

# SELECTION

8

**SCIENCE**

ANBU NILAYAM  
MADURAI - 625001

# SELECTION

8

# SCIENCE

EIGHTH STANDARD

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**SELECTION 8 SCIENCE**

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## UNIT - 1 MEASUREMENT

### TEXT BOOK EXERCISES

#### I. Choose the best answer.

1. Which one the following system of unit is the British System of unit?

- a) CGS                      b) MKS  
c) FPS                      d) SI

Ans : c) FPS

2. Electric current is a \_\_\_\_\_ quantity.

- a) base                      b) supplementary  
c) derived                  d) professional

Ans : a) base

3. SI unit of temperature is.

- a) celsius                  b) fahrenheit  
c) kelvin                    d) ampere

Ans : c) kelvin

4. Luminous intensity is the intensity of \_\_\_\_\_.

- a) laser light              b) UV light  
c) visible light            d) IR light

Ans : c) visible light

5. Closeness of two or more measured values is called as \_\_\_\_\_.

- a) accuracy                b) precision  
c) error                      d) approximation

Ans : b) precision

6. Which one of the following statement is wrong?

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

Ans : a) Approximation gives accurate value.

#### II. Fill in the blanks.

1. The solid angle is measured in \_\_\_\_\_.

Ans : steradian

2. The coldness or hotness of a substance is expressed by \_\_\_\_\_.

Ans : temperature

3. \_\_\_\_\_ is used to measure electric current.

Ans : Ammeter

4. One mole of a substance contains \_\_\_\_\_ atoms or molecules.

Ans :  $6.023 \times 10^{23}$

5. The uncertainty in measurement is called as \_\_\_\_\_.

Ans : errors

6. The closeness of the measured value to the original value is \_\_\_\_\_.

Ans : Accuracy

7. The intersection of two straight lines gives us \_\_\_\_\_.

Ans : 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.

Ans : False. Temperature is a measure of average kinetic energy of the particles in a system.

2. If one coulomb of charge is flowing in one minute, it is called 'ampere'.

Ans : False. If one coulomb of charge is flowing in one second, it is called 'ampere'.

3. Amount of substance gives the number of particles present in a substance.

Ans : True.

4. Intensity of light coming from a candle is approximately equal to one 'candela'.

Ans : True

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UNIT 1

5. Quartz clocks are used in GPS devices.

Ans : False. **Atomic clocks** are used in GPS devices.

6. Angle formed at the top of a cone is an example for 'plane angle'.

Ans : False. Angle formed at the top of a cone is an example for '**solid angle**'.

7. The number 4.582 can be rounded off as 4.58.

Ans : 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

Ans :

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

V. Consider the statements given below and choose the correct option.

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

**Reason:** The SI unit of temperature is kelvin.

- Both assertion and reason are true and reason is the correct explanation of the assertion.
- Both assertion and reason are true but reason is not the correct explanation of the assertion.
- Assertion is true, but reason is false.
- Both assertion and reason are false.

Ans : 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.

- Both assertion and reason are true and reason is the correct explanation of the assertion.
- Both assertion and reason are true but reason is not the correct explanation of the assertion.
- Assertion is true, but reason is false.
- Both assertion and reason are false.

Ans : c) Assertion is true, but reason is false.

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.

- Both assertion and reason are true and reason is the correct explanation of the assertion.

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UNIT 1

**6. Define - Mole.****Ans :**

- ★ Mole is defined as the amount of substance, which contains  $6.023 \times 10^{23}$  entities.

**7. What are the differences between Plane angle and solid angle?****Ans :**

S.No.	Plane Angle	Solid Angle
1.	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.
2.	It is two dimensional.	It is three dimensional.
3.	Its unit is radian.	Its unit is steradian.

**VIII. Answer in detail.****1. List out the base quantities with their units.****Ans : Base quantities and units.**

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Temperature	kelvin	K
Electric Current	ampere	A
Amount of Substance	mole	mol
Luminous Intensity	candela	cd

**2. Write a short note on different types of clocks.****Ans : (A) Types of clock based on display :****1. Analog clocks :**

- ★ It has three hands to show the time.

**(i) Hours Hand:**

- ★ It is short and thick. It shows 'hour'.

**(ii) Minutes Hand:**

- ★ It is long and thin. It shows 'minute'.

**(iii) Seconds Hand:**

- ★ It is long and very thin. It shows 'second'.
- ★ It makes one rotation in one minute and 60 rotations in one hour.

**2. Digital clocks:**

- ★ Displays the time directly.
- ★ Shows the time in numerals or other symbols.
- ★ It may have 12 hours or 24 hours display.

**(B) Types of clock based on working mechanism :****1. Quartz clock:**

- ★ Activated by 'electronic oscillations', which are controlled by a 'quartz crystal'.
- ★ The frequency of a vibrating crystal is very precise.
- ★ Accuracy of one second in every  $10^9$  seconds.

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UNIT 1

**2. Atomic clock :**

- ★ Periodic vibrations occurring within the atom.
- ★ Accuracy of one second in every  $10^{13}$  seconds.

**IX. Higher Order Thinking Question.**

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  $100^{\circ}\text{C}$ . Is it possible to have  $100^{\circ}\text{C}$  fever? If he is wrong, try to make him understand.

**Ans :**

- ★ It is not possible of  $100^{\circ}\text{C}$  fever.
- ★ Clinical thermometers used by physicians are graduated in Fahrenheit scale.
- ★ So, he has to say  $100^{\circ}\text{F}$ .

**Additional Questions and Answers****I. Choose the best answer :****1. SI unit of amount of substance is .....**

- a) metre                      b) second  
c) mole                        d) kelvin

**Ans : c) mole****2. SI unit of electric current is .....**

- a) metre                      b) ampere  
c) second                    d) mole

**Ans : b) ampere****3. Luminous intensity is measured by .....**

- a) thermometer            b)ammeter  
c) photometer             d) ohmmeter

**Ans : c) photometer****4. SI unit of luminous intensity is.....**

- a) Radian                    b) Lumen  
c) Steradian                d)Candela

**Ans : b) Lumen****5. SI unit of plane angle is.....**

- a) Radian                    b) Lumen  
c) Steradian                d)Candela

**Ans : a) Radian****6. SI unit of Length is .....**

- a) kilogram                b) mole  
c) metre                     d) second

**Ans : c) metre****7. SI unit of Mass is .....**

- a) mole                      b) kilogram  
c) second                    d) ampere

**Ans : b) kilogram****8. SI unit of Time is .....**

- a) kilogram                b) mole  
c) ampere                    d) second

**Ans : d) second****9. SI unit of luminous intensity is .....**

- a) radian                    b) lumen  
c) steradian                d) candela

**Ans : d) candela****10. Greenwich Mean Time is measured at the longitude of ..... degree.**

- a) 15                         b) 82.55  
c) 0                         d) 10

**Ans : c) 0****II. Fill in the blanks.**

1. The number  $6.023 \times 10^{23}$  is also known as..... **Ans : Avogadro Number**  
2. The Earth is divided in to ..... time zones. **Ans : 24**

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UNIT 1

3. Indian Standard Time (IST) = Greenwich Mean Time(GMT) + .....

**Ans : 5 : 30 hours**

4. Electric charge is measured in .....

**Ans : coulomb**

5. .... is the measure of the perceived power of light.

**Ans : Luminous flux or Luminous power**

**III. Very short Answer:****1. What is accuracy?**

**Ans :**

★ Accuracy is the closeness of a measured value to the actual value.

**2. What is precision?**

**Ans :**

★ Precision is the closeness of two or more measurements to each other.

**IV. Short Answer:****1. What is Temperature?**

**Ans :**

★ Temperature is a physical quantity that expresses the degree of hotness or coldness of a substance.

★ It's SI unit is kelvin.

**V. Numerical problems.**

**1. If 5 coulomb of charge flows through a circuit for 10 seconds, calculate the current.**

**Solution :**

$$\begin{aligned} \text{Charge (Q)} &= 5\text{C} \\ \text{Time (t)} &= 10\text{S} \\ \text{Current (I)} &= Q/t \\ I &= 5/10 = 0.5\text{A} \end{aligned}$$

Current,  $I = 0.5\text{A}$

**2. Convert  $90^\circ$  into radian.**

**Solution :**

$$\begin{aligned} 1^\circ &= /180 \\ 90^\circ &= /180 \times 90 = /2 \text{radian} \\ 90^\circ &= /2 \text{radian} \end{aligned}$$

**3. Convert  $/2$  into degrees.**

**Solution :**

$$\begin{aligned} \text{radian} &= 180^\circ \\ /2 \text{radian} &= 180^\circ / 2 = 90^\circ \end{aligned}$$

**Activity : 1**

See the book.

**Activity : 2, 3, 4, 5, 6**

Students Activity.



<b>UNIT - 3. LIGHT</b>
------------------------

<b>TEXT BOOK EXERCISES</b>
----------------------------

**I. Choose the best answer.**

1. Which of the following has curved reflecting surface?

- a) plane mirrors                      b) spherical mirrors  
 c) simple mirrors                      d) None of the above                      **Ans : b) spherical mirrors**

2. The spherical mirror with a reflecting surface curved inward is called

- a) convex mirror                      b) concave mirror  
 c) curved mirror                      d) None of the above                      **Ans : b) concave mirror**

3. The spherical mirror used as a rear view mirror in the vehicle is

- a) concave mirror                      b) convex mirror  
 c) plane mirror                      d) None of the above                      **Ans : b) convex mirror**

4. The imaginary line passing through the centre of curvature and pole of a spherical mirror is called

- a) centre of curvature                      b) pole  
 c) principal axis                      d) radius of curvature                      **Ans : c) principal axis**

5. The distance from the pole to the focus is called

- a) Pole length                      b) focal length  
 c) principal axis                      d) None of the above                      **Ans : b) focal length**

6. 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                      **Ans : d) at C**

7. If the focal length of a spherical mirror is 10 cm, what is the value of its radius of curvature?

- a) 10 cm                      b) 5 cm  
 c) 20 cm                      d) 15 cm                      **Ans : c) 20 cm**

**II. Fill in the blanks.**

1. The spherical mirror used in a beauty parlour as make-up mirror is \_\_\_\_\_.

**Ans: concave mirror**

2. Geometric centre of the spherical mirror is \_\_\_\_\_.

**Ans: pole**

3. Nature of the images formed by a convex mirror is \_\_\_\_\_.

**Ans: virtual and erect**

4. The mirror used by the ophthalmologist to examine the eye is \_\_\_\_\_.

**Ans: concave mirror**

5. If the angle of incidence is  $45^\circ$ , then the angle of reflection is \_\_\_\_\_.

**Ans:  $45^\circ$**

6. If an object is placed between two mirrors which are parallel to each other, the number of images formed is \_\_\_\_\_.

**Ans: infinite**

**III. Match the following.****Ans :**

1. Convex mirror	Radio telescopes	1. Convex mirror	Rear -view mirror
2. Parabolic mirror	Rear -view mirror	2. Parabolic mirror	Radio telescopes
3. Snell's law	Kaleidoscope	3. Snell's law	$\sin i/\sin r =$
4. Dispersion of light	$\sin i/\sin r =$	4. Dispersion of light	Rainbow
5. Refractive index	Rainbow	5. Refractive index	Kaleidoscope

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**IV. Answer in briefly.****1. Define focal length?****Ans : Focal length**

★ The distance between the pole and the principal focus is called focal length (f) of a spherical mirror.

$$\star \text{ Focal length} = \frac{\text{Radius of curvature}}{2}$$

**2. Give any two applications of a concave and convex mirror.****Ans :****A) Applications of Concave mirrors:**

1. They are used in torches, search lights and head lights as they direct the light to a long distance.

2. Used in reflecting telescopes.

**B) Applications of Convex mirrors :**

1. Used in vehicles as rear view mirrors.

2. Used on roads where there are sharp curves and turns.

**3. State the laws of reflection.****Ans : Laws of reflection :**

★ The incident ray, the reflected ray and the normal at the point of incidence, all lie in the same plane.

★ The angle of incidence (i) and the angle of reflection (r) are always equal.

**4. Define the refractive index of a medium.****Ans :**

★ The refractive index of the medium is the ratio of the speed of light in the air to the speed of light in that particular medium.

$$\mu = \frac{c}{v}$$

**5. State Snell's law of refraction.****Ans : Snell's law of refraction :**

i) The incident ray, the refracted ray and the normal at the point of intersection, all lie in the same plane.

ii) The ratio of the sine of the angle of incidence (i) to the sine of the angle of refraction (r) is equal to the refractive index of the medium, which is a constant.

$$\frac{\sin i}{\sin r} =$$

**V. Answer in detail.****1. Explain the images formed by a concave mirror?****Ans :****Image formed by a concave mirror**

Position of the object	Position of the image	Image size	Nature of the image
At infinity	At F	Highly diminished	Real and inverted
Beyond C	Between C and F	Diminished	Real and inverted
At C	At C	Same size as the object	Real and inverted

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UNIT-3

Between C and F	Beyond C	Magnified	Real and inverted
At F	At infinity	Highly magnified	Real and inverted
Between F and P	Behind the mirror	Magnified	Virtual and erect

**2. What is reflection? Write a short note on regular and irregular reflection.****Ans : Reflection :**

★ This bouncing back of the light rays as they fall on the smooth, shiny and polished surface is called reflection.

**a. Regular reflection :**

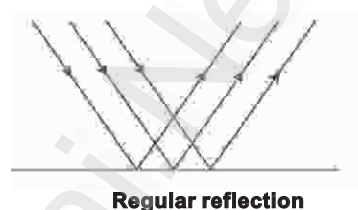
★ When a beam of light falls on a smooth surface, it gets reflected.

★ After reflection, the reflected rays will be parallel to each other.

★ Here, the angle of incidence and the angle of reflection of each ray will be equal.

★ Hence, the law of reflection is obeyed in this case and thus a clear image is formed.

★ Example: Reflection of light by a plane mirror and reflection of light from the surface of still water.

**Regular reflection****b. Irregular reflection :**

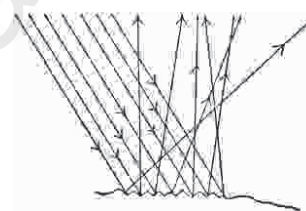
★ In the case of a body having a rough or irregular surface, each region of the surface is inclined at different angles.

★ When light falls on such a surface, the light rays are reflected at different angles.

★ In this case, the angle of incidence and the angle of reflection of each ray are not equal.

★ Hence, the law of reflection is not obeyed in this case and thus the image is not clear.

★ Example: Reflection of light from a wall.

**Irregular reflection****3. Explain the working of a periscope.****Ans : Periscope :****a. Principle :**

★ It is based on the principle of the law of reflection of light.

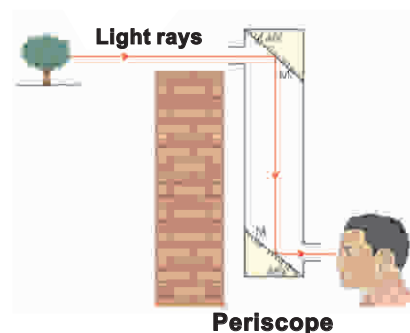
**b. Construction :**

★ It consists of a long outer case and inside this case mirrors or prisms are kept at each end, inclined at an angle of  $45^\circ$ .

**c. Working :**

★ Light coming from the distant body, falls on the mirror at the top end of the periscope and gets reflected vertically downward.

★ This light is reflected again by the second mirror kept at the bottom, so as to travel horizontally and reach the eye of the observer.

**Periscope**

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**4. What is dispersion? Explain in detail.****Ans : a. Dispersion:**

★ Splitting of white light into its seven constituent colours (wavelength), on passing through a transparent medium is known as dispersion of light.

**b. Explanation :**

★ It is because, light of different colours present in white light have different wavelength and they travel at different speeds in a medium.

★ Refraction of a light ray in a medium depends on its speed.

★ As each coloured light has a different speed, the constituent coloured lights are refracted at different extents, inside the prism.

★ Moreover, refraction of a light ray is inversely proportional to its wavelength.

★ Thus, the red coloured light, which has a large wavelength, is deviated less while the violet coloured light, which has a short wavelength, is deviated more.

**VI. Numerical problems.****1. The radius of curvature of a spherical mirror is 25 cm. Find its focal length.**

Solution : Radius of curvature	$R = 25 \text{ cm}$	
Focal length	$f = ?$	
Radius of curvature	$R = 2f$	
	$f = R/2$	
	$= 25/2 = 12.5$	
Focal length	$= 12.5 \text{ cm}$	

**2. If two plane mirrors are inclined to each other at an angle of  $45^\circ$ , find the number of images formed.**

Solution : Angle of inclination	$= 45^\circ$	
Number of images formed	$= \frac{360^\circ}{45^\circ} - 1$	
	$= 45^\circ$	
	$= \frac{360^\circ}{45^\circ} - 1$	
	$= 8 - 1 = 7$	
Number of images formed	$= 7$	

**3. Speed of light in air is  $3 \times 10^8 \text{ m s}^{-1}$  and the refractive index of a medium is 1.5. Find the speed of light in the medium.**

Solution : Speed of light in air (C)	$= 3 \times 10^8 \text{ m s}^{-1}$	
Refractive index of a medium ( )	$= 1.5$	
The speed of light in medium (V)	$= ?$	
Refractive index ( $\mu$ )	$= \frac{\text{Speed of light in air (C)}}{\text{Speed of light in the medium } (\mu)}$	
	$= C/V$	
V	$= C/$	
	$= \frac{3 \times 10^8}{1.5} = 2 \times 10^8 \text{ m s}^{-1}$	
$\therefore$ The speed of light in medium	$= 2 \times 10^8 \text{ m s}^{-1}$	

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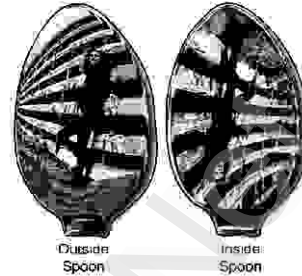
UNIT-3

**Activity : 1**

Take a curved silver spoon and see the image formed by it. Now, turn it and find the image formed. Do you find any difference? Find out the reason.

**Ans :**

- ★ First the spoon act as a convex mirror.
- ★ So, we can get erect image.
- ★ Second the spoon act as a concave mirror.
- ★ So, it gives inverted image.

**Activity : 2**

List out various convex and concave mirrors used in daily life.

Various uses of Convex and Concave mirrors in our daily life.

Concave mirror	Convex mirror
<ul style="list-style-type: none"> <li>★ Concave mirrors are used</li> <li>★ as make-up mirrors</li> <li>★ as torches</li> <li>★ as search lights</li> <li>★ as head lights of vehicles</li> <li>★ in solar cookers</li> </ul>	<ul style="list-style-type: none"> <li>★ Convex mirrors are used</li> <li>★ in vehicles as rear view mirrors.</li> <li>★ in hospitals, hotels, schools and stores. on roads where there are sharp curves and turns.</li> </ul>

**Activity -3,4 :**

See the book

**Activity -5,6 :**

Student Activity

**Activity : 7**

See the book

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UNIT- 7

**UNIT - 7. MAGNETISM****TEXT BOOK EXERCISES****I. Choose the best answer.****1. A magnet attracts \_\_\_\_\_ .**

- a) wooden materials                      b) any metal  
c) copper                                      d) iron and steel

**Ans : d) iron and steel****2. One of the following is an example for a permanent magnet.**

- a) Electromagnet                              b) Mumetal  
c) Soft iron                                      d) Neodymium

**Ans : d) Neodymium****3. The south pole of a bar magnet and the north pole of a U-shaped magnet will \_\_\_\_\_.**

- a) attract each other                              b) repel each other  
c) neither attract nor repel each other      d) None of the above

**Ans : a) attract each other****4. The shape of the Earth's magnetic field resembles that of an imaginary \_\_\_\_\_.**

- a) U-shaped magnet                              b) straight conductor carrying current  
c) solenoid coil                                      d) bar magnet

**Ans : d) bar magnet****5. MRI stands for \_\_\_\_\_.**

- a) Magnetic Resonance Imaging              b) Magnetic Running Image  
c) Magnetic Radio Imaging                      d) Magnetic Radar Imaging

**Ans : a) Magnetic Resonance Imaging****6. A compass is used for \_\_\_\_\_ .**

- a) plotting magnetic lines                              b) detection of magnetic field  
c) navigation    d) All of these

**Ans : d) All of these****II. Fill in the blanks.**

1. The magnetic strength is \_\_\_\_\_ at the poles.

**Ans : maximum**

2. A magnet has \_\_\_\_\_ magnetic poles.

**Ans : two**

3. Magnets are used in \_\_\_\_\_ for generating electricity.

**Ans : dynamos**

4. \_\_\_\_\_ are used to lift heavy iron pieces.

**Ans : Electromagnets**

5. A freely suspended bar magnet is always pointing along the \_\_\_\_\_ north-south direction.

**Ans : geographic****III. Match the following.****Ans :**

1. Magnetite	Magnetic lines
2. A tiny pivoted magnet	Natural magnet
3. Cobalt	Compass box
4. Closed curves	Ferromagnetic material
5. Bismuth	Diamagnetic material

1. Magnetite	Natural magnet
2. A tiny pivoted magnet	Compass box
3. Cobalt	Ferromagnetic material
4. Closed curves	Magnetic lines
5. Bismuth	Diamagnetic material

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UNIT- 7

★ This shows that the Earth behaves like a huge magnetic dipole with its magnetic poles located near its geographical poles.

**5. How can you identify non-magnetic materials? Give an example of a non-magnetic material.**

**Ans :**

- ★ Materials which are not attracted by magnets are called non-magnetic materials.
- ★ Examples : Rubber, Plastic, Paper, Eraser.

**VI. Answer in detail.**

**1. List out the uses of magnets.**

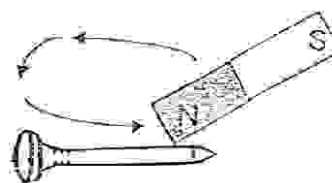
**Ans :**

- ★ An extremely powerful electromagnet is used in the fast moving Maglev train to remain floating above the tracks.
- ★ In industries, magnetic conveyor belts are used to sort out magnetic substances from scraps mixed with non-magnetic substances.
- ★ Magnets are used in computer in its storing devices such as hard disks.
- ★ In banks, the magnets enable the computers to read the MICR numbers printed on a cheque.
- ★ The tip of the screw drivers are made slightly magnetic so that the screws remain attached to the tip.
- ★ At hospitals, MRI is used to scan the specified internal organ. An extremely from electromagnet is used in it.
- ★ Magnets are used in computers in storing devices such as hard disks. They are used in debit and credit cards also.
- ★ They are used in electric bells and electric motors.
- ★ They are used in loudspeakers and microphones.

**2. How will you convert a 'nail' into a temporary magnet?**

**Ans :**

- ★ Temporary magnets are produced with the help of an external magnetic field.
- ★ Spread some steel pins on a wooden board and bring an iron nail near them.
- ★ Now, make one of the magnetic poles of the bar magnet touch one end of the iron nail.
- ★ Slide it along its length in one direction slowly till the other end is reached.
- ★ Repeat the process, 20 to 30 times as shown in the diagram.
- ★ The magnet has to be moved in one direction only.
- ★ Avoid the swiping of the magnet back and forth.
- ★ Now, bring the iron nail near the steel pins.
- ★ The steel pins stick to the iron nail because nail has become a temporary magnet.



**3. Write a note on Earth's magnetism.**

**Ans :**

- ★ The south pole of the imaginary magnet inside the Earth is located near the geographic north pole and the north pole of the earth's magnet is located near the geographic south pole.
- ★ The line joining these magnetic poles is called the magnetic axis.
- ★ The magnetic axis intersects the geographic north pole at a point called the north geomagnetic pole or northern magnetic pole.

**8 - sci - 4**

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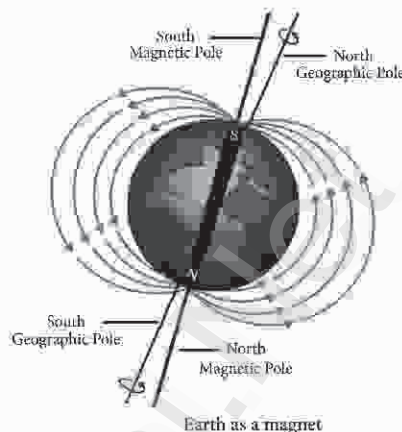
★ It intersects the geographic south pole at a point called the south geomagnetic pole or southern magnetic pole.

★ The magnetic axis and the geographical axis (axis of rotation) do not coincide with each other.

★ Some important factors, which may be the cause of the Earth's magnetism, are as follows.

- ★ Masses of magnetic substances in the Earth
- ★ Radiations from the Sun
- ★ Action of the Moon

★ However, it is believed that the Earth's magnetic field is due to the molten charged metallic fluid inside the Earth's surface with a core of radius of about 3500 km compared to the Earth's radius of 6400 km.

**VII. Higher Order Thinking Questions.**

1. Though Earth is acting as a huge bar magnet it is not attracting other ferromagnetic materials. Why? Give reasons.

Ans :

- ★ The value of earth magnetic field is  $2 \times 10^{-5}$  T.
- ★ It is less one.
- ★ So, that earth cannot attract any objects.

2. Why it is not advisable to slide a magnet on an iron bar back and forth during magnetising it?

Ans :

- ★ During one direction of sliding is used to magnetised the iron bar but if we do in opposite direction it demagnetised the iron bar.

3. Thamizh Dharaga and Sangamithirai were playing with a bar magnet. They put the magnet down and it broke into four pieces. How many poles will be there?

Ans :

- ★ Magnetic poles always exist in pairs.
- ★ So, if the magnet broke into four pieces 8 poles will be there.

**Additional Questions and Answers**

I. Choose the best answer.

1. .... is the strongest natural magnet.

- |               |               |
|---------------|---------------|
| a) Pyrrhotite | b) Magnetite  |
| c) Ferrite    | d) Coulumbite |

Ans : b) Magnetite

2. .... suggested that the earth has a giant bar magnet.

- |                    |                    |
|--------------------|--------------------|
| a) William Gilbert | b) William Charles |
| c) Alfones         | d) Andrews         |

Ans : a) William Gilbert

3. SI unit of magnetic field is.....

- |          |          |
|----------|----------|
| a) weber | b) tesla |
| c) ohm   | d) watt  |

Ans : b) tesla



**UNIT - 12. ATOMIC STRUCTURE****TEXT BOOK EXERCISES****I. Choose the best answer.**

**1. The same proportion of carbon and oxygen in the carbon dioxide obtained from different sources proves the law of \_\_\_\_\_.**

- a) reciprocal proportion      b) definite proportion  
c) multiple proportion      d) conservation of mass

**Ans : b) definite proportion**

**2. Cathode rays are made up of**

- a) neutral particles      b) positively charged particles  
c) negatively charged particles      d) None of the above

**Ans : c) negatively charged particles**

**3. In water, hydrogen and oxygen are combined in the ratio of \_\_\_\_\_ by mass.**

- a) 1:8      b) 8:1  
c) 2:3      d) 1:3

**Ans : a) 1 : 8**

**4. Which of the following statements made by Dalton has not undergone any change?**

- a) Atoms cannot be broken.  
b) Atoms combine in small, whole numbers to form compounds.  
c) Elements are made up of atoms.  
d) All atoms of an elements are alike

**Ans : c) Elements are made up of atoms.**

**5. In all atoms of an element**

- a) the atomic and the mass number are same.  
b) the mass number is same and the atomic number is different.  
c) the atomic number is same and the mass number is different  
d) both atomic and mass numbers may vary.

**Ans : c) the atomic number is same and the mass number is different**

**II. Fill in the blanks.**

1. \_\_\_\_\_ is the smallest particle of an element.

**Ans : Atom**

2. An element is composed of \_\_\_\_\_ atoms.

**Ans : similar**

3. An atom is made up of \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.

**Ans : protons, electrons, neutrons**

4. A negatively charged ion is called \_\_\_\_\_, while positively charged ion is called \_\_\_\_\_.

**Ans : anion, cation**

5. \_\_\_\_\_ is a negatively charged particle (Electron/Proton).

**Ans : Electron**

6. Proton is deflected towards the \_\_\_\_\_ charged plate (positively, negatively).

**Ans : negatively**

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**V. Short Answer.****1. Say the advantages of Dalton's atomic theory.****Ans : Advantages of Dalton's Atomic Theory :**

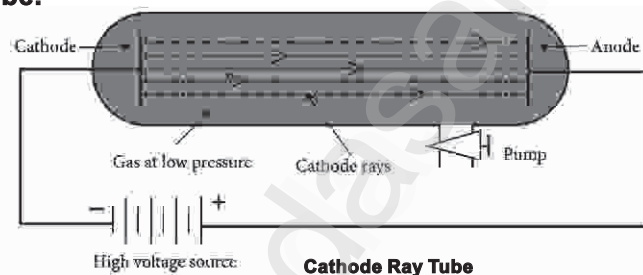
- \* Dalton's theory explains most of the properties of gases and liquids.
- \* This explains the law of chemical combination and the law of conservation of mass

**2. Write the limitations of Dalton's Atomic theory.****Ans : Limitations of Dalton's Atomic Theory :**

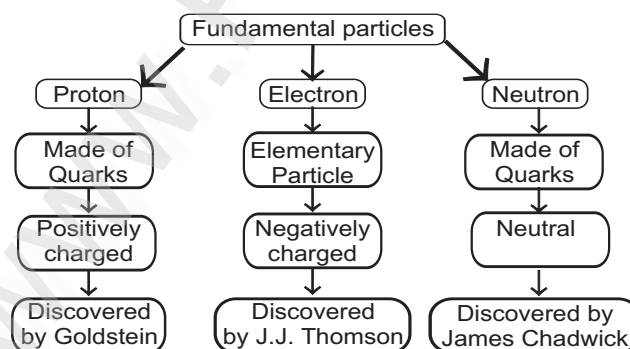
- \* Atom is no longer considered as the smallest indivisible particle.
- \* Atoms of the same element have different masses (Isotopes).

**3. Write the properties of cathode rays.****Ans : Properties of Cathode rays :**

- \* Cathode rays travel in straight line from cathode towards anode.
- \* Cathode rays are made up of material particles which have mass and kinetic energy.

**VI. Draw the following :****1. Cathode Ray Tube.****Ans :****Activity : 1**

**Collect more information about the properties of fundamental particles and prepare a chart.**

**Ans :****8 - sci - 6**

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**Activity : 2****Classify the following ions into monovalent, divalent and trivalent.** **$\text{Ni}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Cs}^+$ ,  $\text{Zn}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{Hg}^{2+}$ ,  $\text{Pb}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Fe}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Li}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{Al}^{3+}$ .****Ans :**

<b>Monovalent</b>	<b>Divalent</b>	<b>Trivalent</b>
$\text{Cs}^+$ , $\text{Li}^+$	$\text{Ni}^{2+}$ , $\text{Cu}^{2+}$ , $\text{Ba}^{2+}$ , $\text{Zn}^{2+}$ , $\text{Cd}^{2+}$ , $\text{Hg}^{2+}$ , $\text{Pb}^{2+}$ , $\text{Mn}^{2+}$ , $\text{Fe}^{2+}$ , $\text{Co}^{2+}$ , $\text{Sr}^{2+}$ , $\text{Ca}^{2+}$	$\text{Fe}^{3+}$ , $\text{Cr}^{3+}$ , $\text{Al}^{3+}$

**Activity : 3****Write the chemical formula of the compounds.****Ans :**

<b>Compound</b>	<b>Symbols with valencies</b>	<b>Simplest ratio if any</b>	<b>Chemical formula</b>
Magnesium chloride	$\text{Mg}^{2+}\text{Cl}_2^-$	1:2	$\text{MgCl}_2$
Sodium hydroxide	$\text{Na}^+\text{OH}^-$	1:2	$\text{NaOH}$
Calcium oxide	$\text{Ca}^{2+}\text{O}^{2-}$	1:1	$\text{CaO}$
Aluminium sulphate	$\text{Al}_2^{3+}(\text{SO}_4)_3^{2-}$	3:16	$\text{Al}_2(\text{SO}_4)_3$
Calcium phosphate	$\text{Ca}^{2+}(\text{PO}_4)_2^{3-}$	1:1	$\text{Ca}_3(\text{PO}_4)_2$

**Activity : 4****Write the names of the chemical compounds.****Ans :**

<b>Chemical Compound</b>	<b>Name</b>
$\text{SO}_3$	Sulphur trioxide
$\text{Na}_2\text{SO}_3$	Sodium sulphite
$\text{PCl}_5$	Phosphorous penta chloride
$\text{CaCl}_2$	Calcium chloride
$\text{NaNO}_3$	Sodium nitrate
$\text{BaO}$	Barium oxide

**Activity - 5, 6:**

See the book.

### UNIT - 15. CHEMISTRY IN EVERYDAY LIFE

#### TEXT BOOK EXERCISES

**I. Choose the best answer.**

1. The chemical mixed with LPG that helps in the detection of its leakage is \_\_\_\_\_.

- a) methanol  
 c) camphor  
 b) ethanol  
 d) mercaptan

**Ans : d) mercaptan**

2. Which is known as syn gas?

- a) Marsh gas  
 c) Producer gas  
 b) Water gas  
 d) Coal gas

**Ans : b) Water gas**

3. The unit of calorific value of fuel is \_\_\_\_\_.

- a) KJ mol<sup>-1</sup>  
 c) KJkg<sup>-1</sup>  
 b) KJ g<sup>-1</sup>  
 d) Jkg<sup>-1</sup>

**Ans : c) KJkg<sup>-1</sup>**

4. \_\_\_\_\_ is the coal of superior quality.

- a) Peat  
 c) Bituminous  
 b) Lignite  
 d) Anthracite

**Ans : d) Anthracite**

5. The main component of natural gas is \_\_\_\_\_.

- a) methane  
 c) propane  
 b) ethane  
 d) butane

**Ans : a) methane****II. Fill in the blanks.**

1. Producer gas is a mixture of \_\_\_\_\_ and \_\_\_\_\_.

**Ans : Carbon monoxide, nitrogen**

2. \_\_\_\_\_ is known as marsh gas.

**Ans : Methane**

3. The term petroleum means \_\_\_\_\_.

**Ans : 'Rock oil'**

4. Heating coal in the absence of air is called \_\_\_\_\_.

**Ans : destructive distillation**

5. An example for fossil fuel is \_\_\_\_\_.

**Ans : coal****III. Match the following**

1.	Octane rating	Diesel
2.	Cetane rating	Methane
3.	Simplest hydrocarbon	Petrol
4.	Peat	Brown in colour
5.	Lignite	First stage coal

**Ans :**

1.	Octane rating	Petrol
2.	Cetane rating	Diesel
3.	Simplest hydrocarbon	Methane
4.	Peat	First stage coal
5.	Lignite	Brown in colour

**IV. Answer briefly.**

1. What do you mean by catenation?

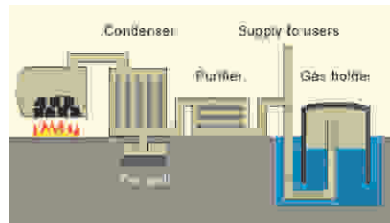
**Ans :**

- \* Hydrocarbons are capable of making bonds with one another.
- \* This property is known as catenation (chain formation).

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**VII. Draw the following:****1. Production of coal gas :****Ans :****Production of coal gas****Activity : 1**

Student Activity.

**Activity : 2**

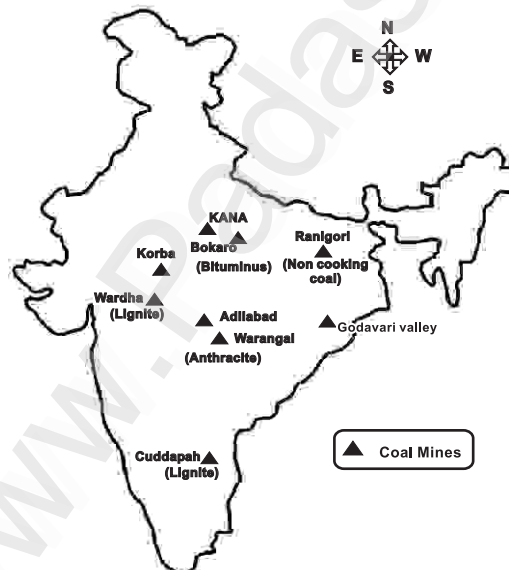
See the book.

**Activity : 3**

Student Activity.

**Activity : 4**

In an outline map of India mark the places where coal mines are found. Also identify the type of coal found in those areas.

**Ans :****Activity : 5**

Find out where petroleum is extracted on a large scale in India. Also list out the petroleum refineries in India.

**Ans :** (i) From Mumbai Petroleum is extracted on a large scale in India.

(ii) Petroleum Refineries in India :

1) Indian Oil Corporation Limited - Bihar, Assam, Gujarat, West Bengal, Uttarpradesh, Hariyana.

2) Chennai Petroleum Corporation Limited - Tamilnadu.

3) Oil Natural Gas Corporation - Andhra pradesh, Karnataka.

### UNIT - 17. PLANT KINGDOM

#### TEXT BOOK EXERCISES

**I. Choose the best answer.**

1. *Solanum trilobatum* is the binomial name of Thoothuvalai. The word 'Solanum' refers to

- a) Species                      b) Genus  
c) Class                         d) Orders

**Ans : b) Genus**

2. Floridian starch is a reserve food material of

- a) Chlorophyceae    b) Phaeophyceae  
c) Rhodophyceae   d) Cyanophyceae

**Ans : c) Rhodophyceae**

3. An example for colonial form of algae is

- a) Oscillatoria        b) Nostoc  
c) Volvox                d) Chlorella

**Ans : c) Volvox**

4. One of the following is an edible mushroom

- a) Polyporus            b) Agaricus  
c) Penicillium         d) Aspergillus

**Ans : b) Agaricus**

5. Plants that prevent soil erosion are

- a) algae                    b) fungi  
c) bryophytes            d) pteridophytes

**Ans : c) bryophytes**

6. The first land plants are

- a) bryophytes            b) pteridophytes  
c) gymnosperm         d) angiosperm

**Ans : b) pteridophytes**

7. The well-developed sporophytic plant body is seen in

- a) bryophytes            b) pteridophytes  
c) gymnosperms        d) angiosperms

**Ans : c) gymnosperms**

8. Binomial Nomenclature was first introduced in the year

- a) 1970                    b) 1975  
c) 1978                    d) 1623

**Ans : d) 1623**

9. Penicillin is an antibiotic which is extracted from

- a) algae                    b) fungi  
c) bryophytes            d) pteridophytes

**Ans : b) fungi**

**II. Fill in the blanks.**

1. The word 'Taxonomy' is derived from \_\_\_\_\_ .      **Ans : Greek**

2. Binomial Nomenclature was first introduced by \_\_\_\_\_ .  
**Ans : Gaspard Bauhin**

3. The book "Genera Plantarum" was published by \_\_\_\_\_ .  
**Ans : Bentham and Hooker**

4. Monocotyledon seed bears only \_\_\_\_\_ cotyledon.      **Ans : One**

5. Brown algae belongs to \_\_\_\_\_ class.      **Ans : Phaeophyceae**

6. Agar Agar is obtained from \_\_\_\_\_ algae.      **Ans : Red**

7. The reserve food material of fungi are \_\_\_\_\_ and \_\_\_\_\_.  
**Ans : Glycogen, oil**

8. The first true land plant is \_\_\_\_\_.      **Ans : Pteridophytes**

9. Xylem and phloem are absent in \_\_\_\_\_ plants.      **Ans : Bryophytes**

10. Reticulate venation is present in \_\_\_\_\_ plants.      **Ans : Dicotyledon**

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**Additional Questions and Answers****I. Choose the best answer.****1. Fungal disease in sugarcane is .....**

- a) wilt disease                                  b) white rust  
 c) tikka disease                                  d) red rot                                  **Ans : d) red rot**

**2. .... is known as "Queen of medicine".**

- a) Penicillin    b) Vermifuge  
 c) Ephedrine    d) Turpentine                                  **Ans : a) Penicillin**

**3. The word 'Taxonomy' was first coined by .....**

- a) Carolus Linnaeus                                  b) Bentham and Hooker  
 c) Augustin - Pyramus de candolle                  d) Alexander Fleming  
**Ans : c) Augustin - Pyramus de candolle**

**4. Largest Herbarium of India is in.....**

- a) Mumbai    b) Kolkata  
 c) Delhi    d) Chennai                                  **Ans : b) kolkata**

**5. Tikka disease affects .....**

- a) Sugarcane    b) Cotton  
 c) Radish    d) Ground nut                                  **Ans : d) Ground nut**

**II. Fill in the blanks.**

1. Cell wall of fungi is made up of..... **Ans : chitin**  
 2. Cladosporium protects against..... **Ans : allergy**  
 3. .... discovered penicillin. **Ans : Sir Alexander Fleming**  
 4. .... are called as Amphibians of plant kingdom. **Ans : Bryophytes**  
 5. .... is known as horse-tail. **Ans : Equisetum**

**III. Match the following.****Ans :**

1. Antherozoid	Species plantarum	1. Antherozoid	Male gamete
2. Parasitic Root	Binomial name	2. Parasitic Root	Haustoria
3. Carolus Linnaeus	Male gamete	3. Carolus Linnaeus	Species plantarum
4. Gaspard Bauhin	Prevent soil erosion	4. Gaspard Bauhin	Binomial name
5. Bryophytes	Haustoria	5. Bryophytes	Prevent soil erosion

**IV. Very short Answer.****1. What are phyto planktons?****Ans :**

★ Very minute algae that float on the surface of the water are called phyto planktons.

**2. Define -'Taxonomy'.****Ans :**

★ Taxonomy is the branch of biology that deals with the study of identification, classification, description and nomenclature of living organisms.

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**V. Short Answer.****1. Classify algae based on their pigments.****Ans :**

- ★ Blue green algae - Phycocyanin
- ★ Green algae - Chlorophyll
- ★ Brown algae - Fucoxanthin
- ★ Red algae - Phycoerythrin

**2. Expand ICBN and Mention its significance.****Ans :**

- ★ **ICBN** - International Code of Botanical Nomenclature.

**Significance :**

- ★ The rules and recommendations regarding binomial nomenclature were found in ICBN. Now it is known as ICN (International Code of Nomenclature).

**VI. Answer in detail.****1. Differentiate Bryophytes and Pteridophytes.**

S. No.	Bryophytes	Pteridophytes
1.	Plant body cannot be differentiated into root, stem and leaf.	Plant body can be differentiated into root, stem and leaf.
2.	Bryophytes are amphibians.	Pteridophytes are true land plants.
3.	Vascular tissues are absent.	Vascular tissues are present.
4.	The dominant phase of the plant body is gametophyte.	The dominant phase of the plant body is sporophyte.
5.	Sporophytic generation depends on the gametophytic generation. E.g. Riccia	Gametophytic generation does not depend on sporophytic generation. E.g. Selaginella

**Activity -1**

Take a piece of bread, pour some water on it and cover it for four days. After four days place the bread on a slide and observe it through microscope. What will you see? Name the organisms which you see in the slide.

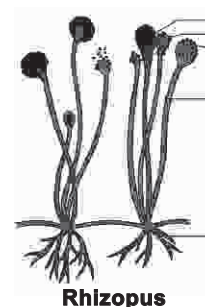
**Ans :****Observation :**

- ★ Growth of fungus will be seen on the bread.

**Name of the organism : Rhizopus.**

- ★ Some species of fungi live as saprophytes.

- ★ They grow upon the dead and decaying organic matters and get food from them. E.g. Rhizopus





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**Activity -2**

Visit a nearby nursery and observe how *Sphagnum* is used in horticulture and make a note on it.

Ans :

★ Sphagnum can absorb large amount of water. Hence, it is used by the gardeners in nursery.

★ Peat which is a valuable fuel like coal is obtained from Sphagnum.

**Activity -3**

Collect some flowering plants from your surrounding and classify them as monocot or dicot based on their root system and venation.

Ans :

S.No.	Plants Name	Root system	Venation	Monocot/Dicot
1.	Hibiscus	Tap root	Reticulate venation	Dicot
2.	Mango	Tap root	Reticulate venation	Dicot
3.	Banana	Fibrous root	Parallel	Monocot
4.	Bean	Tap root	Reticulate venation	Dicot
5.	Paddy	Fibrous root	Parallel	Monocot

**Activity -4**

Collect some plants which are growing inside your school area, write their vernacular name, binomial name and classify them into dicotyledons or monocotyledons in the given table.

Ans :

S.No.	Vernacular name	Binomial name	Monocotyledons/ Dicotyledons
1.	Kuppaimeni	<i>Acalypha indica</i>	Dicotyledon
2.	Vilvam	<i>Aegle marmelos</i>	Dicotyledon
3.	Thoodhualai	<i>Solanum trilobatum</i>	Dicotyledon
4.	Keezhanelli	<i>Phyllanthus amarus</i>	Dicotyledon
5.	Sothu katrazhai	<i>Aloe vera</i>	Monocotyledon

## UNIT - 19. MOVEMENTS IN ANIMALS

### TEXT BOOK EXERCISES

#### I. Choose the best answer.

1. Which of the following parts of our body help us in movement?

(i) Bones (ii) Skin (iii) Muscles (iv) Organs

Choose the correct answer from the options below.

(a) (i) and (iii)

(b) (ii) and (iv)

(c) (i) and (iv)

(d) (iii) and (ii)

Ans : (a) (i) and (iii)

2. Which one of the following organisms lack muscles and skeleton for movement?

(a) Dog

(b) Snail

(c) Earthworm

(d) Human being

Ans : b) Snail

3. \_\_\_\_\_ joints are immovable.

(a) Shoulder and arm

(b) Knee and joint

(c) Upper jaw and skull

(d) Lower jaw and upper jaw

Ans : (c) Upper jaw and skull

4. Why do underwater divers wear fin-like flippers on their feet?

(a) To swim easily in water.

(b) To look like a fish.

(c) To walk on water surface.

(d) To walk over the bottom of the sea (sea bed).

Ans : (a) To swim easily in water

5. External ear (pinna) is supported by

(a) bone

(b) cartilage

(c) tendon

(d) capsule

Ans : (b) cartilage

6. Cockroach moves with the help of its

(a) leg

(b) bone

(c) muscular foot

(d) whole body

Ans : (a) leg

7. Which one of the following categories of vertebrae are correctly numbered?

(a) Cervical-7

(b) Thoracic-10

(c) Lumbar -4

(d) Sacral -4

Ans : (a) Cervical-7

#### II. Fill in the blanks.

1. Movement of organisms from place to place is called \_\_\_\_\_.

Ans : Locomotion

2. \_\_\_\_\_ refers to change in position of the part of an organism's body.

Ans : Movement

3. A structure which provides rigid frame work to the body is called \_\_\_\_\_.

Ans : Skeleton

4. Axil skeleton in human consists of \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.

Ans : Skull, Facial bones, Sternum, Ribs and vertebral column

5. Appendicular skeleton in human consists of \_\_\_\_\_ and \_\_\_\_\_.

Ans : Pectoral girdle and pelvic girdle

6. The place where two bones meet is termed as \_\_\_\_\_.

Ans : Joint

7. \_\_\_\_\_ is attached to soft parts of the body like blood vessels, iris, bronchi and the skin.

Ans : Non striated muscle

8. \_\_\_\_\_ muscle makes pupil of eyes wider.

Ans : Radial

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**VI Answer in detail.****1. Name the different types of joints? Give one example for each type.****Ans :**

	<b>Types of joints</b>	<b>Examples</b>
1.	Fixed or Immovable joints.	The structures between the bones of the skull box.
2.	Slightly movable joints.	The joint between the vertebrae.
3.	Freely movable joints.	
	(i) Ball and Socket	Shoulder, Hip.
	(ii) Hinge	Elbow, Knee, Ankle.
	(iii) Pivot	Spine (Atlas / Axis joint at the top)
	(iv) Condylod	Wrist
	(v) Gliding	Spine (between the bony processes of the vertebrae)
	(vi) Saddle	Thumb, Shoulder and Inner ear.

**2. Write about the human axial skeleton, giving suitable labelled diagram.****Ans :****Axial skeleton :**★ The axial skeleton consists of the bones along the *axis*, or central line of the human body.

★ The axial skeleton consists of the skull, facial bones, sternum, ribs, and vertebral column.

**a. Skull :**

★ Skull is a hard structure made up of small bones.

★ It is formed by 22 bones out of which 8 bones are fixed together to form the cranium and 14 bones fuse to form the face.

★ The only bone which has movable joint is the lower jaw.

★ This movable joint is supported by muscles and ligaments.

★ Skull placed on the top of the backbone can be moved up, down and sideways.

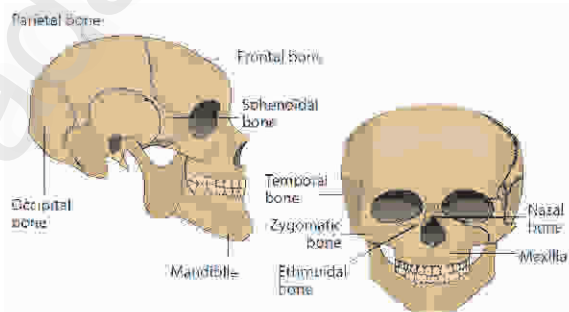
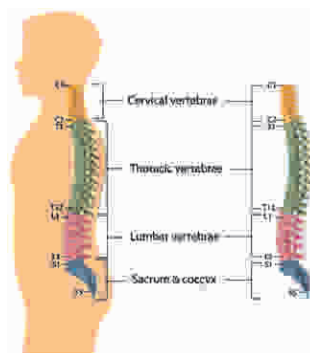
**b. Vertebral column :**

★ Vertebral column running at the back of the body is also called as spine or the backbone.

★ It is in the trunk region to offer support to the upper part of the body.

★ Vertebral column is made up of individual bones called as vertebrae.

★ Total vertebral column consists of 7 cervical vertebrae, 12 lumbar vertebrae, 5 fused sacral and 3 fused coccygeal vertebrae.

**Skull bone in Human****Vertebral column in Human**

**SELECTION 8 SCIENCE**

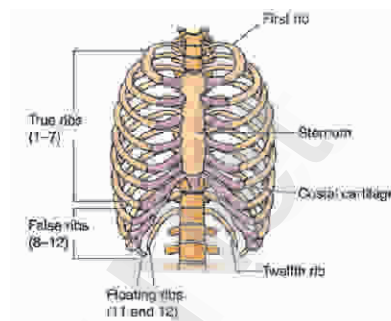
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- ★ Vertebral column runs from the base of the skull to the hip bone forming a tube.
- ★ Spinal cord passes through this hollow tube.
- ★ Vertebrae are joined by gliding points which allow the body to be bent back, front or side wards.

**c. Sternum or Rib cage :**

- ★ Rib cage occupies the chest region. It is a cone-shaped structure made up of Twelve pairs of ribs.
- ★ Ribs are attached to vertebrae at the back which curve around to form a cage.
- ★ Ten pairs of ribs are attached to the breast bone at the front.

**Rib cage in Human**

- ★ Two pairs of lower ribs are free at front.
- ★ These are called as free-floating ribs.
- ★ Rib cage is set up in such a way that it can contract and expand during the process of breathing.
- ★ Rib cage protects the underlying lungs, heart and some part of liver.

**3. Discuss various types of movements seen in living organisms.****Ans : Types of movements :****Amoeboid movement :**

- ★ It is brought about by pseudopodia which are appendages which move with movement of protoplasm within a cell.

**Ciliary movement :**

- ★ This movement is brought about by appendages called as cilia which are the hair-like extensions of the epithelium.
- ★ Both these kinds of movements are seen with cells of the lymphatic system.

**Muscular movement :**

- ★ It is a more complex movement which is brought about by the musculoskeletal system.
- ★ This type of movement is seen in the higher vertebrates.

**4. What is a streamlined body? How does it help in the movement of animals that fly or swim in water?****Ans :**

- ★ A streamlined body is one which is pointed at the ends and broad in the middle.
- ★ The body of a fish is streamlined to reduce friction while moving in water.
- ★ Fish swims with the help of fins.
- ★ They have two paired fins and an unpaired fin.
- ★ They have strong muscles, which help in swimming. When a fish swims its front part curves to one side and the tail part stays in the opposite direction.
- ★ In the next move, the front part curves to the opposite side and the tail part also changes its position to another side.
- ★ The caudal or tail fin helps in changing direction.

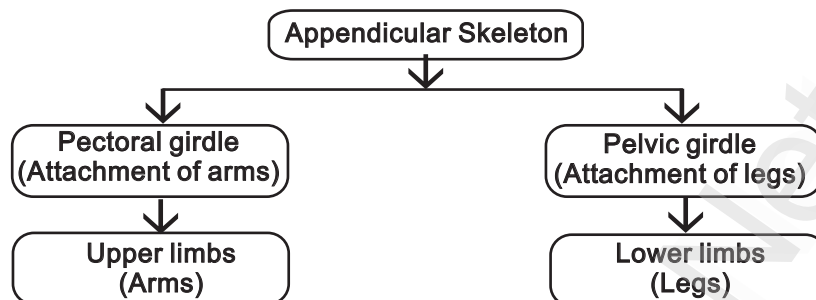
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**IV. Short Answer.****1. Write the flow chart for appendicular skeleton.**

Ans :

**2. Differentiate the movements in snakes and earthworms.**

Ans :

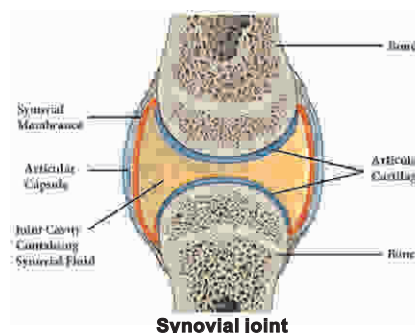
Movement in snakes	Movement in Earthworms
★ Snakes slither on the ground by looping sideways.	★ Earthworms move by alternate extension and contraction of the body using muscles.

**V. Answer in detail.****1. Explain types of bones in human skeletal system.**

Ans :

**Long Bones:** Found in arms and legs.**Short Bones:** Found in wrist ankle, vertebral column.**Flat Bones:** Found in skull, ribs, shoulder and hips.**Irregular Bones:** Found in spine and vertebral column, mandible, palatine, inferior nasal concha, and hyoid.**VI. Draw and label.****1. Synovial joint**

Ans :

**Activity : 1**

Observe an earthworm moving on soil in the garden. Gently lift it and place it on a piece of blotting or filter paper. Observe its movement now. In which of the above two surfaces do you find that the earthworm is able to move easily?

Ans :

★ Earthworm move easily in the soil.

★ Body of earthworm has large number of bristles called setae, which are connected with muscles.

★ These bristles help to get grip on the ground.



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**IV. Answer briefly.****1. Define Ploughing.****Ans :**

- \* Ploughing or tilling is the process of loosening and turning the soil up and down to facilitate the availability of nutrients in the root zone of the cultivating crop.

**2. Name the methods of sowing.****Ans :** \* Sowing by hand \* Seed drill \* Dibbling**3. What is foliar spray?****Ans :**

- \* Foliar spray is a technique of feeding plants by applying liquid fertilizer directly to their leaves.

**4. Give a brief account on Krishi Vigyan Kendra.****Ans :**

- \* Krishi Vigyan Kendra is a farm science centre.
- \* These centres serve as the ultimate link between ICAR (Indian Council of Agricultural Research) and farmers.
- \* Their aim is to apply agricultural research findings in practical localized settings.
- \* The first KVK was established in 1974 at Pondicherry.

**5. What is bio-indicator ? How does it help human beings?****Ans :**

- \* a. A bio-indicator or biological indicator is any species or group of species whose function or status reveals the qualitative status of the environment.
- \* b. Biological indicators are used to document and understand changes in earth's living systems especially changes caused by the activities of an expanding human population.
- \* Bio - indicators of soil health give us information about soil structure, development, nutrient storage and biological activities.

**6. What do you mean by weeding?****Ans :**

- \* In an agriculture field, many other undesirable plants may grow naturally along with the main crop.
- \* These undesirable plants are called weeds.
- \* The removal of weeds is called weeding.

**7. What is crop rotation?****Ans :**

- \* Crop rotation is planting a series of different crops in the same field following a defined order.

**8. What is green manure?****Ans :**

- \* The green plants which are added to the soil in the form of nutrients to enhance the growth of plants are called green manure.

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**Additional Questions and Answers****I. Choose the best answer.****1. Our country is the largest producer of..... and ..... in the world.**

- a) Wheat and Rice      b) Paddy and Maize  
 c) Cotton and Hemp    d) Bananas and Mangoes    **Ans : d) Bananas and Mangoes**

**2. Food corporation of India was set up at..... .**

- a) Mumbai                      b) Delhi  
 c) Kolkata                        d) Chennai                      **Ans : d) Chennai**

**3. .... is commonly known as the Pusa Institute.**

- a) FCI                                b) IARI  
 c) KVK                                d) ICAR                            **Ans : b) IARI**

**4. A farm science centre located at pondicherry is..... .**

- a) ICAR                                b) IARI  
 c) FCI                                d) KVK                              **Ans : d) KVK (Krish Vigyan Kendra)**

**5. The first KVK was established in .....**

- a) 1874                                b) 1994  
 c) 1974                                d) 1894                              **Ans : c) 1974**

**II. Fill in the blanks.****1. Green plants make their food by.....                      Ans : photosynthesis****2. India is the second largest producer of..... and.....****Ans : Wheat, Rice****3. Croton and Bougainvillea are.....crops.****Ans : ornamental****4. NPK is a .....****Ans : synthetic fertilizer****5. Seed bank located in New Delhi is.....****Ans : Navadanya****III. Match the following.****Ans :**

1. Rabi crops	Cyanobacteria	1. Rabi crops	Winter crops
2. Bio-fertilizer	Foliar spray	2. Bio-fertilizer	Cyanobacteria
3. Organic seeds	Bacillus thuringiensis	3. Organic seeds	Heirloom seeds.
4. Vermi wash	Winter crops	4. Vermi wash	Foliar spray
5. Lepidoptera	Heirloom seeds.	5. Lepidoptera	Bacillus thuringiensis

**IV. Very short Answer.****1. Name any four agricultural implements.****Ans :**

- \* Plough      \* Hoe      \* Cultivator      \* Leveller

**2. Define - Vermiwash.****Ans :**

- \* A liquid that is collected after the passage of water through a column of worm action.

**3. What is Panchgavya?****Ans :**

- \* A promoter with a combination of five products obtained from the cow, which includes cow dung, cow's urine, milk, curd and ghee.



## UNIT - 22. CONSERVATION OF PLANTS AND ANIMALS

### TEXT BOOK EXERCISES

#### I. Choose the best answer.

1. The plants found in a particular area are known as \_\_\_\_\_ .

- a) fauna  
b) flora  
c) endemic  
d) rare

**Ans : b) flora**

2. Deforestation means \_\_\_\_\_ .

- a) cleaning of forest  
b) to grow plants  
c) to look after plants  
d) None of these.

**Ans : a) cleaning of forest**

3. The Red data book gives a list of \_\_\_\_\_ .

- a) endemic species  
b) extinct species  
c) natural species  
d) none of these

**Ans : d) none of these**

4. Insitu conservation is \_\_\_\_\_ .

- a) off site conservation  
b) on site conservation  
c) both a and b  
d) None of these

**Ans : b) on site conservation**

5. Wild life Protection Act was implemented in \_\_\_\_\_ .

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

**Ans : b) 1972**

#### II. Fill in the blanks.

1. WWF stands for \_\_\_\_\_.

**Ans: World Wildlife Fund**

2. The animal found in a particular area is known as \_\_\_\_\_.

**Ans: Fauna**

3. Red data book is maintained by \_\_\_\_\_.

**Ans: IUCN (International Union for Conservation of Nature)**

4. Mudhumalai wild life sanctuary is located in \_\_\_\_\_ district.

**Ans: Nilgris**

5. \_\_\_\_\_ is observed as 'World Wildlife day'.

**Ans: March 3<sup>rd</sup>**

#### III. Match the following

1. Gir national park	-	Madhya Pradesh
2. Sunderbans National Park	-	Uttara khand
3. Indira Gandhi National Park	-	West Bengal
4. Corbett National Park	-	Gujarat
5. Kanha National Park	-	Tamil Nadu

**Ans :**

1. Gir national park	-	Gujarat
2. Sunderbans National Park	-	West Bengal
3. Indira Gandhi National Park	-	Tamil Nadu
4. Corbett National Park	-	Uttara khand
5. Kanha National Park	-	Madhya Pradesh

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**3. Why did the numbers of tiger and black buck decrease?****Ans :**

- \* The numbers of tigers and black buck has decreased due to various reasons like
- \* Pollution
- \* De forestation
- \* Loss of habitat
- \* Human interference
- \* Poaching
- \* Hunting

**Additional Questions and Answers****I. Choose the best answer.****1. Yeoman butterfly is endemic to .....**

- a) Himalayas                      b) Nicobar islands  
 c) Western ghats                d) Amazon                      **Ans : c) Western ghats**

**2. Project Tiger was launched on .....**

- a) March 21                        b) April 1  
 c) July 28                         d) June 5                        **Ans : b) April 1**

**3. .... day is observed on March 3<sup>rd</sup> every year.**

- a) World Forest                 b) Ozone  
 c) World Wild life               d) World Water                **Ans : c) World Wild life**

**4. .... is the first National park in India.**

- a) Gir National park            b) Kanha National park  
 c) Corbett National park      d) Sunderbans National park  
**Ans : c) Corbett National park**

**5. In India, the first zoo was established in.....**

- a) Meghalaya                    b) Assam  
 c) Orissa                         d) Barrachpur                 **Ans : d) Barrachpur**

**III. Fill in the blanks.**

1. .... is the founder of Green Belt Movement in Kenya.

**Ans : Wangari Maathai**

2. May 22 is celebrated as..... day.

**Ans : World biodiversity**

3. Yeoman butterfly is the state butterfly of .....

**Ans : Tamilnadu**

4. .... is the largest animal organization in the world.

**Ans : PETA**

5. .... committee is setup for prevention of cruelty to animals.

**Ans : CPCSEA****III. Very short Answer.****1. What are endemic species?****Ans :**

- \* Plants and animals that are found only in a particular area are called endemic species.

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**V. Short Answer.****1. "Amazon forest is the lungs of the planet" - Justify.****Ans :**

- \* Amazon forest is the largest forest in the world.
- \* It helps to stabilize the earth's climate and slow global warming.

**2. Expand the following.****a) IUCN      b) WWF      c) ZSI      d) BRP      e) CPCB****Ans :****IUCN** - International Union for Conservation of Nature**WWF** - World Wildlife Fund**ZSI** - Zoological Survey of India**BRP** - Biosphere Reserve Programme**CPCB** - Central Pollution Control Board**Activity : 1**

Student Activity.

**Activity : 2****Discuss about afforestation in the class and write a brief report on your discussion.****Ans :**

- \* Afforestation helps the wild animals, humans to have shelter and to find their food source.
- \* Afforestation increase the supply of oxygen, water vapour in the atmosphere to get the rainfall.
- \* By planting trees the amount of carbon dioxide in the atmosphere can be reduced and air pollution, green house gases and global warming can be controlled.
- \* Afforestation enables us to avoid desertification of land.

**Activity : 3**

Student Activity.

**Activity : 4****Observe the following days in your school.**

World Forest Day	-	March 21
World Water Day	-	March 22
Environmental Day	-	June 5
World Nature Conservation Day	-	July 28
Ozone Day	-	September 16

**Activity : 5**

**Collect as many pictures of wild plants and wild animals as possible. Prepare a poster showing the endangered species separately.**

**Ans :**



**Lion tailed macaque**



**Snow leopard**



**Indian Mallo**



**Rafflesia flower**



**Asiatic Lion**



**Nilgiri Tahr**



**Umberlla tree**



**Malabar glory lily**

**Endangered Animals**

**Endangered plants**

### UNIT - 23. LIBRE OFFICE CALC

#### TEXT BOOK EXERCISES

#### I. Choose the best answer.

1. All functions begins with an \_\_\_\_\_ sign.

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

Ans : a) =

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

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

Ans : b) Sum

3. The \_\_\_\_\_ character is used in text formula.

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

Ans : a) Ampersand

4. Which of the following is a relational operator?

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

Ans : b) >

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

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

Ans : c) Min

#### II. Answer in detail.

1. Explain count function with an example.

Ans : COUNT ()

- ★ counts the number of values. (cell containing numbers)
- ★ Example : = COUNT (A2 : A6)
- ★ Result : 5

2. What is the purpose of charts?

Ans :

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

3. What is the use of Sorting?

Ans :

- ★ Arranging a given set of data according to a particular order (ascending or descending) is called sorting.
- ★ It is used to do the result analysis of students.

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

Ans :

- ★ Max () : Calculates the maximum value from a given set of values.
- ★ Min () : Calculates the minimum value from a given set of values.

# SELECTION

OUR BOOKS

3<sup>rd</sup> TO 10<sup>th</sup> STD

TAMIL

ENGLISH

MATHS

SCIENCE

SOCIAL SCIENCE

3<sup>rd</sup> TO 6<sup>th</sup> STD 5 in 1

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