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UNNAL MUDIYUM

SCIENCE

SALIENT FEATURES

**Revised
Edition**

1. Choose the following
2. Fill in the blanks
3. Match the following
4. Assertion and Reasoning
5. Answer very briefly
6. Answer briefly
7. Answer in detail
8. Numerical problems
9. Higher Order Thinking Questions



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PREFACE

**"Science is a beautiful gift to humanity;
We should not distort it". - A.P.J.Abdul Kalam**

Welcome to a journey through the realms of Science, where curiosity knows no bounds and knowledge knows no limits. In the other words of A.P.J.Abdul Kalam, **"Dream, dream, dream. Dreams transform into thoughts, and thoughts result in action."** With each turn of the page. We invite you to dream, to question, and to explore the wonders of the universe. All of us do not have equal talent, But, all of us have an equal opportunity to develop our talents. This guide is your platform to nurture your talents, expand your horizons, and make your mark on the world of Science.

This guide will help you to begin the journey with open minds, eager hearts, and the unwavering belief that as Kalam said, **"You have to dream before your dreams can come true."**



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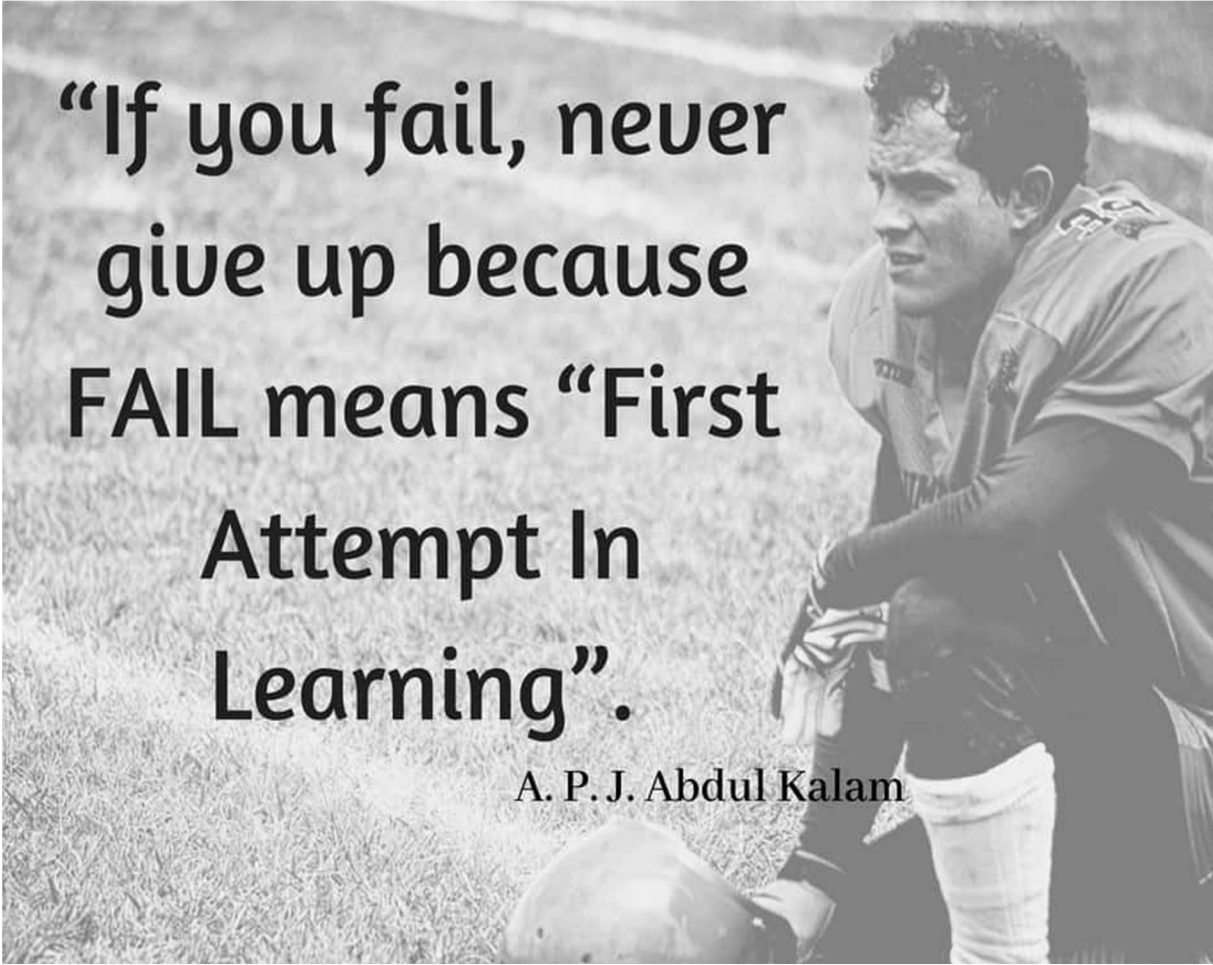


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**“If you fail, never
give up because
FAIL means “First
Attempt In
Learning”.**

A. P. J. Abdul Kalam

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UNIT

1

MEASUREMENT



Learning Objectives

After the completion of this lesson, students will be able to:

- ◆ understand fundamental quantities and units.
- ◆ explain the system of units and measurements.
- ◆ analyse the different system of units.
- ◆ know about temperature, amount of substance, electric current and luminous intensity.
- ◆ explore the knowledge of accuracy in measurements.
- ◆ differentiate plane angle and solid angle.
- ◆ solve problems related to measurement.



EXERCISE



Page No: 9

I. CHOOSE THE BEST ANSWER

1. Which one of the following systems of unit is the British System of unit?
 a) CGS b) MKS c) FPS d) SI [c] FPS

2. Electric current is a _____ quantity
 a) base b) supplementary c) derived d) professional [a] base

3. SI unit of temperature is _____.
 a) celsius b) fahrenheit c) kelvin d) ampere [c] kelvin

4. Luminous intensity is the intensity of _____.
 a) laser light b) UV light c) visible light d) IR light [c] visible light

5. Closeness of two or more measured values is called as _____.
 a) accuracy b) precision c) error d) approximation
 [b] precision

6. Which one of the following statement is wrong?

- a) Approximation gives a accurate value.
 b) Approximation simplifies the calculation.
 c) Approximation is very useful when little information is available.
 d) Approximation gives the nearest value only **[a) Approximation gives a accurate value]**

II. FILL IN THE BLANKS

1. The solid angle is measured in _____ [Steradian (Sr)]
 2. The coldness or hotness of a substance is expressed by _____ [Temperature]
 3. _____ is used to measure electric current [Ammeter]
 4. One mole of a substance contains _____ atoms molecules [6.023 X 10⁺²³]
 5. The uncertainty in measurement is called as _____ [Errors]
 6. The closeness of the measured value to the original value is _____ [Accuracy]
 7. The intersection of two straight lines gives us _____ [Plane angle]

III. STATE TRUE OR FALSE. IF FALSE, CORRECT THE STATEMENT

1. Temperature is a measure of **total kinetic energy** of the particles in a system. [False, Average kinetic energy]
 2. If one coulomb of charge is flowing in one **minute**, it is called 'ampere' [False, second]
 3. Amount of substance gives the number of particles present in a substance. [True]
 4. Intensity of light coming from a candle is approximately equal to one 'candela'. [True]
 5. **Quartz clocks** are used in GPS Devices [False, Atomic clock]
 6. Angle formed at the top of a cone is an example for 'plane angle'. [False, Solid angle]
 7. The number 4.582 can be rounded off as 4.58 [True]

IV. MATCH THE FOLLOWING

1.	Temperature	Closeness to the Actual Value
2.	Plane angle	Measure of hotness or coldness
3.	Solid angle	Closeness to two or more measurements
4.	Accuracy	Angle formed by the intersection of three or more planes
5.	Precision	Angle formed by the intersection of two planes

Answer
Measure of hotness or coldness
Angle formed by the intersection of two planes
Angle formed by the intersection of three or more planes
Closeness to the Actual Value
Closeness to two or more measurements

V. CONSIDER THE STATEMENT GIVEN BELOW AND CHOOSE THE CORRECT OPTION

- a) Both assertion and reason are true and reason is the correct explanation of the assertion.
b) Both assertion and reason are true but reason is not the correct explanation of the assertion.
c) Assertion is true, but reason is false.
d) Both assertion and reason are false.

1. **Assertion** : The SI system of units is the suitable system for measurements.

Reason : The SI unit of temperature is kelvin.

[b) Both assertion and reason are true but reason is not the correct explanation of the assertion.]

2. **Assertion** : Electric current, amount of substance, luminous intensity are the fundamental physical quantities.

Reason : They are independent of each other.

[b) Both assertion and reason are true but reason is not the correct explanation of the assertion.]

3. **Assertion** : Radian is the unit of solid angle.

Reason : One radian is the angle subtended at the centre of a circle by an arc of length equal to its radius.

[*Assertion is false, but reason is true.]

VI. ANSWER VERY BRIEFLY

1. **How many base quantities are included in SI system?**

➤ There are seven base quantities are included in SI system.

2. **Give the name of the instrument used for the measurement of temperature.**

➤ Thermometers are used to measure the temperature.

3. **What is the SI unit of luminous intensity?**

➤ The SI unit of luminous intensity is candela.

4. **What type of oscillations are used in atomic clocks?**

➤ Periodic vibrations are used in atomic clocks.

5. **Mention the types of clocks based on their display.**

1. Analog clocks
2. Digital clocks

6. **How many times will the 'minute hand' rotate in one hour?**

➤ The 'minute hand' will rotate 60 times in one hour.

7. **How many hours are there in a minute?**

➤ There are 0.0167 hours in a minute.

VII. ANSWER BRIEFLY

1. What is measurement?

- The process of finding an unknown physical quantity by using a standard quantity is called as measurement.

2. Name the three scales of temperature?

The three scales of temperature are

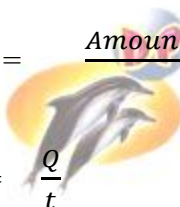
- i) Celsius
- ii) Fahrenheit
- iii) Kelvin

3. Define - Ampere.

- If one coulomb of charge is flowing through a conductor in one second, then the amount of current flowing is said to be one ampere.

4. What is electric current?

- The amount of electric charges flowing through a conductor in one second is called as the magnitude of electric current.

$$\text{Electric current} = \frac{\text{Amount of electric charge}}{\text{time}}$$


$$I = \frac{Q}{t}$$

5. What do you mean by luminous intensity?

- The measure of the power of the emitted light by a light source in a particular direction, per unit solid angle is called as luminous intensity.
- The SI unit of luminous intensity is Candela (cd)

6. Define – Mole.

- Mole is defined as the amount of substance, which contains 6.023×10^{23} entities.
- It is denoted as 'mol'.

7. What are the differences between plane angle and solid angle?

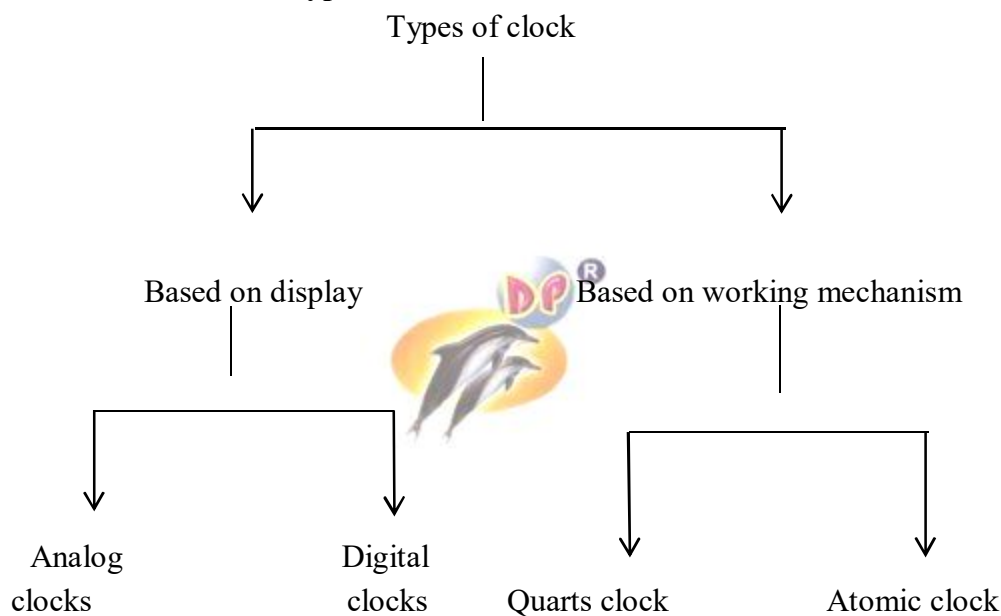
Plane angle	Solid angle
It is the angle made at the point of intersection of two lines or planes.	It is the angle by the intersection of three or more planes at a common point.
It is two dimensional	It is three dimensional
Its unit is radian	Its unit is steradian

VIII. ANSWER IN DETAIL

1. List out the base quantities with their units.

S.No.	Quantity	Unit	Symbol
1.	Length	Metre	M
2.	Mass	Kilogram	Kg
3.	Time	Second	S
4.	Temperature	Kelvin	K
5.	Electric current	Ampere	A
6.	Amount of Substance	Mole	Mol
7.	Luminous Intensity	Candela	cd

2. Write a short note on different types of clocks.



1) Analog clocks:



- Analog clocks look like a classic clock.
- It has three hands to show time
 - i) Hours hand – It shows hour
 - ii) Minutes hand – It shows minute
 - iii) Seconds hand – It shows second
- Analog clocks can be driven either mechanically or electronically.

2) Digital clocks:

- A digital clock displays the time directly.
- It shows the time in numerals or other symbols.
- It may have 12 hours or 24 hours display
- Recent clocks are showing date, day, month, year, temperature etc.

3) Quartz clock:

- These clocks are activated by electronic oscillations. Which are controlled by a quartz crystal.



- The frequency of a vibrating crystal is very precise. So it is more accurate than mechanical clock.

4) Atomic clock:

- These clocks make use of periodic vibrations occurring within the atom.
- These clocks have an accuracy of one second in every 10^{13} seconds.
- Atomic clocks are used in Global positioning system (GPS) Global Navigation Satellite System (GLONASS) and International Time distribution services.

IX. HIGHER ORDER THINKING QUESTION

1. Your friend was absent to school yesterday. You are enquiring about his absence. He told that he had fever and it was measured to be 100°C . Is it possible to have 100°C fever? If he is wrong, try to make him understand.

- There is no possible to have 100°C fever
- The average human body temperature is 98.4°F to 98.6°F
- In celcius scale, it is about 37°C
- So, I will try to make him understand by saying that, it is possible to have 100°F fever, but it is not possible to have 100°C .

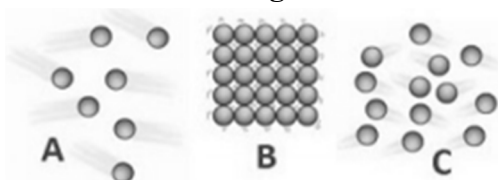


7. The non-metal which conducts electric current is

- a) carbon b) oxygen c) aluminium d) sulphur **[a) carbon]**

8. Pencil lead contains

- a) graphite b) diamond c) aluminium d) sulphur **[a) graphite]**

9. Identify the state of matter based on the arrangement of the molecules.

- a) A – Gas, B – Solid, C - Liquid b) A – Liquid, B – Solid, C – Gas
 c) A – Gas, B – Solid, C - Liquid d) A – Liquid B – Gas, C - Solid

[a) A – Gas, B – Solid, C - Liquid]

II. FILL IN THE BLANKS

1. The element which possesses the character of both metals and non metals are called ____ **[metalloids]**
2. The symbol of tungsten is _____ **[W]**
3. Melting point of most metal is _____ than non - metal **[higher]**
4. Water contains _____ and _____ element. **[hydrogen, oxygen]**
5. _____ is used as semiconductor **[Silicon (or) germanium]**

III. MATCH THE FOLLOWING

a.

1.	Iron	For making wires
2.	Copper	Sewing needle
3.	Tungsten	As a fuel for ignition in rocket
4.	Boron	Making the filament of a bulb

Answer

**Sewing needle
 For making wires
 Making the filament of a bulb
 As a fuel for ignition in rocket**

b.

1.	Atom	Building block of matter
2.	Element	Atoms of different kinds
3.	Compound	More than one atom
4.	Molecule	Smallest unit of a substance

Answer

**Building block of matter
 More than one atom
 Atoms of different kinds
 Smallest unit of a substance**

IV. ANSWER VERY BRIEFLY**1. What is ductility?**

- Ductility is a material property that describes its ability to be stretched or drawn into a thin wire or thread without breaking.
- Metals can be drawn into thin wires.
- Example: Copper wires.

2. Write the constituent elements and their symbols for the following compounds.

a) Carbon monoxide b) Washing soda.

a) Carbon monoxide

- (CO) – Carbon and oxygen

b) Washing soda

- Na_2CO_3 – Sodium, Carbon and Oxygen.

3. Write the symbols for the following elements.

a) Oxygen b) Gold c) Calcium d) Cadmium e) Iron

- Oxygen – O
- Gold – Au
- Calcium – Ca
- Cadmium – Cd
- Iron – Fe

4. Which non-metal is essential for our life and all living beings?

- Oxygen is a non-metal. It is essential for our life and all living beings.

5. Why are bells made of metals?

- On being hit, metals produce a typical sound. Hence, they are said to be sonorous.
- This property is being made used in making temple bells.

6. What does a chemical symbol represent?

- A chemical symbol represents an element in chemistry.
- The symbols of the most common elements, mainly non-metals, use the first letter of their English name.
- E.g. Oxygen - O

7. Give two examples for metalloids.

- Boron
- Silicon

8. Mention any three compounds that exist in liquid state.

- Water
- Hydrochloric acid
- Nitric acid

9. Write three properties of metalloids.

- Metalloids can form alloys with other metals
- Some metalloids, such as silicon and germanium, can act as electrical conductors under the specific conditions, thus they are called semiconductors.
- The physical properties of metalloids tend to be metallic, but their chemical properties tend to non-metallic.

V. ANSWER BRIEFLY**1. Can you store pickle in an aluminium utensil? Give reason.**

- No, we cannot store lemon pickle in an aluminium utensil because aluminium is a metal and metals readily react with acids to produce hydrogen. When aluminium comes in contact with lemon, which is acidic, would react to give hydrogen and the pickles will be spoiled.

2. Tabulate the differences between metals and non-metals.

Property	Metal	Non-metal
Physical state at room temperature	Usually solid	Solid, liquid or gas
Malleability	Good	Poor – Usually soft or brittle
Ductility	Good	Poor – usually soft or brittle

3. Why are utensils made up of aluminium and brass?

- The cooking utensils are made up of aluminium and brass because they are good conductors of heat.
- Aluminium will form a layer of protective oxide that prevents further reaction.
- Aluminium is also relatively cheap and that is why it is used widely in making utensils.

4. Define Alchemy.

- In the days of alchemists, different materials that people used were represented by different symbols while they tried to change less valuable metal into gold.
- That process was called alchemy and the men who did this work were known as alchemists.

5. Name the elements with the following symbols.

a) Na b) W c) Ba d) Al e) U

- Na – Sodium
- W – Tungsten
- Ba – Barium
- Al – Aluminium
- U – Uranium.

6. Name six common non-metals and write their symbols.

Non – metals	Symbols
Sulphur	S
Carbon	C
Oxygen	O
Hydrogen	H
Helium	He
Nitrogen	N

7. Mention any four compounds and their uses.

- Water – For drinking and as solvent
- Table salt – Essential component of our daily diet, preservative for meat and fish.
- Slaked lime – White washing of walls
- Lime stone – Preparation of chalk pieces.

8. Name the metals that are used in jewellery

- Silver and gold are used in jewellery.

9. Mention the uses of the following compounds.

- a) Baking soda b) Bleaching powder c) Quick lime
- Baking soda – Fire extinguisher, preparation of baking powder and preparation of cakes and bread.
 - Bleaching powder – As bleaching agent, disinfectant and sterilisation of drinking water.
 - Quick lime – Manufacture of cement and glass.

VI. GIVEN REASON**1. Give reasons for the following.**

- (a) Aluminum foils are used to wrap food items.
(b) Immersion rods for heating liquids are made up of metallic substances.
(c) Sodium and potassium are stored in kerosene.
(d) Mercury is used in thermometers.

a) Aluminium foils are used to wrap food items.

- Aluminium is malleable, soft and does not react with food items, so it is used to wrap food items.

b) Immersion rods for heating liquids are made up of metallic substances.

- Metals are good conductors of heat and electricity, so immersion rods are made up of metallic substances.

c) Sodium and potassium are stored in kerosene.

- Sodium and potassium tarnish rapidly on exposure to air due to the formation of oxide and then carbonate at the surface. So they are stored in kerosene to protect them from the action of air. Since they react with water, they are not stored in water.

d) Mercury is used in thermometers.

- Mercury is used in thermometers and barometers because of its high density and uniform expansion at different temperature.

2. Why wires cannot be drawn from materials such as stone or wood?

- Wires cannot be drawn from wood or stone. Because wood is bad conductor of electricity and it does not assist the properties which metals have such as malleability

UNIT

16

MICROORGANISMS



Learning Objectives



After the completion of this lesson, students will be able to:

- ◆ understand different types of microorganisms.
- ◆ differentiate various microorganisms based on their shape and occurrence.
- ◆ know the role of microbes in various fields such as medicine, agriculture, industry and daily life.
- ◆ know the effects of harmful microorganisms.
- ◆ understand the relationship between man and microbes.
- ◆ know the effects of prions and virions on human health.



EXERCISE



Page No: 189

I. CHOOSE THE BEST ANSWER

1. Microorganisms are measured in _____.
a) cm b) mm c) micron d) meter [c] micron]

2. _____ shows both living and nonliving characteristics.
a) Protozoa b) virus c) Bacteria d) Fungi [b] virus]

3. _____ is a prokaryotic microorganisms.
a) Virus b) Algae c) Fungi d) Bacteria [d] Bacteria]

4. Based on shape, the bacteria are classified into _____ types.
a) two b) three c) four d) five [c] four]

5. Common cold in human is caused by _____.
a) plasmodium b) influenza c) vibrio cholera d) aphthovirus
[b] influenza]

II. FILL IN THE BLANKS

1. _____ is prepared from a mould called penicillium [Penicillin]
2. _____ are the infectious protein particles. [Prion]

3. The infecting virus particle found outside the host cell is _____ [Virion]
 4. Microorganism can be seen with the help of a _____ [Microscope]
 5. Bacteria, which have a flagellum at one end is classified as _____ [Monotrichous]

III. STATE TRUE OR FALSE. IF FALSE, CORRECT THE STATEMENT

1. Disease causing microorganisms are called pathogens. [True]
 2. Female anopheles mosquito is a carrier of dengue virus. [False - Malaria (Plasmodium)]
 3. Chicken pox is a communicable disease. [True]
 4. Citrus canker is transmitted by insects. [False, air, water]
 5. Yeast is used in the large scale production of alcohol. [True]

IV. MATCH THE FOLLOWING

1.	Nitrogen fixing bacteria	Vaccine
2.	Tuberculosis	Prion
3.	Kuru	Lactobacillus acidophilus
4.	Probiotics	Bacteria
5.	Edward Jenner	Rhizobium

Answer
Rhizobium
Bacteria
Prion
Lactobacillus acidophilus
Vaccine

V. ANSWER THE FOLLOWING QUESTIONS.

Mark the correct one as:

- a. If both assertion and reason are true and reason is the correct explanation of assertion.
 b. If both assertion and reason are true and reason is not the correct explanation of assertion.
 c. If assertion is true but reason is false.
 d. If both assertion and reason are false.

1. **Assertion** : Malaria is caused by Protozoa.

Reason : The disease is transmitted by mosquito.

Answer : a. If both assertion and reason are true and reason is the correct explanation of assertion.

2. **Assertion** : Algae are heterotrophic.

Reason : They do not have chlorophyll.

Answer : Assertion is false but reason is true.

VI. ANSWER VERY BRIEFLY

1. Write the name of any nitrogen fixing bacteria.

- Rhizobium bacteria
- Cyanobacteria
- Nostoc

2. Name the bacteria used in the production of vinegar.

- Lactobacillus is the bacteria used in the production of vinegar

3. Write the names of any three protozoans.

- Amoeba
- Plasmodium
- Paramecium

4. Who discovered penicillin?

- Alexander Flemming discovered penicillin.

5. Which diseases can be prevented by vaccination?

- Polio
- Smallpox
- Measles
- Mumps
- Rubella
- Tuberculosis

VII. ANSWER BRIEFLY**1. Write the four types of bacteria, based on their shape.**

- Bacilli – Rod shaped bacteria.
- Spirilla – Spiral shaped bacteria.
- Cocci – Spherical or ball shaped bacteria.
- Vibrio – Comma shaped bacteria..

2. What are antibiotics?

- Antibiotic is a substance produced by living organisms which is toxic for other organisms.
- Example: Penicillin

3. What are pathogens?

- A few microorganisms are harmful to human, animals and plants. They cause diseases and hence they are called as Pathogens.

4. How disease causing microorganisms enter into human beings?

- Pathogens enter into the body through cuts and wounds in the skin, mouth or nose and cause diseases.

5. Why microorganisms are essential for agriculture?**Natural fertilizer :**

- Microorganisms are called as decomposers because they act upon degradable wastes

Nitrogen fixation :

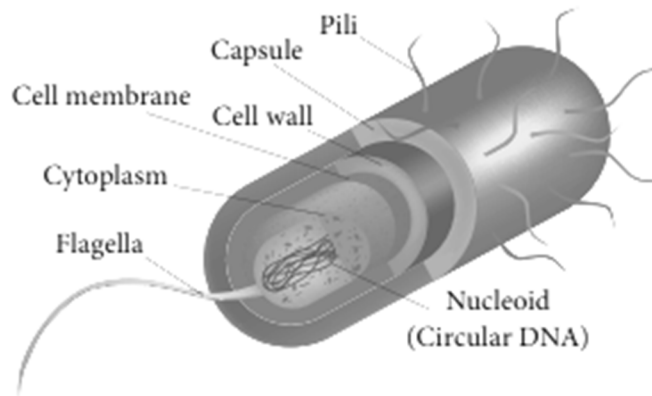
- Rhizobium bacteria living in the root nodule of leguminous plants enrich the soil by fixing the atmospheric nitrogen as nitrates which are essential for the growth of plants.

Biocontrol agents :

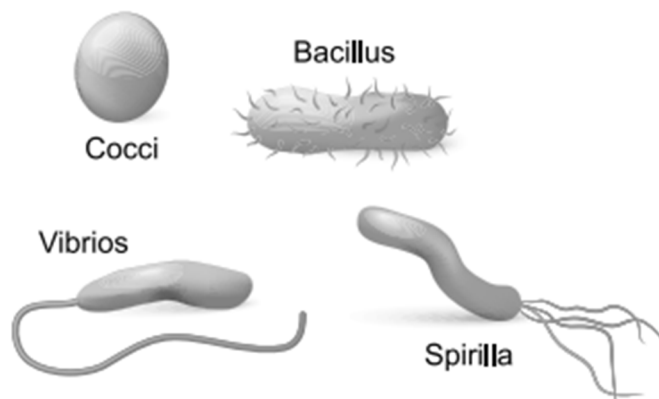
- Microbes are used to protect crops from pests

VIII. ANSWER IN DETAIL

1. Write a short note on bacteria and its structure.



- Bacteria are single – celled prokaryotes (cells without nuclei).
- Bacteria are grouped under the kingdom Monera. The study of Bacteria is called Bacteriology.
- Bacteria are of two types based on respiration
 1. Aerobic bacteria (requires oxygen).
 2. Anaerobic bacteria (Does not require oxygen).
- A bacterium has an outer covering known as the cell wall. Nuclear material is represented by a nucleoid without nuclear membrane.
- An extra chromosomal DNA called plasmid is present in the cytoplasm.
- Protein synthesis is carried out by 70S ribosomes. Other cell organelles (mitochondria, Golgi body endoplasmic reticulum etc.,) are absent. Flagella aids in locomotion.



- Bacteria are classified according to the shape of their cells. They are:
 - 1. Bacilli
 - 2. Spirilla
 - 3. Cocci
 - 4. Vibrio

1. Bacilli :

- Rod shaped bacteria. Eg. Bacillus anthracis

2. Spirilla :

- Spiral shaped bacteria. Eg. Helicobacter pylori

3. Cocci :

- Spherical or ball shaped bacteria. They can stick together in pairs (diplococcus) or form a chain (streptococcus) or occur in bunches (staphylococcus)

4. Vibrio :

- Comma shaped bacteria. Eg. Vibrio cholera

2. How microorganisms are useful in the field of medicine?

- We obtain antibiotics and vaccines from microbes.

Antibiotics :

- The word 'anti' means 'against'. Antibiotic is a substance produced by living organisms which is toxic for other organisms.
- Sir Alexander Fleming was the first person to discover the antibiotic penicillin in the year 1928.
- The antibiotic penicillin was obtained from the fungi *Penicillium chrysogenum*.
- It is used to treat diseases such as tetanus and diphtheria.
- The antibiotics streptomycin is obtained from *Streptomyces* bacteria to cure various bacterial infections. Eg. Plague.

Vaccines :

- Vaccines are prepared from dead or weakened microbes.
- Edward Jenner was the first person to discover small pox vaccine.
- He coined the term vaccination. When the vaccine is injected to the body of a patient, the body produces antibodies to fight against the germs.
- These antibodies remain inside the body and protect from future invasion of the germs.
- Therefore, vaccination is otherwise called as immunization. Eg: MMR
- Vaccine is given for preventing Measles, Mumps and Rubella.
- BCG (Bacille Calmette Guerin) vaccine is given for preventing Tuberculosis

3. Write a short note on common human diseases caused by microorganisms.

Human diseases	Caustive microorganisms	Mode of transmission	Symptoms	Preventive measures / Treatment
Tuberculosis	Mycobacterium Tuberculosis (Bacteria)	Through air and sputum of infected person	Persistent cough, blood mucus, loss of weight, breathlessness	BCG Vaccine
Cholera	Vibrio cholera (Bacteria)	By flies and contaminated food and water	Watery diarrhea, vomiting, rapid dehydration.	Anticholera vaccine, maintaining personal hygiene.

Human diseases	Caustive microorganisms	Mode of transmission	Symptoms	Preventive measures / Treatment
Common cold	Influenza (virus)	Through air	Running nose, sneezing	Isolation of patient
Rabies	Rhabdo viridae (virus)	Animal bite	Fever, hallucination, paralysis, inability to swallow.	Anti rabies vaccine
Amoebic dysentery	Entamoeba histolytica (Protozoa)	Food, water and flies	Severe diarrhea and blood in stool	Proper sanitation to be followed and metronidazole antibiotic to be administered
Malaria	Plasmodium (Protozoa)	Female anopheles mosquito	Nausea, vomiting, high fever	Antimalarial drugs like quinine and chloroquine to be taken and usage of mosquito repellents and nets.

4. How can we improve the beneficial bacterial count in human beings?

We can improve the beneficial bacterial count in human beings by adopting the following methods:

- Intake of fibre rich foods.
- Intake of seasonal fruits and vegetables.
- Intake of plenty of fermented foods with live microbes. Eat more of prebiotic foods.
- Intake of whole grains.
- Prefer plant based diet.
- Avoid artificial sweeteners.

5. Write a short note on probiotics.

- Probiotics are live food supplements used in yoghurt and other fermented milk products.
- Example: Lactobacillus acidophilus and Bifidobacterium bifidum.
- These bacteria improve the microbial spectrum in the gut and thus contribute to the following effects:
 - Decrease the risk of colon cancer
 - Decrease cholesterol absorption
 - Prevent diarrheal diseases by increasing the immunity power.

UNIT

23

LIBRE OFFICE CALC



Learning Objectives



After the completion of this lesson, students will be able to:

- ◆ know how to create a spreadsheet through the Libre Office software.
- ◆ explore their creative thinking.
- ◆ learn how to use the functions.
- ◆ learn how to create charts.



EXERCISE



Page No: 281

I. CHOOSE THE BEST ANSWER

1. All functions begins with an _____ sign

- a) = b) - c) > d) } [a) =]

2. _____ function is used to calculate the total of a given set of values.

- a) Average b) Sum c) Min d) Max [b) Sum]

3. The _____ character is used in text formula.

- a) Ampersand b) Comma c) Exclamation d) Hyperlink
[a) Ampersand]

4. Which of the following is a relational operator?

- a) + b) > c) - d) NOT [b) >]

5. The _____ function returns the smallest value in a set of values.

- a) Average b) Sum c) Min d) Max [c) Min]

II. ANSWER IN DETAIL

1. Explain count function with an example.

- Count function is used to Counts the number of values from the given set of values.
- Example = COUNT(A2:A6)
- Result is 5.

2. What is the purpose of charts?

- The purpose of chart is to visualize the data for easy understanding.

3. What is the use of Sorting?

- Sorting is used to arranging a given set of data according to a particular order (ascending or descending)

4. What is the use of MAX () and MIN () functions?

MAX() :

- It calculates the maximum value from a given set of values.

MIN() :

- It calculates the minimum value from a given set of values.



5. What is cell address?

- The cell address is a combination of column letter and row number. The first active cell's address will be A1.



VIRUDHUNAGAR DISTRICT
Annual Examination - 2024

Time : 2.30 Hours

Marks : 100

I. Choose the best answer :

12x1=12

- 1) S.I. Unit of temperature is _____
a) celsius b) fahrenheit c) Kelvin d) ampere
- 2) If the Image and object distance is same, then the object is placed at
a) infinity b) at F c) between F and P d) at C
- 3) When an abonite rod is rubbed with fur, the charge acquired by the fur is
a) negative b) positive
c) partly positive and partly negative d) None of these
- 4) MRI stands for _____
a) Magnetic Resonance Imaging b) Magnetic Running Image
c) Magnetic Radio Imaging d) Magnetic Radar Imaging
- 5) Symbol of mercury is
a) Ag b) Hg c) Au d) Pb
- 6) Which of the following is known as azote?
a) Oxygen b) Nitrogen c) Sulpher d) Carbon dioxide
- 7) Solubility of carbon dioxide in water is high when the
a) pressure is low b) pressure is high
c) temperature is high d) None of the above
- 8) The unit of calorific value of fuel _____
a) KJMol⁻¹ b) KJg⁻¹ c) KJ kg⁻¹ d) JKg⁻¹
- 9) _____ shows both living and nonliving characteristics
a) Protozoa b) virus c) Bacteria d) Fung
- 10) Penicillin is an antibiotic which is extracted from
a) algae b) fungi c) bryophytes d) pterido phytes
- 11) Cockroach moves with the help of its
a) leg b) bone c) muscular foot d) whole body



12) Wildlife protection Act was implemented in _____

- a) 1986 b) 1972 c) 1973 d) 1971

II. Fill in the blanks :

5x1=5

13) A simple barometer was first constructed by _____

14) Dry ice is used as a _____

15) The boiling point of water is _____

16) The largest cell is egg of an _____

17) _____ seeds transfer their unique characteristics.

III. State True or False. If False correct it :

5 x 1 = 5

18) Chandrayaan - 1 was launched sriharikota.

19) Acids are corrosive in nature.

20) The density of water will not change at all temperature?

21) Cardiac muscle is a voluntary muscle.

22) Female anopheles mosquito is a carrier of dengue virus.



IV. Match the following :

5 x 1 = 5

- 23) Edward Jenner - Glucose
24) Rhodophyceae - Neem leaves
25) Carbohydrates - Red algae
26) Bio-repellants - Gujarat
27) Gir National Park - Vaccine

V. Answer any 10 of the following :

10 x 2 = 20

28) What is electric current?

29) Name three types of heat transfer

30) What is an ultrasonic sound?

31) Define magnetic field

32) Write the symbols for the following elements.

- a) Oxygen b) Gold c) Calcium d) Cadmium

33) Write the names of the following compounds

a) CO

b) N₂Oc) NO₂d) PCl₅**34) Define :** Specific heat capacity.**35)** Expand CNG. List out its uses.**36)** Write the four types of bacteria based on their shape**37)** Mention the function of 'Alveoli'?**38)** How is the skeleton of a bird well suited for flying?**39)** Name the methods of sowing?**40)** Name the two endangered animals.**VI. Answer any 8 of the following :****8 x 4 = 32****41)** Give the different types of friction and explain each with an example.**42) i)** State snell's law of refraction**ii)** Define the refractive index of a medium**43)** Explain series and parallel circuit**44)** Mention the uses of the following compounds.

a) Baking soda

b) Bleaching Powder

c) Quick lime

45) Write the chemical formula for the following compounds.

a) Aluminium sulphate

b) Silver nitrate

c) Magnesium Oxide

d) Barium chloride

46) What are the uses of acids & bases?**47)** Write difference between Monocot and dicot plants?**48)** Draw the structure of human eye and label its.**49)** What are the effects of acid rain? How can prevent them?**50)** What are the physical changes that occur in boys and girls during adolescence?

VII. Answer in detail :

3 x 7 = 21

51) Write a note on Apollo missions.

(OR)

List out the uses of magnets.

52) Write the skeleton equation for the following word equation and then balance them.

a) Carbon + Oxygen → Carbon dioxide

b) Phosphorus + Chlorine → Phosphorus pentachloride

c) Sulphur + Oxygen → Sulphur dioxide

d) Magnesium + hydrogen chloride → Magnesium chloride + Hydrogen

(OR)

How is water purified at a water purification plant?

53) Name the different types of joints. Give one example for each

(OR)

Write a note on Blue Cross.

**VIRUDHUNAGAR DISTRICT
Annual Examination - 2023**

Time : 2.30 Hours

Marks : 100

I. Choose the best answer:

12x1=12

1. SI unit of temperature is _____.

a) Celsius b) Fahrenheit c) Kelvin d) Ampere

2. If the image and object distance is same, then the object is placed at

a) infinity b) at F c) between F and 2 F d) at C

3. Sound waves travel very fast in

a) air b) metals c) vacuum d) liquids

4. _____ is called as Red planet.

a) Mercury b) Venus c) Earth d) Mars

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