplied to all cells of the body.
- Cellular respiration takes place in each and every cell.

Respiratory System

- The human respiratory system involves the nose, nasal cavities, pharynx, larynx, trachea/windpipe, bronchi, bronchioles and alveoli.
- Bronchioles and alveoli are enclosed in a pair of lungs.
- The rib cage, muscles associated with the rib cage and diaphragm, all help in inhalation and exhalation of gases.
- Exchange of gases takes place between an alveolar surface and surrounding blood vessels.
- Alveoli provide a large surface area for exchange of gases.

The human respiratory system is composed of a pair of lungs. These are attached to a sy which open on the outside through the nostrils.

Following are the main structures in the human respiratory system:

1. Nostrils: There are two nostrils which converge to form a nasal passage. The inner nostrils is lined by hair and remains wet due to mucus secretion. The mucus and th filtering the dust particles out from inhaled air. Further, air is warmed up when it ent passage.
2. Pharynx: It is a tube-like structure which continues after the nasal passage.
3. Larynx: This part comes after the pharynx. This is also called voice box.
4. Trachea: This is composed of rings of cartilage. Cartilaginous rings prevent the coll the absence of air.
5. Bronchi: A pair of bronchi comes out from the trachea, with one bronchus going to
6. Bronchioles: A bronchus divides into branches and sub-branches inside the lung.
7. Alveoli: These are air sacs at the end of bronchioles. The alveolus is composed of a

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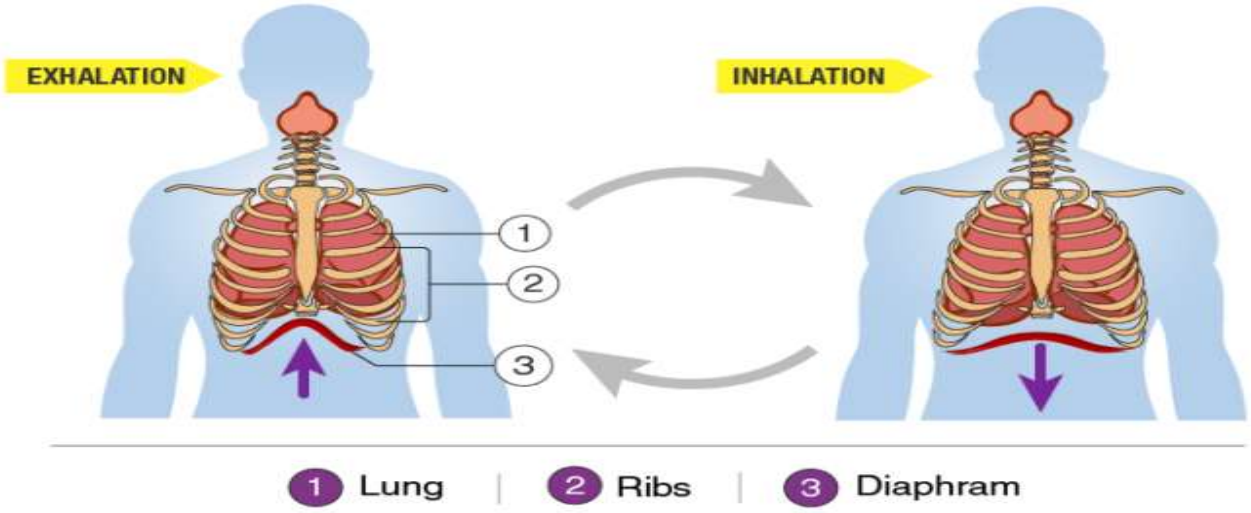
Mechanism of Respiration

- Breathing in humans is facilitated by the action of internal intercostal and external intercostal muscles attached to the ribs and the diaphragm.
- When the dome-shaped diaphragm contracts and becomes flattened and the rib cage is expanded due to the action of intercostal muscles, the volume of the lungs increases, pressure there drops down and the air from outside gushes in. This is inhalation.
- To exhale, the diaphragm relaxes, becomes dome-shaped again, chest cavity contracts due to the action of intercostal muscles, the volume inside the lungs decreases, pressure increases and the air is forced out of the lungs.
- Inhaled air increases the concentration of oxygen in the alveoli, so oxygen simply diffuses into the surrounding blood vessels.
- Blood coming from cells has more concentration of carbon dioxide than outside air and thus carbon dioxide simply diffuses out of the blood vessels into the alveoli.
- Thus, breathing takes place due to the combined action of intercostal muscles and diaphragm while the exchange of gases takes place due to simple diffusion.

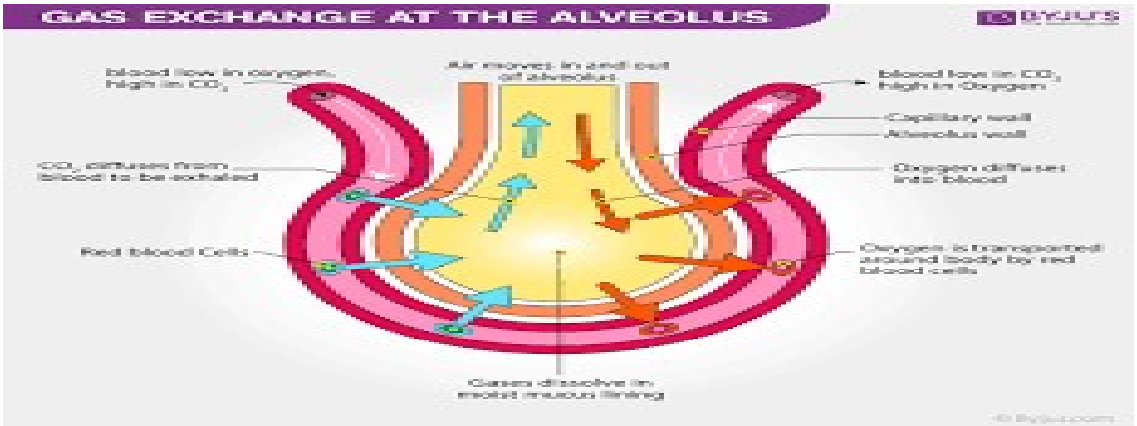


Inhalation and Exhalation

- The process of taking in air rich in oxygen is called **inhalation**.
- Similarly, the process of giving out air rich in carbon dioxide is called **exhalation**.
- One breath comprises one inhalation and one exhalation.
- A person breathes several times in a day.
- The number of times a person breathes in one minute is termed as his/her **breathing rate**.

Diffusion

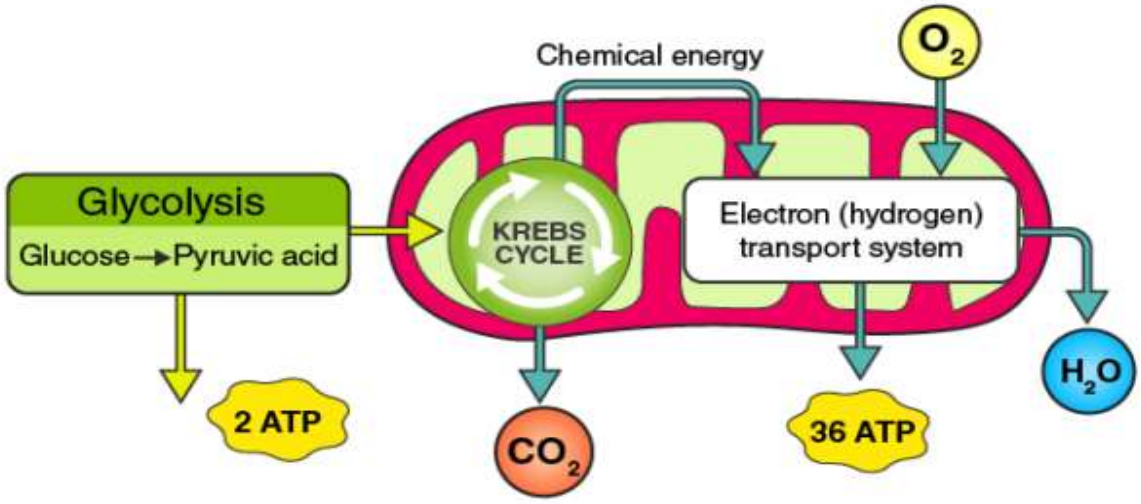
Diffusion is the movement of molecules from high concentration area to the low concentration area without spending any energy.



Cellular Respiration

Cellular respiration is set of metabolic reactions occurring inside the cells to convert biochemical energy obtained from the food into a chemical compound called adenosine triphosphate (ATP).

- Metabolism refers to a set of chemical reactions carried out for maintaining the living state of the cells in an organism. These can be divided into two categories:
- **Catabolism** – the process of breaking molecules to obtain energy.
- **Anabolism** – the process of synthesizing all compounds required by the cells.
- Therefore, respiration is a catabolic process, which breaks large molecules into smaller ones, releasing energy to fuel cellular activities.
- Glycolysis, Krebs cycle and electron transport chain are the important processes of the cellular respiration.



Cellular Respiration

Aerobic Respiration

Aerobic respiration is a process in which the food i.e. glucose is converted into energy in the presence of oxygen.

- The general equation of aerobic respiration as a whole is as given below-

Glucose + oxygen ⇒Carbon-dioxide + Water + Energy

- This type of respiration takes place in animals, plants and other living organisms.

Respiration in Lower Animals

- Lower animals lack a sophisticated respiratory system like lungs, alveoli etc.
- Respiration in them takes place by simple exchange mechanisms.
- Animals like earthworms take in gases through their skin.
- Fishes have gills for gaseous exchange.
- Insects have a tracheal system, which is a network of tubes, through which air circulates and gaseous exchange takes place.
- Frogs breathe through their skin when in water and through their lungs when on land.

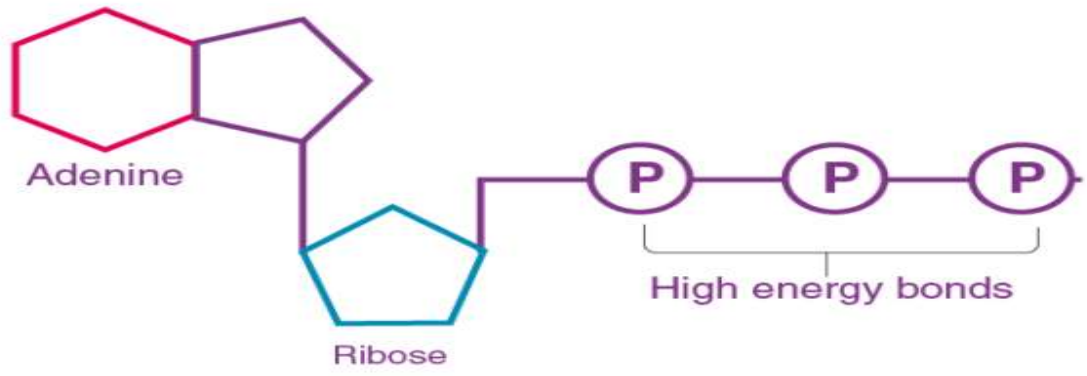
Respiration in Muscles

- Respiration in muscles can be anaerobic when there is not enough oxygen.
- Glucose gets broken down to carbon dioxide and lactic acid.
- This results in the accumulation of lactic acid that makes the muscles sore.

- This type of anaerobic respiration is also known as lactic acid fermentation.

ATP

- It is the energy currency of the cell.
- ATP stands for Adenosine Tri-Phosphate.
- This molecule is created as a result reaction like photosynthesis, respiration etc.
- The three phosphate bonds present in the molecule are high energy bonds and when they are broken, a large amount of energy is released.
- Such released energy is then used for other metabolic reactions.



Respiration in Plants

- Unlike animals and humans, plants do not have any specialized structures for gaseous exchange
- They have stomata (present in leaves) and lenticels (present in stems) which are involved in the exchange of gases.
- Compared to animals, plant roots, stems, and leaves respire at a very lower rate.

Transpiration

- Transpiration is a biological process in which water is lost in the form of water vapour from the aerial parts of the plants.
- This process occurs mainly through the stomata where the exchange of gases (oxygen and carbon dioxide) occurs.
- Transpiration helps in the transportation of water from roots to upper parts of plants and this is explained by ‘transpirational pull theory’.
- Loss of water, especially from leaves, acts as a straw effect and pulls water upwards from roots.
- Transpiration also acts as an excretory mechanism in plants as it helps to get rid of excess water.

Why Do We Need Lungs

- In unicellular organisms like an amoeba exchange of gases takes place through a general body surface by osmosis.
- In lower animals like an earthworm, the gaseous exchange takes place through their moist skin.
- The requirement of oxygen is sufficiently met by these ways.
- But as the animal starts becoming more and more complex, for example, human, the requirement of oxygen cannot be met alone by diffusion.
- Moreover, diffusion will not be able to supply oxygen to the deep-seated cells.
- This difficulty has led to the evolution of a more complex mechanism of gaseous exchange and that is the development of lungs.
- The alveoli present in the lungs provide a large surface area required for the necessary gas exchange.

Try the following questions:

Question 1 What is breathing?

Question 2 Write two points of difference between respiration in plants and respiration in animals?

Question 3 Which physical process is mainly responsible for repiratory gases in leaves? Explain.

Question 4 How respiration is different from breathing?

Question 5 What are stomata and lenticels

Question 6 Explain the mechanism of gaseous exchange between tissue and blood?

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CHAPTER- THE FUNDAMENTAL UNIT OF LIFE CELL

DAY-1 ACTIVITY

What you'll need:
TEXT BOOK NCERT (SCIENCE),
NOTE BOOK (SCIENCE),
What you'll do:
First read and understand the notes/NCERT (SCIENCE), then try to solve the given assignments (in NOTE BOOK - SCIENCE), and scale your preparedness for your PA_1 examination.

CELL

It is the structural and functional unit of life.

- **Cell is termed as the structural unit of life as it** provides structure to our body.
- **Cell is considered as the functional** unit of life as all the functions of the body take place at cell level.

DISCOVERY OF CELL:

- Discovered by Robert Hooke in 1665.
- Robert Brown in 1831 discovered the nucleus in the cell.

CELL THEORY:

Cell theory was presented by Schleiden (1838) and Schwann (1839).
Cell theory states that:
- All living organisms are composed of cells.
- Cell is the fundamental unit of life.
- All new cells come from pre-existing cells.

INSTRUMENT FOR STUDYING CELL

- Microscope is the most common optical instrument used to observe cellular organization of living organisms.
- There are many different kind of microscopes which can be broadly divided into two categories:-----
  i) Light microscope
  ii) Electrone microscope

TYPES OF ORGANISMS ON THE BASIS OF NUMBER OF CELLS

There are two kinds of organisms on the basis of cells:

(i) Unicellular Organisms: The organisms that are made up of single cell and may constitute a whole organism, are named as unicellular organisms.
For example: Amoeba, Paramecium, bacteria, etc.

(ii) Multicellular Organisms: The organisms which are composed of a collection of cells that assume function in a coordinated manner, with different cells specialized to perform particular tasks in the body, are named as multicellular organisms.
For example: Plants, human beings, animals, etc.

-DR. NIDHI SEHGAL

SHAPE AND SIZE OF CELLS

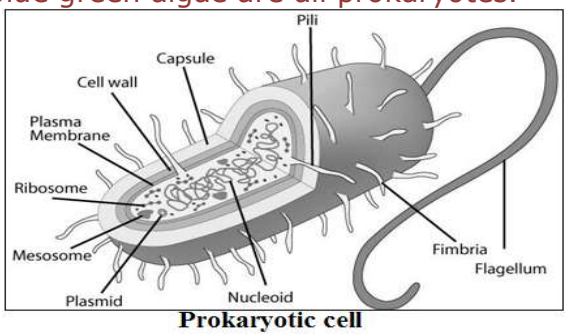
- Cells vary in shape and size. They may be oval, spherical, rectangular, spindle shaped, or totally irregular like the nerve cell.
- The size of cell also varies in different organisms. Most of the cells are microscopic in size like red blood cells (RBC) while some cells are fairly large like nerve cells.

TYPES OF CELLS

- The cells can be categorized in two types:
  1. Prokaryotic Cell 2. Eukaryotic Cell

1. Prokaryotic cell

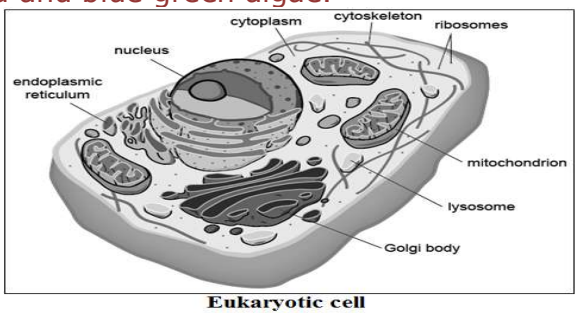
Prokaryotic cells are cells in which true nucleus is absent. They are primitive and incomplete cells. Prokaryotes are always unicellular organisms. For example, archaebacteria, bacteria, blue green algae are all prokaryotes.



- Prokaryotic cell

2. Eukaryotic Cell

Eukaryobc cells are the cells in which true nucleus is present. They are advanced and complete cells. Eukaryotes include all living organisms (both unicellular and multicellular organisms) except bactera and blue green algae.



- Eukaryotic cell

- **DIFFERENCE BETWEEN PROKARYOTIC AND EUKARYOTIC CELLS:**

S. No.	Prokaryotic cell	Eukaryotic cell
1.	Size of cell is generally small (1-10 mm).	Size of cell is generally large (5-100 mm).
2.	Nucleus is absent.	Nucleus is present.
3.	It contains single chromosome.	It contains more than one chromosome.
4.	Nucleolus is absent.	Nucleolus is present.

5.	**Memrane bound cell organelles are absent.**	**Memrane bound cell organelles such as mitochondria, plastids, endoplasmic reticulum, golgi apparatus, lysosomes, etc., are present.**
6.	**Cell division takes place by fission or budding.**	**Cell division takes place by mitotic or meiotic cell division.**

Try the following questions:

Q1. Name the scientist who presented the cell theory?

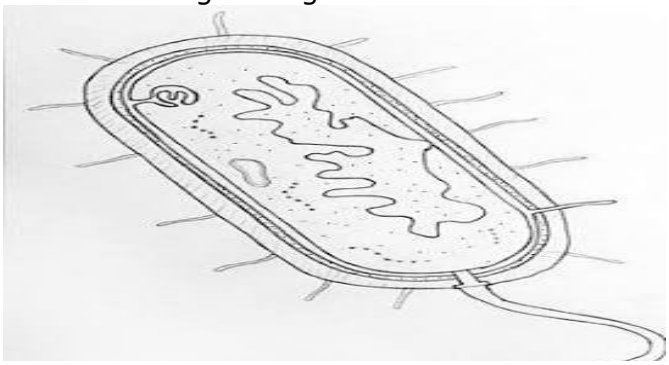
Q2. Name the scientist who introduced the term 'cell'. In which year he gave this findings?

Q3. What is the source of light in electrone microscope?

Q4. Which unicellular organism has irregular shape?

Q5. Which instrument is most commonly used to observe the cellular organization of living organisms?

Q6. Give suitable title to given figure:



Q7. Study thr relationship between first two words and suggest a suitable word for fourth place:

(a) Eukaryotic Cell : Nucleus :: Prokaryotic Cell : .....

(b) Unicellular Organisms : single cell :: Unicellular Organisms : .....

(c) Robert Hooke : cell :: Robert Brown : .....

(d) Light microscope: small instrument :: Electrone microscope : .....

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A Letter to God

G.L. Fuentes

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A Letter to Go

—G.L. Fuent

About the Author

Gregorio Lopez Y Fuentes was born on July 11, 1897 at Lanzarote in the Canary Islands. He first went to sea as a deck boy with his father at the age of ten. As a teenager, Fuentes worked on cargo ships that went out of the Canary Island to Trinidad and Puerto Rico. He also sailed to the Spanish parts of Valencia and Sevillato South America. He migrated permanently to Cuba at the age of twenty two. Fuentes, a lifelong cigar smoker, died from cancer in 2002 at the age of 105 years.

⇨ Story At a Glance

'A letter to God' is a story of extreme faith in God. The writer G.L. Fuentes has tried to depict the faith of a poor and simple farmer in God. Lencho was an honest and hardworking farmer. He was shocked to notice that his crop was ruined. He turned to God for getting some help. He wrote a letter to God. When an employee of the post office chanced to see the letter addressed to God, he made fun to the man who had written that letter but his boss a serious man who did not take the letter lightly. He was impressed by the extreme faith of the man and wished to have the same faith. He decided to answer the letter as he was moved by the demand of the farmer. He collected money from his employees to give in charity. He was able to collect only seventy pesos and thought that the farmer would be glad to receive the money. But to his utter disappointment, he was shocked to notice that it made Lencho angry who wrote another letter to God but with a warning not to send the money by post. He considered the post officials 'a bunch of crooks' who had stolen thirty pesos from the hundred pesos sent by God.

years.

Theme of the Story

This is a story of a hard working farmer Lencho. He is expecting a good harvest this year if it rains. The rain does come bringing a brief happiness. However, a hailstorm follows the rain destroying all his crops. Being deeply hurt, he looks toward God. Having an unshaken faith in God he writes a letter to Him demanding one hundred pesos. This amount is sufficient enough to sow his crop again. He posts it. The postman has a hearty laugh when he reads it and shows it to the postmaster. The postmaster, being a generous man, decides to help Lencho. He gives a part of his salary and collects money from the employees. He sends seventy pesos to Lencho. Lencho's happiness was momentary when he counts the money. God can't deceive him, it is the work of post office employees. He writes another letter to God asking Him not to send the remaining 30 pesos by mail as post office employees are a 'bunch of crooks'.

The lesson shows three things. It shows Lencho's firm faith in God. His faith is rewarded though the helpers are human beings. Secondly, it shows the utter innocence of the farmer, Lencho. Thirdly, the lesson gives a message that sometimes even your generosity is not recognised. You may not get any credit for your generosity and kindness. But on the other hand, you may be misunderstood as a 'bunch of crooks'.

MAIN CHARACTERS

- LENCHO: A hardworking farmer , theist , confident , naïve and determined person.
- Postmaster: An amiable , lovable ,
- co-operative and likeable person

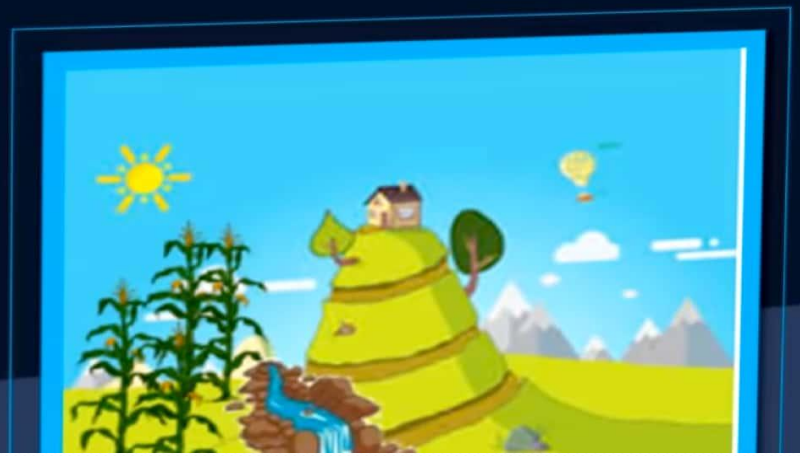
The house - the only one in the entire valley - sat on the crest (top of a hill) of a low hill. From this height one could see the river and the field of ripe corn dotted with the flowers that always promised a good harvest.

Crest : top of a hill

The word faith is often used as a subsitute for hope , trust or belief.

Harvest:the process or period of gathering in crops

The only thing the earth needed was a downpour (heavy rainfall) or at least a shower (mild rain). Throughout the morning Lencho - who knew his fields intimately (closely) - had done nothing else but see the sky towards the north-east.

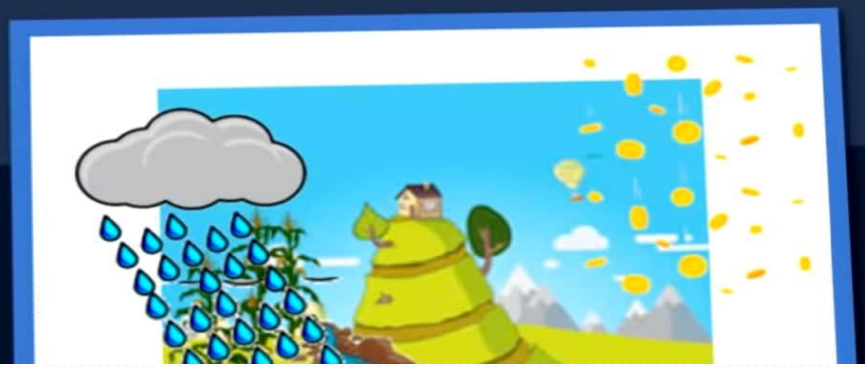


- Downpour : heavy rainfall
- Shower: mild rain
- Intimately: closely

"Now we're really going to get some water, woman." The woman who was preparing supper, replied, "Yes, God willing". The older boys were working in the field, while the smaller ones were playing near the house until the woman called to them all, "Come for dinner". It was during the meal that, just as Lencho had predicted, big drops of rain began to fall.

- Supper:an evening meal
- Predicted: fore told

approaching. The air was fresh and sweet. The man went out for no other reason than to have the pleasure of feeling the rain on his body, and when he returned he exclaimed, "These aren't raindrops falling from the sky, they are new coins. The big drops are ten cent pieces and the little ones are fives."



- Huge:very big
- Approaching: to come near
- Pleasure:happiness
- Returned; came back
- Exclaimed:cried with surprise

With a satisfied expression he regarded the field of ripe corn with its flowers, draped (covered with a cloth) in a curtain of rain. But suddenly a strong wind began to blow and along with the rain very large hailstones began to fall. These truly did resemble new silver coins. The boys, exposing themselves to the rain, ran out to collect the frozen pearls.

- satisfied: contented
- Expression :show of feelings
- Regarded: thought
- Draped:covered completely
- Curtain: veil
- Hailstones: rain of snow
- resemble: to look like something

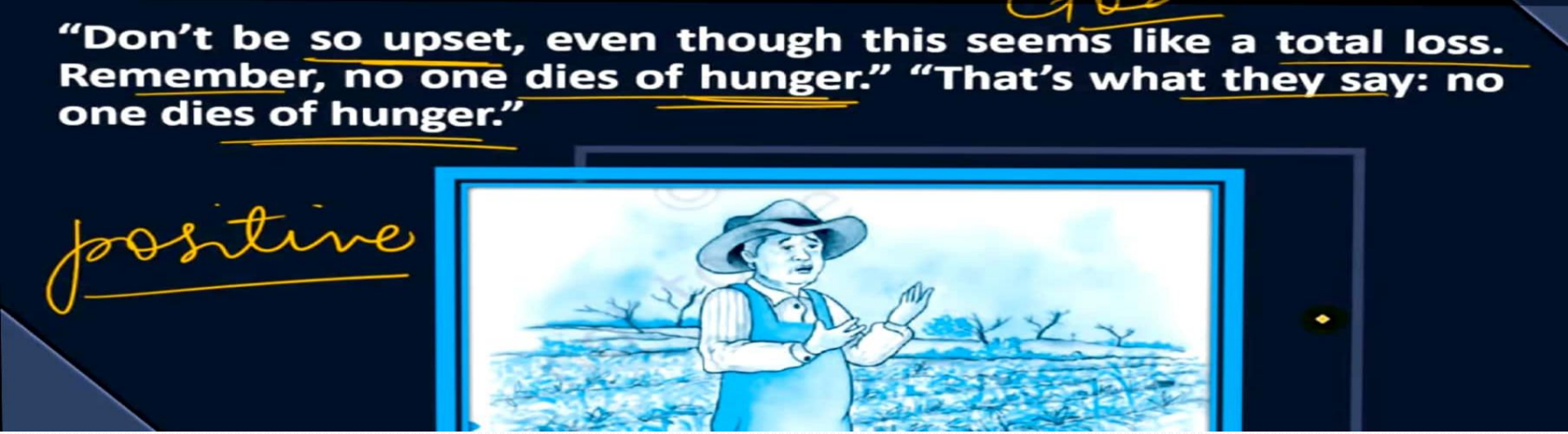
"It's really getting bad now," exclaimed the man. "I hope it passes quickly." It did not pass quickly. For an hour the hail rained on the house, the garden, the hillside, the cornfield, on the whole valley. The field was white, as if covered with salt.

Not a leaf remained on the trees. The corn was totally destroyed. The flowers were gone from the plants. Lencho's soul was filled with sadness. When the storm had passed, he stood in the middle of the field and said to his sons, "A plague of locusts (insects which fly in groups and destroy crops) would have left more than this. The hail has left nothing. This year we will have no corn."

- Destroyed:spoiled
- Plague of locusts:insects which fly in groups and destroy crops.
- Soul: spiritual part of a person believed to exist after death

That night was a sorrowful one. "All our work, for nothing." "There's no one who can help us." "We'll all go hungry this year." But in the hearts of all who lived in that solitary house in the middle of the valley, there was a single hope: help from God.

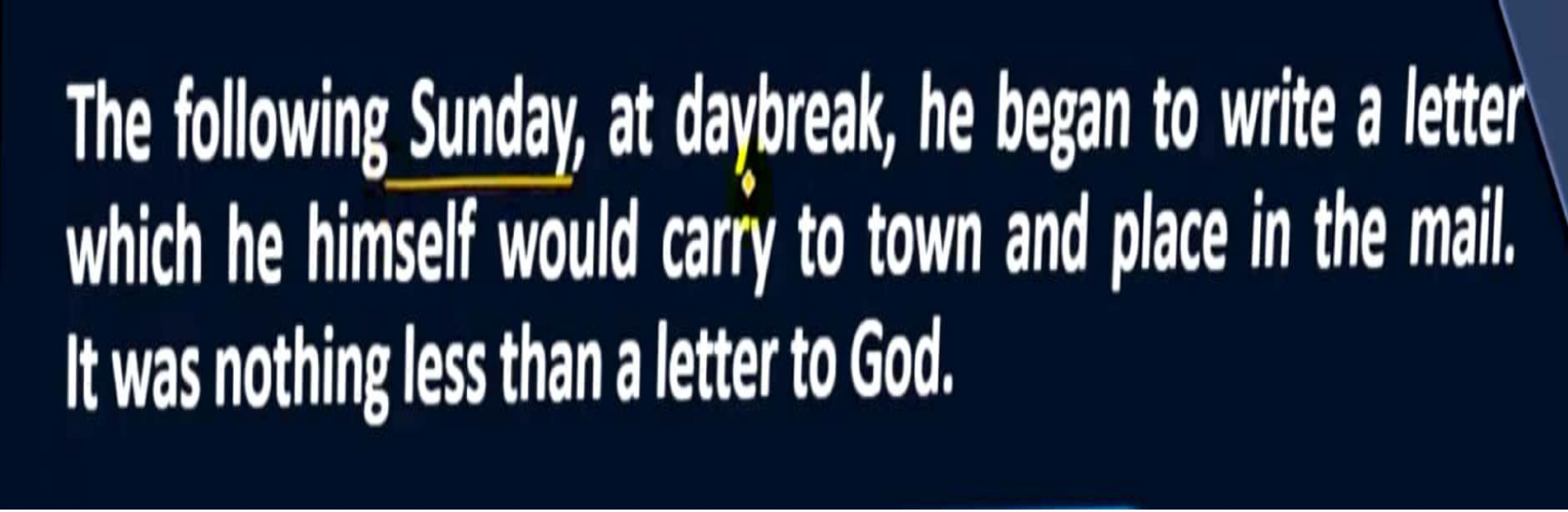
- Solitary:alone
- Upset : worried



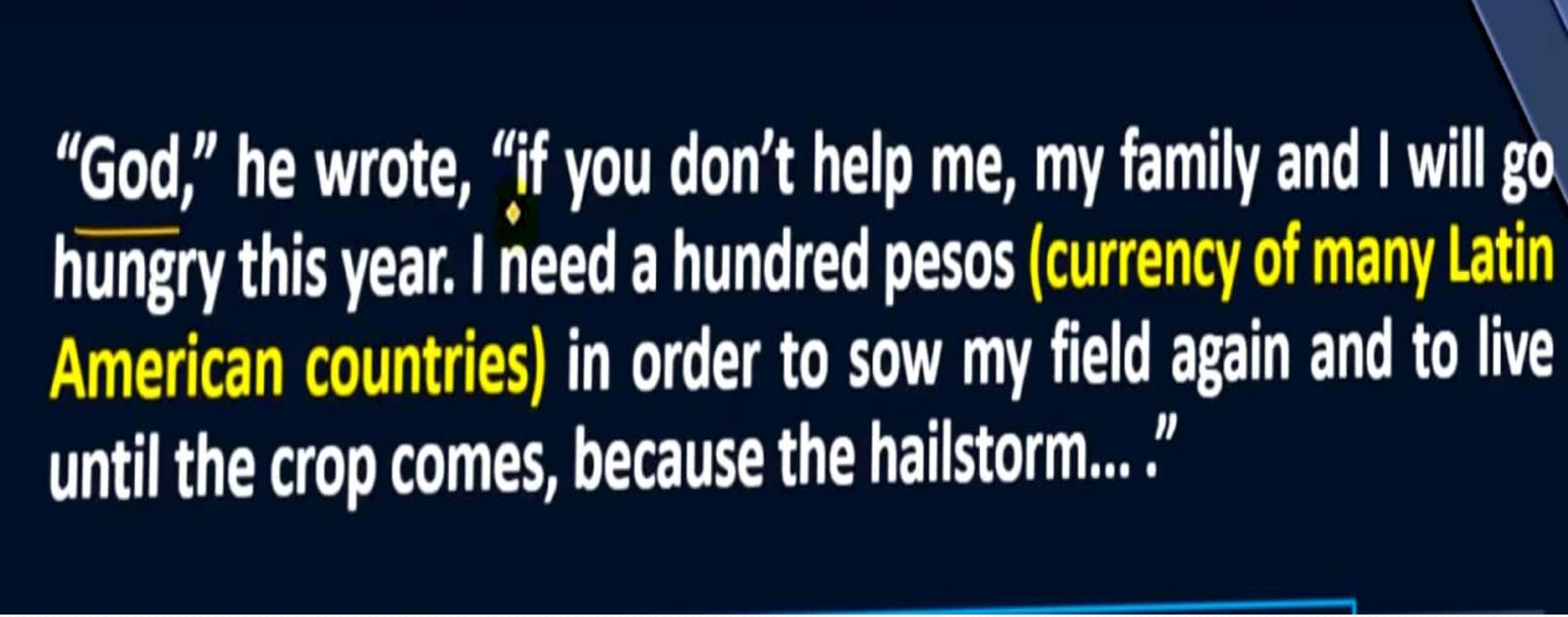
- Now Lencho has a positive attitude he consoled his family by reminding that no one never dies of hunger.This shows his un shaken faith in god and his mercy

All through the night, Lencho thought only of his one hope: the help of God, whose eyes, as he had been instructed, see everything, even what is deep in one's conscience (an inner sense of right and wrong). Lencho was an ox of a man, working like an animal in the fields, but still he knew how to write.

- Conscience:an inner sense of right or wrong
- Instructed: directed
- Through:from the beginning to the end



- Daybreak:sunrise



- Pesos:currency of many Latin American countries

He wrote 'To God' on the envelope, put the letter inside and, still troubled, went to town. At the post office, he placed a stamp on the letter and dropped it into the mailbox.

- Dropped:put in
- Troubled: disturbed

One of the employees, who was a postman and also helped at the post office, went to his boss laughing heartily and showed him the letter to God. Never in his career as a postman had he known that address.

manner) fellow also broke out laughing, but almost immediately he turned serious and, tapping the letter on his desk, commented, "What faith! I wish I had the faith of the man who wrote this letter. Starting up a correspondence (communication by exchange of letters) with God!"

- Correspondence: communication by exchange of letters
- Tapping: stroking

So, in order not to shake the writer's faith in God, the postmaster came up with an idea: answer the letter. But when he opened it, it was evident that to answer it he needed something more than goodwill, ink and paper.

- Here ,the postman decided to answer the letter as he was deeply impressed by sender's
- Un shaken faith in god,so he collected money
- By giving a part of his salary and taking contribution of his employees as an act of charity.

It was impossible for him to gather together the hundred pesos, so he was able to send the farmer only a little more than half. He put the money in an envelope addressed to Lencho and with it a letter containing only a single word as a signature: God.

who handed the letter to him while the post mast of a man who has performed a good deed, looked on from his office.er, experiencing the contentment (satisfaction)

- Contentment:satisfaction
- Deed:act

seeing the money; such was his confidence - but he became angry when he counted the money. God could not have made a mistake, nor could he have denied Lencho what he had requested.

- Slightest:not even a little
- Denied: refused

Immediately, Lencho went up to the window to ask for paper and ink. On the public writing-table, he started to write, with much wrinkling of his brow, caused by the effort he had to make to express his ideas.

(cheats). Lencho."

- Bunch:group
- Crooks:cheats