SYLLABUS

PHYSICS

SUMMATIVE ASSESSMENT-I:

1. Heat
2. Motion & Time
3. Light

SUMMATIVE ASSESSMENT-II:

1. Light
2. Electric Current & its effects
3. Wind, Storm and Cyclones

CHEMISTRY

SUMMATIVE ASSESSMENT-I:

1. Acid, Bases and Salts
2. Fibre to Fabric
3. Water: A precious resource

SUMMATIVE ASSESSMENT-II:

1. Physical and Chemical changes
2. Soil
3. Waste water story

BIOLOGY

SUMMATIVE ASSESSMENT-I:

1. Nutrition in plants
2. Nutrition in animals
3. Weather, Climate and adaptation of animals to climate
4. Respiration in organisms

SUMMATIVE ASSESSMENT-II:

1. Transportation in animals and plants
2. Reproduction in plants
3. Forests: Our lifeline

PHYSICS

List of Activities

1. To measure the temperature of water using laboratory thermometer
2. To measure the temperature of a person using clinical thermometer
3. To study the convection in liquids
4. To calculate time period of a given pendulum
5. To differentiate between different types of mirrors by using different methods
6. To study nature of image formed by concave mirror by keeping the object at different distances from mirror
7. To study nature of image formed by convex lens by keeping the object at different distances of from lens
8. To demonstrate the magnetic effect of electric current
9. To make an electromagnet

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PHYSICS

MODULE – 1

HEAT

Contents:

- Introduction
- Hot and cold objects
- Measuring temperature
- Clinical thermometer

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MODULE – 2

HEAT

Contents:

- Laboratory thermometer
- Transfer of heat
    - Conduction of heat
    - Conductors and insulators of heat

MODULE – 3 & 4

HEAT

Contents:

- Convection - definition and examples
- Practical examples of convection
- Radiation - definition and examples
- Absorption of radiant heat by light-coloured bodies and black coloured bodies

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MODULE – 5

MOTION AND TIME

Contents:

- Types of motion
- Speed
- Measurement of time

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MODULE – 6

MOTION AND TIME

Contents:

- Units of speed and time
- Measuring speed

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MODULE – 7
MOTION AND TIME
Contents:

- Distance and time graph

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MODULE – 8
LIGHT
Contents:

- Introduction.
- Light travels along the straight line,
- Reflection of light,
- Image formed in plane mirror (right and left)

MODULE – 9
LIGHT
Contents:

- Spherical mirrors
- Ray diagrams

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MODULE – 10

Revision for Half Yearly Exam

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MODULE – 11
LIGHT
Contents:

- Types of image by spherical mirror.
- Types of lenses
- Ray diagrams for lenses

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MODULE – 12
LIGHT
Contents:

- Image formed by lenses
- Colours (dispersion through prism)

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MODULE – 13
ELECTRIC CURRENT
Contents:

- Introduction
- Symbols of electric components

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MODULE – 14
ELECTRIC CURRENT
Contents:

- Heating effect of electric current
- Magnetic effect of electric current

MODULE – 15
ELECTRIC CURRENT
Contents:

- Electromagnet
- Electric bell

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MODULE – 16
WIND, STORM AND CYCLONES
Contents:

- Introduction
- Air exerts pressure
- High-speed winds and reduced air pressure
- Air expands on heating
- Wind currents are generated due to uneven heating on the earth

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MODULE – 17
WIND, STORM AND CYCLONES
Contents:

- Thunderstorms and cyclones
- Destruction caused by cyclones
- Effective safety measures
- Advanced technology for cyclones warning
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MODULE – 18

Revision For Annual Examination

Suggested Reading

1. A text book of Science- NCERT
2. Science Ahead- Orient Longman
3. Visualized Science and Technology-VII
4. Living Science

ASSIGNMENTS
TUTORIAL
HEAT

Do you know, why?

1. The thick glass tumblers break when hot liquid is poured into them
   Ans: If boiling hot water is poured in a thick glass tumbler, it cracks because glass is a bad conductor of heat. Thus, the inner surface of tumbler expands more than the outer surface. Due to this uneven expansion, the glass cracks.
2. Gaps are left between rail joints to allow for expansion
   Ans: A small gap is kept at joints to allow for the expansion of tracks. If no gap is left for expansion or contraction, they will bend in summer. Thus, result in derailment of trains.
3. Slabs of ice are covered with sawdust or gunny bags
   Ans: The saw dust or gunny bags contain large amount of trapped air which acts as an insulator. So, it doesn't allow the heat from outside to reach ice.
4. If we walk barefoot on a stone floor,it appears to be very cold but if walk on a carpet in the same room it feels warmer.
   Ans: It is so because stone floor being a good conductor of heat, conducts away heat quickly from our feet. Our feet lose heat and make us feel cold. On the other hand, the carpet being a bad conductor of heat does not allow the heat of our feet to escape and hence feels warmer.
5. Solar cookers and solar water heaters are painted black from inside.
   Ans: This is because black surfaces are good absorber of heat.
6. Convection currents are produced inside the earth's crust.
   Ans: Molten rocks close to the earth's core are hottest. It rises towards the crust. Molten rocks closer to the earth's crust are cooler. It is heavier and sinks. This exchange of material between core and crust create convection currents which move huge pieces of earth's crust known as tectonic plates. The tectonic plates move close together or farther, forming mountains and trenches.

MODULE – 1

I. Fill in the blanks:

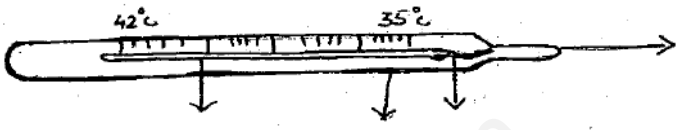
(i) The liquid used in thermometer usually is_____ .
(ii) Normal body temperature of a human is _____ °C &_____°F.
(iii) SI unit of heat is _____.

(iv) A reliable measure of the hotness of an object is its _____.

II. Correct the following statements:

(i) Clinical thermometer can measure temperature of all objects.
(ii) Clinical thermometer has 48°C as its upper limit.
(iii) Temperature is measured in calories.

III. Name the various parts of the clinical thermometer drawn in the figure and answer the given question.



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MODULE – 2

I. Fill in the blanks.

(i) In nuclear power plant, nuclear energy is first converted into _____energy and then into _____ energy.
(ii) The handle of a kettle is made up of a _____ conductor of heat.
(iii) Ice is usually covered with sawdust to prevent heat gain because sawdust is _____ conductor of heat.
(iv) Heat cannot flow from _____ body to _____ body.
(v) Conduction takes place in _____ only.
(vi) Fluffed up cotton & woollens are poor conductors of heat because of _____ present in them.

II. Correct the following statements

(i) The upper limit of laboratory thermometer is 60°C.
(ii) Laboratory thermometer has kink.
(iii) To read the temperature of an object, we take out the laboratory thermometer from it.
(iv) In conduction, heat is transferred from the colder end to the hotter end.

III. Which energy transformation takes place in following cases:-

(i) In thermal power station.
(ii) In electric bulb.
(iii) In steam engine.

(iv) In rubbing of palm together.

IV. Name the process involved in following activities –

(i) Heating of pan and then boiling of water in it.
(ii) Sea breeze and land breeze.
(iii) Circulation of air through ventilators.
(iv) Level of mercury rises when we keep clinical thermometer under our tongue.

V. Answer the following questions -

(i) At what temperature, Celsius & Fahrenheit scale shows equal values?
(ii) What are the values of freezing point & boiling point of water on Celsius scale?
(iii) Convert both the values in Fahrenheit.

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MODULE – 3 / 4

I. Fill in the blanks.

(i) Radiation of heat does not require any _____.
(ii) Dull black surfaces are _____ radiators and _____ heat absorbers.
(iii) Heat can not travel through convection in_____
(iv) Heat from the sun reaches us by the process of _____.
(v) In solid, heat is transferred by _____ while in liquid and gases heat is transferred by _____.

II. Select conductors and insulators from following –
Coin, air, paper, water, wood, iron, nail

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EXTRA QUESTIONS

I. Give reasons

(i) Clinical thermometer bulb explodes when placed under hot water.
(ii) If we hold clinical thermometer by its bulb, reading changes.

II. Write short answers for the following questions:

(i) Name two conditions that must be satisfied for the heat transfer by conduction.
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(ii) A spoon is dipped in to a cup of hot tea. Name the process by which the spoon absorbs the heat from the tea cup.

(iii) Why doesn't a clinical thermometer contain marking above 42°C?

III Answer the following questions -

(i) At what temperature Celsius & Fahrenheit scale shows equal values?

(ii) What are the values of freezing point & boiling point of water on Celsius scale?

(iii) Convert both the values in Fahrenheit.

IV Write short answers for the following questions:

(i) Give two points of difference between convection and radiation of heat.

(ii) How does a blanket keep us warm in winter?

(iii) Why do we feel hot when we stand near a fire?

(iv) Why do we prefer light coloured clothes in summers and dark coloured clothes in winters?

(v) Write any two examples which are based on convection current.

(vi) Several days after the end of a snowstorm, the roofs of a house gets completely covered with snow, another house has no snow on its roof. Which house is better insulated & why?

V. Give reasons :

(i) Ventilators are provided near the ceiling.

(ii) The bottom of cooking utensils are coloured black.

(iii) Cotton is used in quilts.

(iv) Thermocol is used to make ice boxes to carry ice.

(v) Radiators of cars & air conditioners are painted black.

VI. Draw the diagram for land breeze and sea breeze and answer the questions that follow:

(i) Why does land breeze occur during night-time?

(ii) Why does sea breeze occur during daytime?

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QUESTION BANK

I. Define:

(i) Heat

(ii) Temperature

(iii) Thermometer
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II. What are different scales for measuring temperature?

III. Relation between Celsius scale and Fahrenheit scale.

IV. Define least count of thermometer.

V. What is role of kink in a clinical thermometer?

VI. What precautions should be observed while using s clinical thermometer.

VII. State 2 similarities and 2 difference between clinical and laboratory thermometer.

VIII. Convert:

(i) 25°C to °F
(ii) 86°F to °C
(iii) 10°C to °F
(iv) 95°F to °C

IX. What are three methods of transfer of heat?

X. Define:

(i) Conduction
(ii) Conductors of heat
(iii) Insulators of heat

XI. Define:

(i) Convection
(ii) Sea breeze
(iii) Land breeze

XII. Define Radiation and give its examples.

XIII. Give reason:

(i) Slabs of ice are covered with sawdust or gunny bags.
(ii) Why are ventilators provided at high height and windows at low height?
(iii) Why are bottom surfaces of utensils made black?
(iv) Why do birds puff up their feathers in winters?
(v) Why wearing more layer of clothing during winter keeps us warmer than wearing just one piece of cloth.
(vi) In place of hot climate it is advised that the outer walls of houses be printed white. Why?

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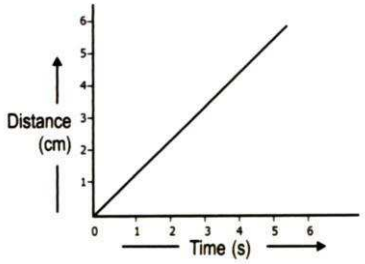
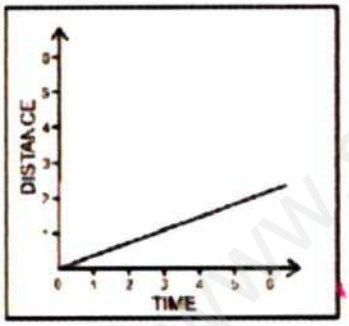
MODULE – 5 & 6

TUTORIAL
MOTION AND TIME

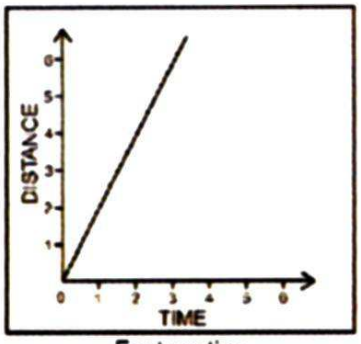
A body is said to be at **rest** if it does not change its position wrt its surroundings with the passage of time.
A body is said to be in **motion** if it changes its position or direction wrt its surroundings with the period of time.
Speed: - Distances covered by a body in a unit time is speed. Its SI unit is m/s.
Uniform Motion: - When an object covers the same distance in each unit of time, it is said to be moving with the constant speed or in uniform motion.



Uniform Motion



Slow motion

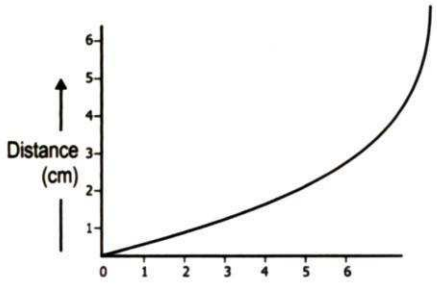


Fast motion

The graph of uniform motion will have the following characteristics: -

- Motion is represented by a straight line.
- The steeper the line, the greater the speed.

Non-Uniform Motion: - If a body covers unequal distance in equal intervals of time, it is said to be in non-uniform motion. E.g. Movement of child on road, movement of a butterfly.



Simple Pendulum

A pendulum consists of a small mass, suspended from a fixed point and allowed to swing freely under the influence of gravity. The small mass may be a small metallic ball or even a stone. It is called bob.

The movement of the bob from one end, swinging till other end to come back to its original position comprises one oscillation.

The time taken to complete one oscillation is called the time period of pendulum.

Mean Position: -The position of the bob in which it is at rest is called the mean position.

Amplitude: - The distance between maximum displacement of bob on either side from its mean position is amplitude.

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MODULE – 5 & 6

Assignment

I. Fill in the blanks:

(i) The earliest methods of measuring time were based on _____ of events.

(ii) _____, _____ and _____ were the main methods in early time to measure the time.

(iii) There are _____seconds in an hour.

(iv) We use the idea of speed to distinguish between _____ and _____ objects.

(v) SI unit of speed is _____& of time is_____.
(vi) The graph plotted between distance and time for the uniform motion is always in _____.
(vii) _____clock is the most accurate clock.
(viii) 1 Km/ hr = _____m/ sec.

II. State true or false:
(i) In non-uniform motion, the speed of an object changes for every equal intervals of time.
(ii) Time = $\frac{\text{Distance}}{\text{Speed}}$
(iii) Cars always move with uniform motion.
(iv) Time period of a pendulum depends on the weight of the bob.
(v) Motion of pendulum is non uniform motion.

III. Answer in one words:
(i) The resting position of the bob of pendulum.
(ii) Device fixed in vehicles which shows its speed.
(iii) Time taken for pendulum to complete one oscillation.
(iv) Total distance covered by body in unit time.
(v) To & fro motion of the bob about its mean position.

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MODULE – 7

I Give one–one example of the following –
(i) Uniform and Non uniform motion
(ii) Periodic & Non periodic motion
(iii) Oscillatory motion

II Plot the graph for following –
(i) A body at rest.
(ii) A bus moving with uniform speed.
(iii) If a body covers unequal distances in equal interval of time.

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QUESTION BANK

I. Define:
- *(i)* Rest
- *(ii)* Motion
- *(iii)* Uniform motion
- *(iv)* Non- uniform

II. What is speed? What is its SI unit?

III. Calculate the speed of body which covers a distance of 900 km in 5 hrs.

IV. Convert:
- *(i)* 50 m/s into km/h
- *(ii)* 20 m/s into km/h
- *(iii)* 108 km/hr into m/s
- *(iv)* 26 km/h into m/s

V. A body covers a distance of 4 km in 5 mins. Calculate his speed in km/hr.

VI. A motorist covers a distance of 3 km in 6min. Calculate speed in
- *(i)* m/s
- *(ii)* cm/s

VII. Light travels with a speed of 3×10^8 m/sec. How long does the light take from the sun which is 15×10^{11} m away?

VIII. Solve the following numerical:
- *(i)* A car takes 20 minutes to cover a distance of 15 km. Calculate the speed in km/hr.
- *(ii)* I went from my house to the playground 300 m away in 10 minutes. I ran back and reached in two minutes. What was my average speed?
- *(iii)* Rajdhani express takes 3 hrs to cover 315 km. Shatabdi express takes 6 hours to cover the distance of 600 km. Find the speed of both the express trains. Which express train will cover the distance of 400 km in less time?
- *(iv)* The odometer of can reads 10532.0 km at the start of journey and at end it reads 10850.0 km. If car takes 12 hour to complete its journey. Then calculate its average speed in km/hr, km/min and km/s.
- *(v)* If a pendulum completes 10 oscillations in one second, what will be the time period of pendulum?
- *(vi)* Calculate time period of a body if it covers 40 oscillations in 20 seconds.

IX. Define:
- *(i)* Oscillatory motion
- *(ii)* Simple pendulum
- *(iii)* Mean position
- *(iv)* Amplitude
- *(v)* One oscillation
- *(vi)* Time period
- *(vii)* Frequency

X. Calculate time period of a body if it covers 40 oscillations in 20 seconds.

XI. A simple pendulum take 32 seconds for completing 20 oscillations. Calculate its time period.

XII. If a pendulum completes 10 oscillations in one second, what will be the time period of pendulum?

XIII. Define graph for uniform and non- uniform motion.

XIV. Plot the distance time graph for an electronic toy train

Distance (m)	5	10	15	20
Time (s)	1	2	3	4

XV. A small kid is riding a bicycle in a park. Plot the observation of distance travelled by child's cycle.

Distance (m)	Time (s)
5	10
7	20
10	30
6	40

XVI. Plot a distance time graph for a body moving a uniform speed of 2 m/s.

Distance (m)	Time (s)	Speed (m/s)
2	1	2
4	2	$\frac{4}{2}=2$
6	3	$\frac{6}{3}=2$
8	4	$\frac{8}{4}=2$
10	5	$\frac{10}{5}=2$

XVII. Plot the graph between distance and time using the following data and answer the followed questions:

Time(hrs)	Distance(Km)
1	10
2	20
3	30
4	40
5	50

a. What is the type of motion?
b. What is the speed of the car when Time = 9 hours and Distance = 90 km?
c. Is the speed of the car constant?

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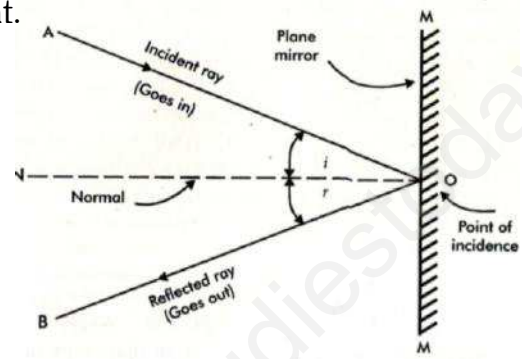
MODULE – 8

TUTORIAL
LIGHT

Reflection: - The bouncing back of light when it falls on a shiny or polished surface is called reflection of light.

Laws of reflection



The two laws of reflection of light are:-

1. The incident ray, the reflected ray and the normal, all lie on same plane at the point of incidence.
2. The angle of incidence is always equal to angle of reflection.

Real and Virtual Images

Real Images: - The image which can be obtained on a screen is called real image. It is formed when at least two rays coming from the object actually meet at a point after reflection from the mirror.

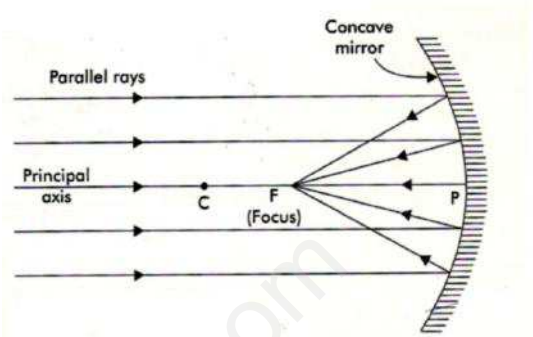
Virtual Images: - The image which cannot be obtained on a screen is called virtual image. It cannot be obtained on screen. They are unreal because they do not exist in reality.

Lateral Inversion: - When an object is placed in front of a plane mirror then right side of object appears to become left side of image and left side of object appears to become right side of image. This change of side of an object in its mirror image that is called lateral inversion.

Properties of an image formed by plane mirror are: -

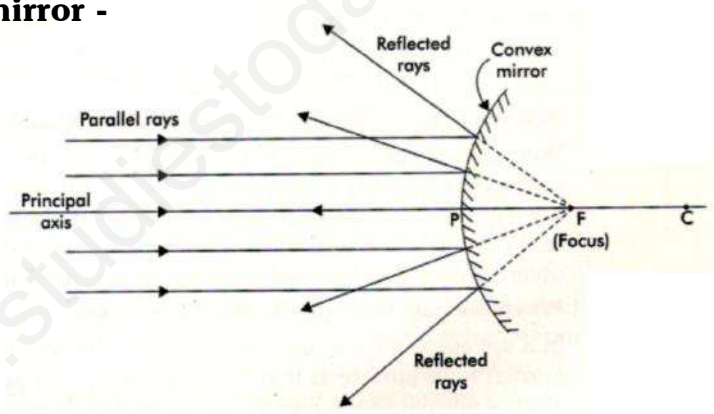
1. It always forms virtual and erect image.
2. It is of same size as the object
3. It is formed as far behind the mirror as the object is in front of it.
4. It is laterally inverted.

Converging nature of concave mirror –



In concave mirror, parallel rays of light actually meet or converge after reflection from the mirror. Hence concave mirror is called converging mirror and that point on the principal axis is called focus.

Diverging nature of convex mirror -



In convex mirror, parallel rays of light seem to diverge after reflection from the mirror. Hence convex mirror is also called diverging mirror.

Some important points:-

1. Concave mirror forms real and inverted image of object, when it is kept beyond focus.
2. Concave mirror forms virtual, erect and magnified image of object, when it is kept between the mirror and focus.
3. Concave lens always form virtual and smaller image.
4. Convex lens form real and inverted image when kept beyond focus. When it is placed very close to the lens the image is virtual, erect and magnified.

5. The splitting of light into seven colours is called dispersion of light and the band we get as a result of dispersion is called spectrum.

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MODULE – 8

Assignment

I. Fill in the blanks

(i) The direction of the path in which light is travelling is called a _____.
(ii) The stream of light formed by a number of rays is called _____.
(iii) A plane mirror _____ all light falling on it.
(iv) A plane mirror forms _____ image.
(v) Speed of light in vaccum is_____.

II. Answer in one word:

(i) The phenomenon of light travelling in a straight line.
(ii) An image that can be obtained on-screen.
(iii) A beam of light which comes from a broad source of light & converge at a point.

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MODULE – 9

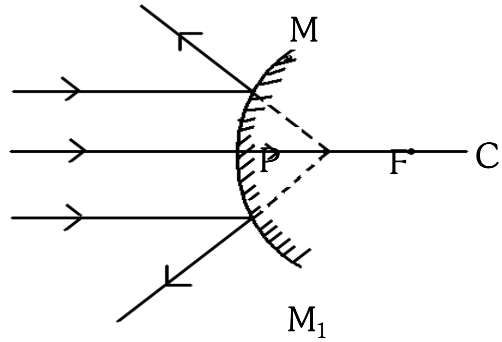
I. Fill in the blanks:

(i) A _____ mirror forms enlarged image.
(ii) _____ is used as rear view mirror in cars.
(iii) When we polish a spherical surface on the _____ side we get a convex mirror.
(iv) In car head lights, we use _____ mirrors.
(v) Image formed in convex mirror is always _____, _____ & _____ in size.

II. Answer the following questions:

(i) Doctors sometimes use a mirror on their foreheads to examine the internal parts of the ear, nose, throat etc. What type of mirror is it?
(ii) Mention two uses of
  (a) Concave mirror
  (b) Convex mirror
  (c) Plane mirror
(iii) Which mirror / mirrors always form virtual image?

III. Observe the given diagram and answer the followed questions:



(i) What does the following points represent in the above diagram?
(a) P *(c)* C
(b) F
(ii) What type of mirror is used in the above diagram?
(iii) What kind of image is being formed and where?

IV. Correct the following statements-
(i) A convex mirror gives only real images.
(ii) Image formed by convex mirror is of same size as that of object.

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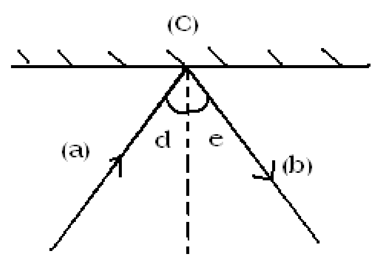
EXTRA QUESTIONS

I. Label the figure and answer the following questions:



(i) Identify and define a, b, c, d and e.
(ii) What is reflection?
(iii) What are the laws of reflection?

II. Give reasons:
(i) In medical vans used to transport patients to hospital, has words ‘ AMBULANCE ’ in scripted on it. Why?
(ii) We can see light through a straight tube but not through a bent tube. Why?

III. Draw a ray diagram to show reflection through concave mirror.

IV. Give reason –
(i) Why do we prefer convex mirror as a rear-view mirror?
(ii) Concave mirrors are used for shaving purpose.

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MODULE – 10

REVISION MODULE

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MODULE – 11 & 12

I. State true or false:
- *(i)* Convex mirrors are used in spectacles.
- *(ii)* Convex lens is also called magnifying glass.
- *(iii)* Image formed by concave lens is always virtual, erect & smaller in size.

II. Correct the following statements:
- *(i)* Mixing of colours of rainbow give black colour.
- *(ii)* White light is a composition of 10 colours.
- *(iii)* Convex lens is called diverging lens.
- *(iv)* Magnifying glass is made up of concave lenses.

III Fill in the blanks-
- *(i)* Concave lenses are also called_____.
- *(ii)* The band of seven colours obtained as a result of dispersion is known as _____.
- *(iii)* During rainbow formation, _____act like small prisms.

IV. Answer in one word
- *(i)* Phenomenon of breaking of white light into spectrum.
- *(ii)* A mechanical arrangement used to demonstrate the composition of white light.
- *(iii)* A transparent glass piece thinner in the middle and thicker at the edges.
- *(iv)* The phenomenon of bouncing back of light.
- *(v)* An image that can be obtained on a screen.
- *(vi)* Absence of all colours of light.

V. Which mirror will be used for following purpose?
- *(i)* For getting virtual and larger image.
- *(ii)* For getting real image.
- *(iii)* For getting virtual image of same size.
- *(iv)* For getting virtual image of smaller size.

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EXTRA QUESTIONS

I. Give differences between:
   (i) Concave lens and convex lens
   (ii) Lens and mirrors

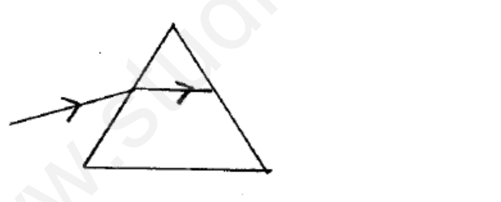
II. Give reasons:
   (i) Concave lenses are called diverging lenses. Why?
   (ii) Magnifying glass burns the paper if put it in the path of sun rays. Why?

III. Answer the following questions:
   (i) What are the characteristics of image formed by convex mirrors?
   (ii) In a concave mirror what will be the size and it nature of image formed, if the object is placed near (5cm) the mirror?

IV Draw a ray diagram to show refraction through convex lens.

V. Answer the following questions:
   (i) What are the characteristics of image formed by concave lens?
   (ii) How will you identify if you are provided with a plane mirror, concave mirror and convex mirror?
   (iii) What does 'VIBGYOR' stand for?

VI. Complete the diagram to show dispersion of light through a prism.



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QUESTION BANK

I. Define:
   a. Ray
   b. Beam
   c. Parallel beam of light
   d. Convergent beam of light
   e. Divergent beam of light

II. Define:
   a. Incident ray
   b. Reflected ray
   c. Normal
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d. Point of incidence
e. Angle of incidence
f. Angle of reflection

III. State laws of reflection.
IV. Differentiate between real image and virtual image.
V. What are the properties of image formed by a plane mirror?
VI. Define lateral inversion.
VII. What are uses of plane mirror?
VIII. If an object is placed at a distance of 5m away from a plane mirror. After sometime it moves 2 m towards the mirror. What will be the distance between object and image now?
IX. Define:
a. Sperical mirrors
b. Concave mirrors
c. Convex mirrors

X. Define some important terms related to spherical mirrors:
a. Pole (P)
b. Centre of curvature (C)
c. Radius of curvature (R)
d. Principal axis

XI. Explain converging nature of concave mirror.
XII. Explain diverging nature of convex mirror.
XIII. What are the uses of concave mirror and convex mirror.
XIV. Define:
a. Lenses
b. Concave lens
c. Convex lens

XV. Define the terms related to lens:
a. Optical centre
b. Principal axis

XVI. Explain:
a. Converging nature of convex lens
b. Diverging nature of concave lens

XVII. What are uses of concave lens and convex lens?

XVIII. Define:
   a. Dispersion of light
   b. Spectrum

XIX. What is a rainbow? How is it formed?

XX. Write an activity to recombine seven colours again into white light.

==========

MODULE – 13

TUTORIAL
Electric Current and its Effects

Electric current is the amount of charge with passes a particular point in a particular time. The S I unit of charge is **coulomb** while the unit of current is **Ampere**. The conventional direction of current is from positive to the negative terminal in a closed circuit.

The heating effect in a wire depends upon

1. Length of the wire
2. Thickness of the wire
3. Material of which the wire is made

Electromagnets are temporary magnets which works on the magnetic effect of electric current.

The strength of an electromagnet depends on-

1. The amount of current flowing through the coil
2. Number of turns of the wire
3. Length of iron rod

I. Fill in the blanks :

(i) The electric circuit consists of _____ or _____ as its essential part.

(ii) Electric circuit is a _____ path along which electric current flow.

(iii) _____ is the symbol for 'SWITCH OFF' in the electric circuit.

II. Match the following electric components with their symbols.

A		B	
1.	Battery	(a)	
2.	Blown fuse	(b)	
3.	Resistor	(c)	
4.	Connecting wire	(d)	

III. Give short answers for the following questions
- *(i)* What is an electric current?
- *(ii)* What is the unit of current?
- *(iii)* What is battery?
- *(iv)* What is the filament the bulb made up of?

==========

MODULE – 14

I. Fill in the blanks.

- *(i)* A fuse wire is used to _____ electrical appliance.
- *(ii)* _____ behaves like magnet when current is passed through it.
- *(iii)* The current can make _____ as well as _____ magnets.
- *(iv)* _____ was the first person to notice deflection in Compass needle when electric current was passed through it.
- *(v)* Fuse wire and heater work on _____ of electric current.
- *(vi)* Amount of heat produced in the circuit depends upon the amount of the _____ & amount of _____, for which it flows.

II. Match the following –

	A		B
(i)	Electric fuse	*(a)*	Closed circuit
(ii)	Electro magnets	*(b)*	Battery
(iii)	Source of electric energy	*(c)*	Heating effect of current
(iv)	Switch	*(d)*	Magnetic effect of current

MODULE – 15

I. Fill in the blanks-
- *(i)* Under normal conditions a magnetic compass needle always comes to rest in _____direction.
- *(ii)* The melting point of a fuse is _____than the melting point of remaining circuit.

II. State True or False –
- *(i)* An electric bell makes use of electromagnet.
- *(ii)* MCB is a form of fuse.
- *(iii)* A closely wound length of wire is called fuse.
- *(iv)* Electromagnet uses heating effect of electric current.

(v) A good fuse is that which will not melt, even when current crosses its limit.

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EXTRA QUESTIONS

I. Give reasons
If the filament of the bulb is broken, will the bulb still glow? If yes/no then, why?

II. *(i)* Draw the figure for the following electric components.

a) Electric bulbs
b) A battery of 3 cells
(c) Closed switch
(d) Fuse

(ii) Draw a circuit diagram required to light a bulb using a battery of four cells, in working condition.

III. Give short answers to the following question.

a) Give names of two devices based on heating effect of current.
b) What are the uses of electromagnets?
c) What is MCB? Why and where are they used?
d) What kind of wire is used to make electric fuse?
e) Name the wire used for making filaments of heater.

IV Observe the given figures and answer the following questions:

Fig.1.

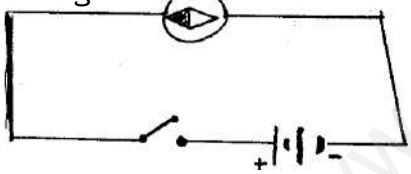
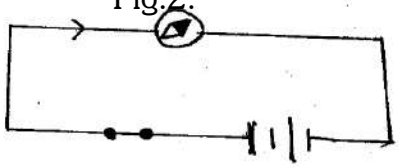


Fig.2.



(vi) What is the aim of the experiment?
(vii) What is the difference in figure 1 and figure 2?
(viii) What type of electric effect is being produced in figure 2?

IV. Answer the following questions-
(i) Why can't copper wire be used as a fuse wire?
(ii) Electromagnets are used for transporting heavy iron machinery in Industries. Why are the permanent magnets not used for this purpose?

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QUESTION BANK

I. Define electric current.
II. Explain basic parts of an electrical circuit.
III. What are the symbols of different electrical components?

IV. What are the different effects produced by an electric current?
V. What is heating effect of electric current? On what factors heat produced in wire depends?
VI. Name a few safety devices of electric circuit and explain them.
VII. What is magnetic effect of electric current? Write an activity to show magnetic effect of electric current.
VIII. What do you mean by an electromagnet? List the factors on which its strength depends upon?
IX. What are the uses of electromagnets?
X. Describe the structure and working of an electric bell.

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MODULE – 16 & 17

I. Correct the following statements:
   (i) Air exerts pressure only in upward direction.
   (ii) The strong moving air is called wind

II. Fill in the blanks:
   (i) The movement of air takes place due to _____.
   (ii) Moisture – laden winds are called _____ winds.
   (iii) Cyclones are known as _____ in Japan.
   (iv) The centre of the cyclone is cloudless calm area called the _____.

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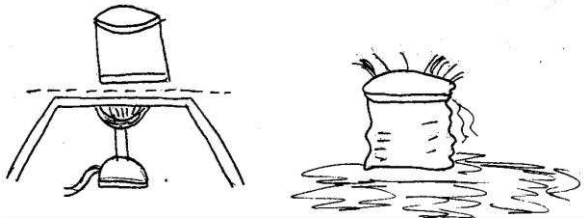
IMPORTANT QUESTIONS

I. Observe the figure and answer the given questions:

A. 

(i) What is the aim of the experiment?
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(ii) Why does the shape of the hot bottle distort when you put cold water on it?

B.

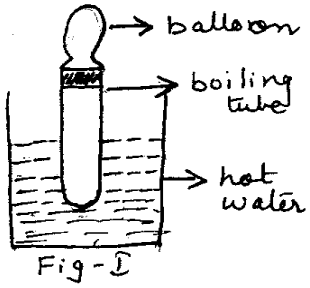

Fig - I

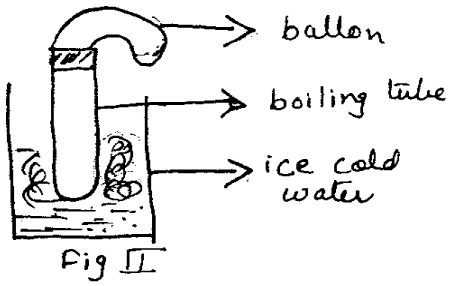

Fig II

(i) What is the aim of the experiment?
(ii) What does the shape of balloon indicate in the figure II?

II. Draw a diagram to show 'hot air rises up'. Give reason for the rising of hot air.

IV. Answers the following questions:
(i) What is thunderstorm?
(ii) What is a cyclone?
(iii) What are the other names of cyclone?
(iv) What are tornadoes?
(v) Write three effective safety measures for the cyclone.

V. Application based questions: -
(i) Does air pressure help the birds to fly? How?
(ii) Aeroplanes do not flap their wings like birds. How do they lift up?
(iii) How does vacuum cleaner work?

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QUESTION BANK

I. With the help of activity explain:
   a. High speed wind reduces air pressure.
   b. Air exerts pressure.
   c. Air explands on heating.
   d. Hot air rises up.

II. What are monsoon winds?
III. What is thunderstorm? How is it caused? What precaution must be taken during a thunderstorm?
IV. Explain how does a thunderstorm become a cyclone.
V. List the safety measures that must be taken against cyclone.

VI. Define:

a. Tornado
b. Eye of cyclone
c. Hurricanes
d. Typhoons

VII. Explain why holes are made in hanging banners and hoardings?

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MODULE – 18

Revision Module

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CHEMISTRY

MODULE – 1

UNIT-I: ACIDS, BASES AND SALTS

Contents

- Acids
- Bases
- Acidic substances
- Basic substances

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MODULE – 2

UNIT-I: ACID, BASES AND SALTS .

Contents

- Natural indicators
- Artificial indicators
- Acid Rain

~~~~~~

MODULE – 3

UNIT-I: ACID, BASES AND SALTS

Contents

- Neutralization
- Indigestion
- Ant sting
- Soil treatment

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MODULE – 4

UNIT-II: FIBER TO FABRIC

Contents:

- Plant fibre and Animal fibre
- Animals that yield wool
- Rearing and Breeding of sheep

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MODULE – 5

UNIT-II: FIBER TO FABRIC

Contents:

- Processing fibres into wool
- Occupational hazards

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MODULE – 6

UNIT-II: FIBER TO FABRIC

Contents:

- Life cycle of silk moth
- Processing silk
- Refining silk

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MODULE – 7

WATER : A PRECIOUS RESOURCE

Contents:

- Water Day
- Availability of water
- Forms of Water
- Water cycle

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MODULE – 8

WATER : A PRECIOUS RESOURCE

Contents:

- Ground water
- Distribution of water table
- Depletion of water table

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MODULE – 9

WATER : A PRECIOUS RESOURCE

Contents:

- Water management
- Water harvesting
- Water wise habits
- Effects of water scarcity on plants

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MODULE – 10

Revision for Half Yearly

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MODULE – 11
PHYSICAL AND CHEMICAL CHANGES
Contents:

- Introduction.
- Examples of physical change.
- Freezing mixture.

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MODULE – 12
PHYSICAL AND CHEMICAL CHANGES
Contents

- Chemical change.
- Chemical reaction.
- Chemical equation.

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MODULE –13
PHYSICAL AND CHEMICAL CHANGES
Contents

- Examples of chemical change.
- Rusting of iron.
- Galvanization.
- Crystallization.

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MODULE – 14
SOIL
Contents

- Soil as a natural resource
- Soil profile
- Soil type

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MODULE – 15
SOIL
Contents

- Properties of soil
- Moisture in soil

- Absorption of water by soil
- Soil and crops

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MODULE – 16
WASTE WATER STORY
Contents

- Importance of water
- Sewage
- Polluted water
- Treatment of polluted water

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MODULE – 17
WASTE WATER STORY
Contents

- WWTP
- Better house keeping practices
- Sanitation and disease
- Sewage disposal

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MODULE – 18

Revision For Annual Examination

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MODULE – 01/02/03

ACIDS, BASES AND SALTS
TUTORIALS

Symbols

A symbol is an abbreviation of the name of the element. They have been derived in three different ways.

1. *The first letter (in capital) of the English name of an element is taken to be the symbol of the element for e.g.*

Name	Symbol	Name	Symbol
Hydrogen	H	Oxygen	O
Boron	B	Fluorine	F
Carbon	C	Phosphorus	P

2.*The first letter along with one more letter of The English name of an element(this becomes necessary when the names of two or more elements begin with the same letter)*

Name	Symbol	Name	Symbol
Helium	He	Aluminium	Al
Neon	Ne	Calcium	Ca
Nickel	Ni	Chlorine	Cl
Magnesium	Mg	Zinc	Zn
Manganese	Mn		

3.*One or two letters of the latin name of an element.*

English	Latin	Symbol
Sodium	Natrium	Na
Potassium	Kalium	K
Iron	Ferrum	Fe
Copper	Cuprum	Cu
Silver	Argentum	Ag
Tin	Stannum	Sn
Gold	Aurum	Au
Lead	Plumbum	Pb
Mercury	Hydrargyrum	Hg

Formulae

The formula of a molecule gives the number(s) of atoms of the same or different elements present in the molecule.

For e.g. Two atoms of hydrogen combine to form a molecule of hydrogen as hydrogen

atom does exist independently; it generally combines to form a molecule and is represented as H_2.

Valency

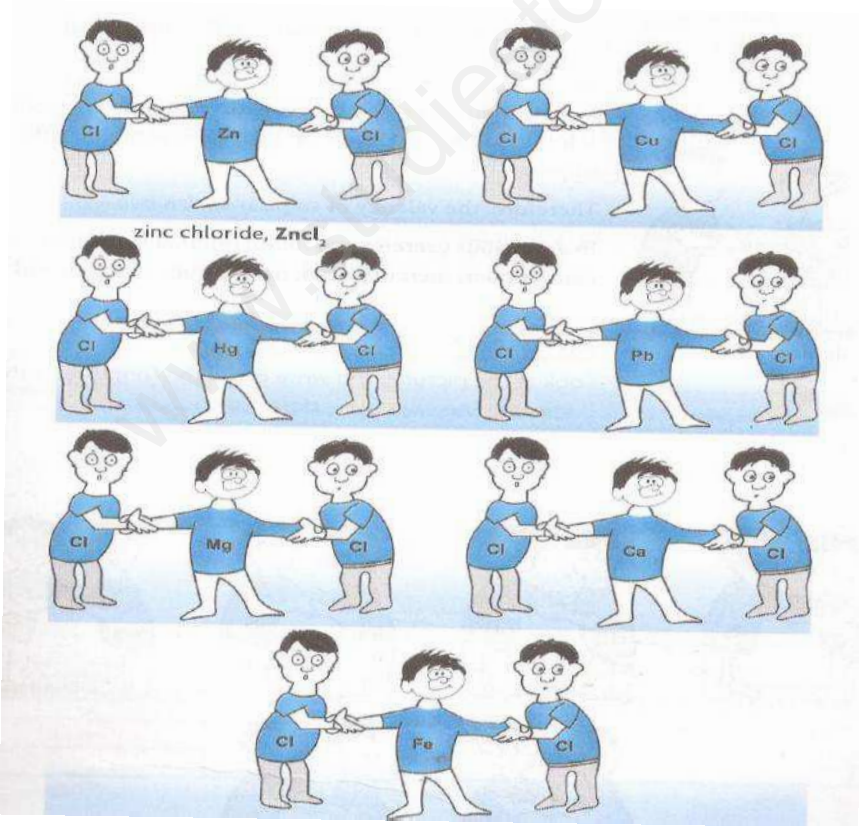
The valency of an element denotes it's combining capacity.for e.g. in HCl one atom of chlorine combines with one atom of hydrogen so the valency of chlorine is 1 and the valency of hydrogen is also 1.

In the molecule of water one atom of oxygen combines with two atoms of hydrogen so the valency of oxygen is 2 and the valency of hydrogen is 1.

Radicals

Groups of atoms of different elements which combine as single units, but cannot exist independently are known as radicals. Thus SO_4 represents the radical 'sulphate' and NO_3 represents the radical 'nitrate'.

In a molecule of H_2SO_4 one sulphate radical combines with two atoms of hydrogen so the valency of sulphate radical is 2.



From the above pictures we can say that-

1. The valency of chlorine is one.
2. In each case one atom of the element combines with two atoms of chlorine.
3. Hence, the valency of each of the elements – zinc, copper, mercury, lead, magnesium, calcium and iron – is two.

ASSIGNMENT

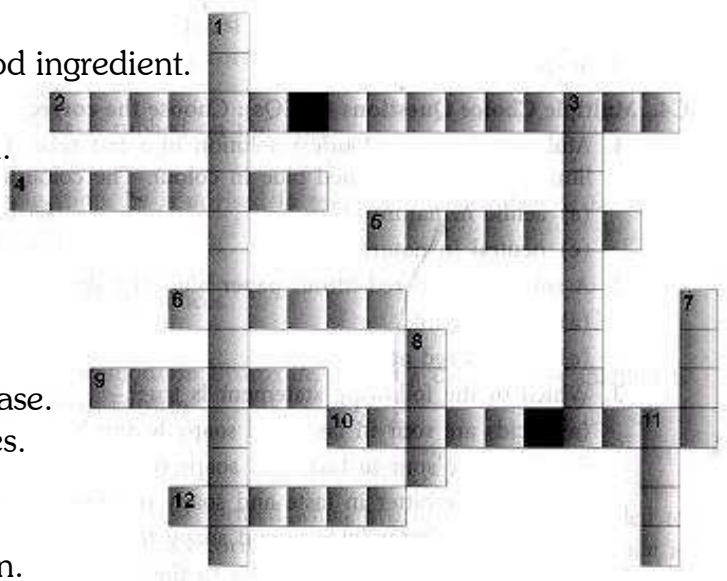
Q.1. Name the following:

(i) Substances which furnish hydronium ion in solution.
(ii) Substances which turn blue litmus solution red.
(iii) Substances which furnish hydroxyl ion in solution.
(iv) Substances which turn turmeric paper red.
(v) Chemical name for salt which we consume everyday.
(vi) Base used as foaming agent in fire extinguisher.
(vii) A commonly used antacid.
(viii) The substances on which litmus solution has no effect.
(ix) The colour of turmeric solution in soap solution.
(x) Examples of any two mineral acids and organic acids.
(xi) Write the name and colour of two salts found in the laboratory.

Q.2. Solve the crossword given below:

Across

2. A base present in soap.
4. An indicator which is used as a food ingredient.
5. Relievers from indigestion.
6. An indicator obtained from Lichen.
9. Soluble base.
10. An indicator which is green.
12. An acid present in an ant sting.



Down

1. Reaction between an acid and a base.
3. Tests chemical nature of substances.
7. Bitter in taste and soapy to touch.
8. Sour in taste.
11. A product of neutralization reaction.

Q.3. Match the following:-

	COLUMN I		**COLUMN II**
(i)	Sodium chloride	*(a)*	Neutral media
(ii)	Water	*(b)*	Formic acid
(iii)	Lime juice	*(c)*	Lichen
(iv)	Lime water	*(d)*	Magnesium hydroxide
(v)	Methyl orange	*(e)*	Salt
(vi)	Litmus	*(f)*	Acid
(vii)	Sting of bees	*(g)*	Indicator
(viii)	To remove acidity	*(h)*	Base

Q.4. Fill in the blanks –

(i) The new substance formed when an acid reacts with a base is _____.
(ii) Heat is _____ during a neutralization reaction.
(iii) When dilute sulphuric acid is added to lime water, the reaction mixture becomes _____.
(iv) _____acid is present in our stomach.
(v) Milk of magnesia contains a base called _____.
(vi) Calamine lotion contains _____.

Q.5 Name the acids present in the following –

(i)	Curd	*(ii)*	Spinach	*(iii)*	Tamarind
(iv)	Amla	*(v)*	Aerated drinks	*(vi)*	Vinegar

Q.6. Name the bases present in the following –

(i)	Lime water	*(ii)*	Soap	*(iii)*	Milk of magnesia
(iv)	Slaked lime	*(v)*	Caustic soda	(vi)	Caustic potash

Q.7. Give the natural source of the following acids:

(i)	Citric acid	*(iv)*	Tartaric acid
(ii)	Lactic acid	*(v)*	Oxalic acid
(iii)	Acetic acid	*(vi)*	Maleic acid

Q.8. What are the colour changes of the following indicators:–
(a) in acidic medium
(b) in basic medium
(c) in neutral medium

(i)	China rose	*(ii)*	Red litmus	(iii)	Methyl orange
(iv)	Phenolphthalein	*(v)*	Turmeric powder	*(vi)*	Blue litmus

Q.9. Choose the correct alternatives –

(i) The colour of methyl orange in acids is –

(a) yellow *(b)* pink *(c)* red *(d)* orange

(ii) Acidic soil can be neutralized by adding –

(a) quicklime *(b)* vinegar *(c)* nitric acid *(d)* formic acid

(iii) Atul was given a colourless solution in a test tube. He put a drop of this solution on blue litmus paper. It remained blue in colour. The colourless solution is

(a) acidic in nature *(c)* neutral in nature
(b) basic in nature *(d)* nothing can be said

(iv) A solution turns red litmus paper blue. If a drop of phenolphthalein is added to it,

(a) it turns pink *(c)* it remains colourless
(b) it turns red again *(d)* it turns blue

(v) Orange juice is sour in taste due to the presence of

(a) acetic acid *(c)* formic acid
(b) citric acid *(d)* tartaric acid

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QUESTION BANK- ACID AND BASES

Q.1. Answer the following questions:

(i) Where do we get litmus solution from?
(ii) Give any two use of acids?
(iii) What causes indigestion? How it can be treated?
(iv) How can you neutralize the effect of ant sting?
(v) What makes the soil acidic? How it can be treated?
(vi) Mention any two uses of bases.
(vii) Is the distilled water acidic/ basic/ neutral? How would you verify it?

(viii) Describe the process of neutralization with the help of an example.

(ix) Dorji has a few bottles of soft drink in his restaurant. But unfortunately, these are not labelled. He has to serve the drinks on the demand of customers. One customer wants acidic drink, another wants basic and third one wants neutral drink. How will Dorji decide which drink is to be served to whom?

(x) Three liquids are given to you. One is hydrochloric acid, another is sodium hydroxide and third is a sugar solution. How will you identify them? You have only turmeric indicator.

(xi) Blue litmus paper is dipped in a solution. It remains blue. What is the nature of the solution? Explain

Q.2. Define the following with examples:

(i) Indicators
(ii) Acid rain
(iii) Natural indicators
(iv) Neutralization reaction
(v) Antacids
(vi) Neutral substances
(vii) Synthetic indicators

Q.3. Differentiate between:

(i) Acids and bases
(ii) A base and an alkali
(iii) Mineral acids and Organic acids
(iv) Concentrated acids and Dilute acids

Q.4. Give reasons for the following –

(i) Vinegar is sour.
(ii) We should not taste a substance to test whether it is acidic or basic.
(iii) We add organic matter to soil which is basic in nature.
(iv) We can use a lemon for cleaning copper vessels.
(v) A scientist visited a farmer's field and found the soil to be highly acidic. He suggested the farmer to add ammonia based fertilizers.
(vi) China rose gives no colour change with solid baking soda.
(vii) Why does a vegetable stain turn reddish- brown when washed with soap solution
(viii) An antacid tablet is taken when you suffer from acidity.
(ix) Calamine solution is applied on the skin when an ant bites.
(x) Factory waste is neutralized before disposing it into the water bodies.

Q.5. Substance 'X' is obtained by the reaction of sulphuric acid and sodium hydroxide. Identify 'X' and write its chemical formula?

Q.6. Take water in a test tube and add few drops of blue litmus to it. With the help of a straw, blow air into the solution. It turns red. Explain the reason behind the colour change.

Q.7. Complete the following neutralization reaction:

(i) Potassium hydroxide + Sulphuric acid ⟶ Potassium sulphate + _____ + _____.

(ii) Calcium hydroxide + Hydrochloric acid⟶ _____ + water + _____

(iii) Carbonic acid + Sodium hydroxide ⟶_____ + _____+ heat.

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MODULE – 04/05/06

FIBRE TO FABRIC
TUTORIAL

Raw silk and spun silk

The filament which a cocoon is made up of is too fine and delicate to handle. So many of them are reeled together to yield a stronger thread, called *Raw silk*. Damaged cocoons are used to make inferior silk called *Spun silk*.

Twisting the Threads—Throwing

The raw silk prepared is twisted to produce what is known as *Thrown silk.* The process is called throwing and the people who throw the silk are called *Throwsters*

Physical properties of wool

1. Smoothness- A wool fibre feels smooth to touch.
2. Tensile strength-Has high tensile strength. It can bear a great pull without breaking.
3. Absorption of water-Wool absorbs more water than any other fibre.

Chemical properties of wool

1. Action of heat-it starts changing colour at 100°C, but does not catch fire easily. It also becomes yellowish when left in hot and humid atmosphere for a long time.
2. Action of acids and bases- It dissolves in acids and alkalis.
3. Action of bleaching agents-The fibre can be bleached without the loss of strength.

Burning Characteristics Of Various Fibres

S.No	Name of fibre	Burning characteristics	Smell	Residue characteristics
1.	Cotton	Burns steadily and gives out light smoke.	Burning paper	Fine ash is produced, which crumbles on touching.
2.	Nylon	Melts, shrinks and drops of melted nylon fall on the ground.	Burning plastic	Dry hard beads are produced that can be moulded when hot and are hard when cold.
3.	Silk	Burns slowly (Fire extinguishing)	Burning hair	Silver beads which crush easily to powder.
4.	wool	Burns slowly, stops burning when removed from the source	Burning hair	First turns brown, then shiny hollow beads are produced, which crumble on pressing.

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ASSIGNMENT

Q.1. Name the following:

(i) Any two fibres obtained from animals.
(ii) Four animals that give us wool.
(iii) The two types of fibres that form fleece of sheep.
(iv) Microorganism responsible for causing a fatal blood disease – sorter's disease in workers involved in wool industry.
(v) Breed of sheep that gives brown fleece.
(vi) Quality of wool obtained from patanwadi.
(vii) The state where the following breed of sheep are found.
(a) lohi *(b)* nali *(c)* marwari
(viii) The country that leads the world in silk production.

Q.2. Select the odd one out giving reason.

(i) Cotton, silk, wool.
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(ii) Camel, sheep, silk worm.
(iii) Shearing, scouring, reeling.
(iv) Sorting, cocoon, boiling, carding.
(v) Angora, merino, tassar.

Q.3. Fill in the blanks –

(i) Angora wool is obtained from _____.
(ii) _____ and _____ are the two types of camels which give us wool.
(iii) Sheep feeds on _____, _____ and _____.
(iv) Workers working in wool industry suffer from _____.
(v) _____ leads the world in wool production.
(vi) Cocoons are _____ in colour.
(vii) Silk worms feed on _____.

Q.4. Choose the right answer.

(i) Which of these is not a fiber?
(a) cotton (b) wool (c) nylon (d) leather

(ii) Which of these is not an animal fiber?
(a) wool (b) silk (c) jute (d) angora

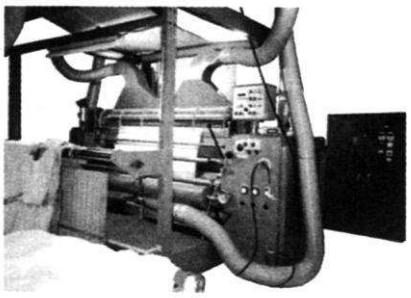
(iii) Which of these is a synthetic fiber?
(a) jute (b) rayon (c) cotton (d) mohair

(iv) Silk and wool fibres are made of
(a) fats (b) proteins (c) carbohydrates (d) all of these

(v) From which of the following sheep do we obtain carpet wool?
(a) Marwari sheep (b) Merino sheep (c) Lohi sheep (d) Nali sheep

Q.5. The figure shows a shearing machine

(i) Define shearing.
(ii) Why is it done in summers?
(iii) Shearing is painful for sheep. Yes/ No. Give reasons.



A shearing machine

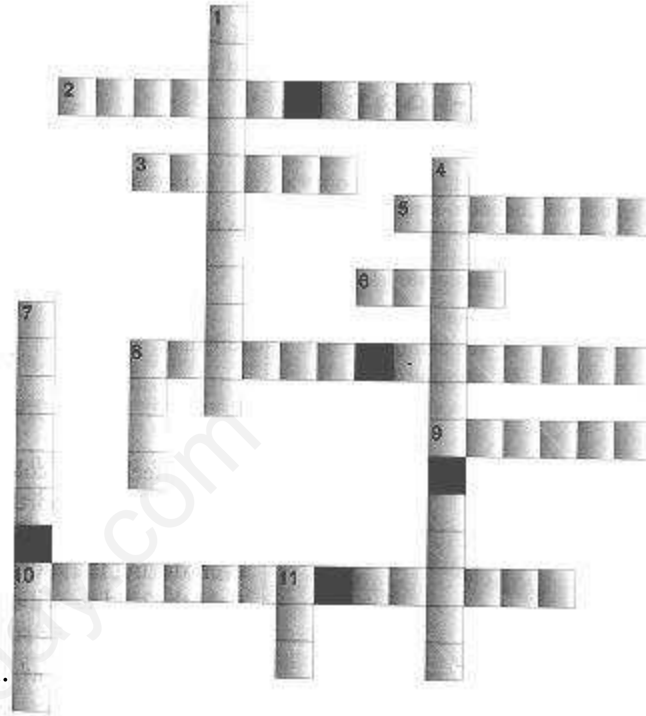
Q.6. Solve the crossword given below:

DOWN:

1. Breeding and management of silkworms.
4. Obtained from fine hair of Kashmiri goat.
7. Scientific name of silk- producing moth.
8 Queen of fibres.
11. A source of wool.

ACROSS:

2. Source of Angora wool.
3. Covering of silk fibre.
5. Passing fibres through metal teeth to straighten them.
6. A breed of sheep found in India.
8. An occupational disease.
9. A source of wool found in South America.
10. Food of silkworm.



Q.7 Complete the matrix:

Step	**Procedure**
1.Shearing	____
2.____________	The sheared skin with thick coat of hair is then washed thoroughly in tanks to remove grease dirt and dust.
3.____________	The dyed fibers are passed through metal teeth to straighten them.
4.Spinning	____

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QUESTION BANK- FIBER TO FABRIC

Q.1. Answer the following questions:

(i) State the characteristics of mulberry silk.
(ii) How do we obtain silk thread form cocoons? Explain the steps.
(iii) What adverse effects are observed on the health of workers in silk Industry?
(iv) List some occupational hazards of silk industry.
(v) List five type of animal fibers and their sources.
(vi) How much time does a caterpillar takes to form a cocoon.
(vii) Give examples of different variety of silk.
(viii) List and explain the steps of wool extraction.
(ix) Make sketches of all the stages in the life history of the silk moth.

Q.2. Give reasons:

(i) Animals living in cold region have a thick coat of hair.
(ii) Woolen clothes keep us warm in winter.
(iii) Sheering does not hurt the sheep.
(iv) Smell of burning wool and silk is similar.

Q.3. Draw the life cycle of a silk moth and answer the following questions:

(i) In which stage does the silk moth feed on the plant leaves?
(ii) In which stage is the cocoon formed?
(iii) How is cocoon formed?
(iv) What happens to the caterpillar inside the cocoon?

Q.5 Differentiate between:

(i) Plant fibres and animal fibres
(ii) Sorting and scouring

Q.6. Define the following:

(i) Reeling of silk thread
(ii) Sericulture
(iii) Selective breeding
(iv) Pupa
(v) Rearing
(vi) Fleece
(vii) Shearing
(viii) Burrs
(ix) Reeling

==========

MODULE: 07/ 08/09

WATER- A PRECIOUS RESOURCE
TUTORIAL

PROPERTIES OF WATER

1. Nature: Pure water is a colourless, odourless and tasteless liquid.
2. States: Pure water exists in all three states as solid (ice), liquid (water) and gas (steam or water vapour)
3. Freezing Point: Pure water freezes to ice at 0° C.
4. Boiling Point: Pure water boils at 100°C.
5. Stable substance: Water is a stable substance .It is broken down into its components hydrogen and oxygen by heating beyond 500°C or by electrolysis.
6. Anamolous Expansion: On cooling below 4°C, water expands and hence its volume increases.
7. Density: Pure water has the maximum density at 4° C and minimum density at 0° C.That is why ice cubes float on water.
8. Good solvent: water is an excellent solvent. It dissolves many substances forming an aqueous solution.
9. Saline Water: Rain Water dissolves solid salts on land and carries them to the sea. These have been added to the oceans over the years and sea water has become salty. This is called saline water.

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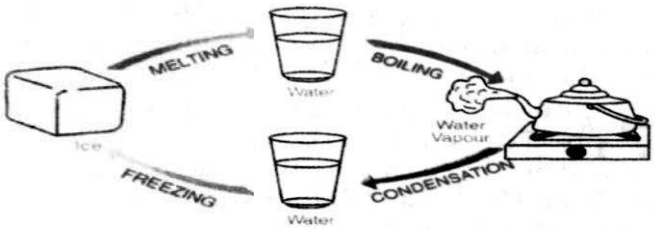
ASSIGNMENT

Q.1. Fill in the blanks –

(i) Water exists as _____ and _____ in solid state.
(ii) Liquid water is present in _____, _____ and _____.
(iii) Plants lose water by the process of _____.
(iv) Water which seeps down into the ground is called _____.
(v) The problem of water shortage is _____ day by day.
(vi) _____ is the ultimate source of water.
(vii) _____ substance can lead to contamination of water.
(viii) _____ and _____ are water borne diseases.
(ix) _____ is the method of collecting rainwater for future use.
(x) Water of oceans is _____ hence, cannot be used for drinking.
(xi) Like air, forests, sun, _____ is also a natural resource.

(xii) River water gets polluted by _____ in them.
(xiii) In India _____ sector is the major user of water.
(xiv) One of the main reason for scarcity of water is _____.

Q.2. The diagram shows that states of water are interchangeable. Prove this statement correct.



Q.3. Match the following:

(i)	Water fit for consumption	*(a)*	Polluted water
(ii)	Water found in wells	*(b)*	Distilled water
(iii)	A liquid present in all human beings	*(c)*	CO_2 from 70 to 90 percent
(iv)	Gas that is extremely soluble in water	*(d)*	Potable water
(v)	Pure water used for medicinal purpose	*(e)*	Underground water
(vi)	Water containing harmful substances	*(f)*	Water

Q.4. Select the odd one out giving reasons:
(i) Ocean, ground water, lakes.
(ii) Water, ice, snow.
(iii) Infiltration aquifer, drip irrigation.
(iv) Water harvesting, bawris, aquifer.

Q.5. Name the following :

(i) Constant circulation of water on earth.
(ii) The process of seeping of water into the ground.
(iii) The level of water under the ground.
(iv) Percentage of water on earth available for our use.
(v) The day is celebrated as World Water Day.
(vi) The main source of ground water.

Q.6. Tick the correct answer.

(i) Seeping of water into ground is (seepage/infiltration).
(ii) Excessive rains cause (floods/ draught).
(iii) Freshwater present is (more/less) than water of the oceans.
(iv) Saline water is found in (lakes / oceans).

Q.7. Write true or false:

(i) One third of the world will face water scarcity in a few years.

(ii) Water which is fit for human use is called saline water.

(iii) 71% of the earth's surface is covered with water.

(iv) Fresh water stored in the ground is much more than that present in the rivers and lakes.

==========

QUESTION BANK

Q.1. Answer the following questions:

(i) What are the various effects of water scarcity?
(ii) State the importance of water in human body?
(iii) How does aquifers get recharged?
(iv) List various reason of depletion of ground water?
(v) List any three problems caused due to water scarcity?
(vi) How are forests contributing to recharging of ground water?
(vii) Describe the water cycle in nature.
(viii) How can you conserve water at your home?
(ix) How do you think putting a layer of mulch helps in increasing the water table?
(x) How is water table affected by our increasing population?
(xi) Give any two water wise habits.
(xii) How ground water can be obtained and used by us?
(xiii) Explain how groundwater is recharged.
(xiv) Explain the factors responsible for the depletion of water table.
(xv) Make a sketch showing ground water and water table. Label it.
(xvi) Make a sketch to show the various process involved in the water cycle and explain each process.

Q.2. Define the following:

(i) Water cycle
(ii) Ground water
(iii) Infiltration
(iv) Aquifer
(v) Water table

Q.3. Give reasons:

(i) Sea and Ocean water is unfit for human consumption.
(ii) Planting trees prevents depletion of water table.
(iii) Sea and Ocean water is saline.

(iv) Grass lawn is better than a cemented floor.

Q.4. Write about the different sources of water available to us. Which source of water is the most important for us and why?

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Module-10

Revision Module

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Module: 11/12/13

PHYSICAL AND CHEMICAL CHANGES TUTORIAL

Atom: An atom is the smallest particle of an element which can take part in a chemical reaction.
Molecule: A molecule is the freely existing smallest particle of a pure substance which shows the physical and chemical properties of that substance.
Element: An element is the simplest form of a pure substance.
Mixture: When two or more substances are mixed in such a way that they do not lose their own properties they are said to form a mixture.
Compound: A compound is a pure substance formed by the combination of elements in fixed proportion by weight.

Types of Chemical Reactions

1.**Combination reaction**

In a combination reaction two or more reactants add up to form a product.

$C + O_2 \longrightarrow CO_2$

carbon oxygen carbon dioxide

2. **Decomposition reaction**

In a decomposition reaction one substance breaks down into two or more simpler substances.

$CuCO_3 \longrightarrow CuO + CO_2$

Copper carbonate copper oxide carbon dioxide

3.**Displacement reaction**

In a displacement reaction one element displaces another from a compound and takes its place in the compound.

$$\underset{\text{Iron}}{Fe} + \underset{\text{copper sulphate}}{CuSO_4} \longrightarrow \underset{\text{Iron sulphate}}{FeSO_4} + \underset{\text{copper}}{Cu}$$

==========

ASSIGNMENT

Q.1. Classify the following changes as physical or chemical changes –

(i) Burning of sugar
(ii) Melting of butter
(iii) Souring of milk
(iv) Drying of wet hair
(v) Mixing lime with water
(vi) Burning of coal
(vii) Growth of plants to trees
(viii) Spoiling of food
(ix) Bursting of crackers
(x) Cutting of vegetables

Q.2. Name the following:

(i) Common name of copper sulphate.
(ii) The gas evolved when vinegar is reacted with baking soda.
(iii) Any 3 alloys from your daily life.
(iv) Two factors which cause rusting.
(v) An example of a chemical change in which there is a change of colour.

Q.3. Metal X burns with a dazzling white flame to form a compound Y. Compound Y reacts with water to form Z which in turn turns red litmus paper blue.

(i) Identify X, Y and Z
(ii) Write down the chemical reactions involved.

Q.7. Metal A change the colour of copper sulpahte solution when added to it.

(i) Name metal A.
(ii) Write down the reaction involved in this change.
(iii) What type of change is this?

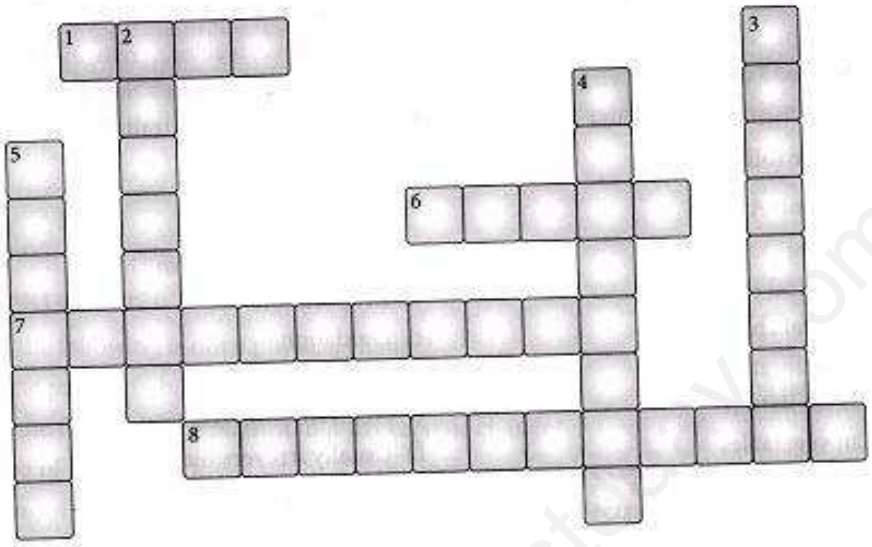
Q.5. Solve the crossword given below:

ACROSS:

1. This reacts with a base in neutralization reactions.
6. A material made of two metals or a metal and a non- metal.
7. Salt is obtained from sea water by this process.
8. Chemical changes are usually of this type.

DOWN:

2. Well- defined geometrically similar solids.
3. Breaking of a flower vase is this kind of change.
4. Exposed surfaces of fruits and vegetables take up this colour.
5 Common name for acetic acid.



Q.6. Match the given columns:

Column A	Column B	Column C
(i) Physical changes	*(i)* reacts with sulphur	*(i)* Rust
(ii) copper sulphate	*(ii)* irreversible	*(ii)* Chemical change
(iii) iron	*(iii)* no new substance is formed	*(iii)* Basic in nature
(iv) carbon	*(iv)* turns red litmus paper blue	*(iv)* Generally reversible
(v) spoilage of food	*(v)* reacts with zinc	*(v)* Zinc sulphate is formed
(vi) magnesium	*(vi)* oxygen and water	*(vi)* Endothermic reaction

Q.7. Complete the following reactions –

(i) _____ + Carbon dioxide ⟶ Calcium carbonate + _____.

(ii) Carbon + oxygen ⟶ _____

(iii) Magnesium oxide + _____ ⟶ Magnesium hydroxide.

(iv) Magnesium + _____ ⟶ Magnesium oxide.

Q.8. Fill in the blanks:

(i) Dissolving sugar in water is a _____ change.

(ii) The process of depositing a layer of zinc on iron is called _____.

(iii) Crystals of pure substances are obtained from their solutions by _____.

(iv) Hydrated iron oxide is called _____,

Q.9. Tick the correct answer:

(i) Crystallization is a process of obtaining.

(a) pure solids only *(c)* pure gas only

(b) pure liquids only *(d)* all of these

(ii) Observe the following two changes. Change A: Biogas is produced by decomposition of animal and plant waste by anaerobic bacteria. Change B: Biogas is burnt as other fuels. Which of these is a chemical change?

(a) Change A *(c)* Both (a) and (b)

(b) Change B *(d)* None of these

(iii) Rusting of iron can be prevented by

(a) galvanizing *(c)* alloying

(b) electroplating *(d)* all of these

(iv) Which of the following is a physical but irreversible change?

(a) burning of a matchstick

(b) melting of an ice cream

(c) crushing of glass

(d) lighting of an electric bulb

==========

QUESTION BANK

Q.1. Answer the following questions:

(i) How can we show that the residue left after burning magnesium is basic in nature?

(ii) What do you observe when iron or zinc pieces are added to blue coloured solution of copper sulphate?

(iii) What will happen if a copper wire is added in a solution of ferrous sulphate?

(iv) State the conditions necessary for rusting.

(v) Explain the importance of ozone layer present in upper atmosphere.
(vi) Is galvanization a physical or a chemical change? Explain.
(vii) State various methods used to prevent rusting.
(viii) What are the characteristics of chemical change?
(ix) How can you test for the presence of CO_2 gas?
(x) When baking soda is mixed with lemon juice, bubbles are formed with the evolution of a gas. What type of change is it? Explain.
(xi) How would you show that setting of curd is a chemical change?
(xii) Explain why burning of wood and cutting it into small pieces are considered as two different types of changes.
(xiii) Describe how crystals of copper sulphate are prepared.
(xiv) Explain how painting of an iron gate prevents it from rusting.
(xv) Explain why rusting of iron objects is faster in coastal areas than in deserts.

Q.2. Give reasons:

(i) A steel glass does not rust.
(ii) We rub a magnesium ribbon with a sand paper before burning it.
(iii) Evaporation of water due to heat of sun is a Physical Change.
(iv) On hammering a piece of iron, sound is produced but no new substance is formed.
(v) Lime water turns milky when carbon dioxide gas is passed through it.
(vi) The process of digestion is said to be a chemical change.
(vii) Cut vegetable take up a brown colouration when exposed in air.
(viii) Rusting is seen mostly during rainy season.

Q.3. Define the following:

(i) Crystallisation
(ii) Galvanisation
(iii) Alloying
(iv) Rusting

Q.4. Differentiate between:
(i) An element and a compound
(ii) Physical and Chemical changes

Q.5. Which one out of iron and copper is more reactive? Illustrate your answer with the help of an example.

Q.6. If a certain compound has the formula H_2X , what is the valency of X?

Q.7. Represent the following changes in the form of equation –
(i) Burning of Magnesium ribbon.

_____

(ii) Reaction between copper sulphate and iron nails.

_____

(iii) Reaction between vinegar and baking soda.

_____

(iv) Reaction between carbon dioxide and lime water.

_____

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Module: 14/15

SOIL

TUTORIAL

A parameter by which soil is differentiated, is its geographical availability.

1. **Red soil.** As the name suggest, the soil is reddish in colour. This is because of the presence of iron oxide in it. It is mainly found in Kerala, Tamil naidu and other south Indian states. It is also called red latosol.
2. **Black soil.** Also known as Regar, this soil is porous and rich in minerals and humus. It is produced by basaltic rock which is rich in magnesium and iron. It is found in Maharashtra, Madhya Pradesh, Gujarat and some other states.
3. **Alluvial soil.** This type of soil is formed by silt that has been deposited by the flowing rivers. It is superbly fertile and best suited for the cultivation of wheat, rice and sugarcane. It is mainly found in Uttar Pradesh, Haryana, Bihar, other states. Another name for this soil is Khadar.
4. **Desert soil.** This soil is extremely sandy in texture. But it contains good amount of soluble salt, and when watered, becomes fertile. It is mainly found in Rajasthan and some parts of Gujarat.
5. **Mountain soil.** This type of soil is very fertile. This soil has the highest humus content of all the soils found in India. It is found in the Himalayan region and north-east part of India.

6. **Laterite soil.** This type of soil is found in region which receive a lot of rainfall. It is found in the Western Ghats of India along with some places in Tamil Naidu, Andhra Pradesh, Orissa and Assam.

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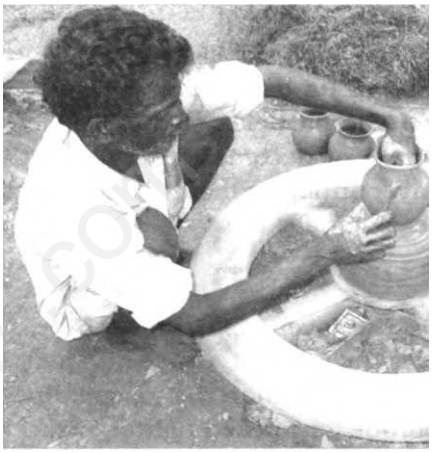
ASSIGNMENT

Q.1. (i) Name the type of soil.
(ii) Write the size of its particles.
(iii) Write its uses.



Q.2. Fill in the blanks –

(i) Percolation rate of water is highest in _____ and least in _____.
(ii) _____ soil is used to make pots, toys and statues.
(iii) Cutting down trees on a large scale is called _____.
(iv) B-horizon is lighter in colour because of the presence of less amount of _____.
(v) Soil has many _____ which allows water to flow down.

Q.3. Name the following –

(i) Dead and rotting remains of plants and animals
(ii) Type of soil having largest size of particles.
(iii) Darkest layer of soil
(iv) An organism that lives in soil
(v) Breaking down of small particles by action of air or wind
(vi) Soil that can hold much water but is not well aerated
(vii) Most fertile soil.
(viii) Some of the pollutants of soil.
(ix) Layer that lies beneath C-horizon.
(x) Kind of soil used for making pottery.

(xi) Two states where you can find mountain soil.

Q.4. Which type of soil is required for growing: –

(i) Wheat and gram
(ii) Paddy
(iii) Lentils and other pulses
(iv) Cotton

Q.5. Choose the most appropriate answer:

(i) Humus and the smallest particles of rock form the

(a) A-Horizon *(b)* B- Horizon
(c) C-Horizon *(d)* Bedrock

(ii) Which kind of soil is best for growing cotton?

(a) Laterite soil *(b)* Black soil
(c) Red latasol *(d)* Alluvial Soil

(iii) Which soil has the highest humus content?

(a) Laterite soil *(b)* Mountain soil
(c) Alluvial soil *(d)* Black soil

(iv) Which of these has the smallest size particles?

(a) Sand *(b)* Silt
(c) Clay *(d)* Gravel

==========

QUESTION BANK-SOIL

Q.1. State the functions of soil.

Q.2. Define –

(1) Humus (2) Weathering (3) Soil profile
(4) Soil (5) Silt (6) Soil erosion

Q.3. What are the characteristics of A-horizon?

Q.4. A soil sample takes 45 minutes to percolate 900ml of water. Calculate the rate of percolation of the sample?

Q.5. Trees help in making the soil as well as protecting it. Explain?

Q.6. Give reasons:-

(i) Top most horizon is more important than all other horizons.
(ii) Humus is an important part of soil.
(iii) The air above a farmland is shimmering during a hot summer day.
(iv) Loamy soil is considered as the best soil for growing plants.

Q.7. Explain how soil is formed?

Q.8. How is clayey soil useful for crops?

Q.9. List the differences between clayey soil, sandy soil and loamy soil.

Q.10. Razia conducted an experiment in the field related to the rate of percolation. She observed that it took 40 min for 200 ml of water to percolate through the soil sample. Calculate the rate of percolation.

Q.11. Explain how soil pollution and soil erosion could be prevented.

Q.12. Calculate the percentage of water absorbed by a soil sample of 50 gm when the initial volume of water taken is 50 ml and the final volume of water is 25 ml in the measuring cylinder.

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Module: 16/17

WASTE WATER STORY
TUTORIAL

1. **Black Water**-The waste water from toilets is often referred to as Black water.
2. **Grey Water**-The waste water from toilets and kitchens is called Grey water.
3. **Industrial effluent** –The industrial waste water is known as industrial effluent.
4. **Eutrophication**-Presence of excessive nutrients (water soluble phosphates and nitrates) in a lake or other water bodies causes a dense growth of algae and other water plants, known as eutrophication.

Hazards of untreated sewage

* Animals and Birds that go in oil contaminated water are harmed. The birds die from exposure to cold water and air due to damaged oil soaked feather.

* If water soluble radioactive compounds are discharged without treatment it can cause cancer, birth defects and genetic disorders.

* The suspended sediments, cause depletion in the water's light absorption and spread harmful compounds such as pesticides through the water.

Wetlands

Natural wetlands are used as an alternative for sewage treatment. They have bacteria, worms and protozoans which act on organic matter. They also have grasses and reeds which can filter out many pollutants.

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ASSIGNMENT

Q.1. Fill in the blanks:-

(i) The solid impurities removed from sewage can be used as _____.
(ii) The _____ system transport the sewage from homes to a treatment plant.
(iii) Last stage in the treatment of sewage is _____.
(iv) Sewage mainly consists of _____.

Q.2. Answer in one word:

(i) Domestic waste water.
(ii) Industrial and commercial waste.
(iii) System of sewerage in rural areas.
(iv) These organisms treat sewage in composting pits.

Q.3. Name the following:-

(i) Any four organic impurities present in sewage.
(ii) The gas produced during anaerobic decomposition of sludge.
(iii) Some diseases caused by untreated sewage.
(iv) Various types of contaminants that are present in sewage.

Q.4. No contamination of drinking water can occur if closed pipes are used for drainage of Sewage. (True or False)

Q.5. Which of these diseases is not caused by the improper disposal of sewage?
(i) Cholera *(ii)* Heart attack *(iii)* Jaundice *(iv)* Typhoid

Q.6. Tick the correct answer:

(i) Wastewater is called

(a) sewage (b) sewer
(c) sewerage (d) sludge

(ii) The light materials which float during wastewater treatment is

(a) scum (b) sewer
(c) sludge (d) sewage

==========

QUESTION BANK –WASTE WATER STORY

Q.1. Define –

1. Sewage
2. Contaminants
3. Potable Water
4. Biogas
5. Activated sludge
6. Sanitation

Q.2. Give reasons:-

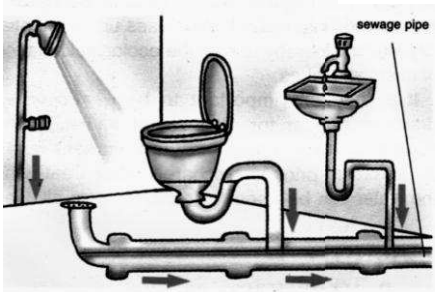
(i) We should prefer to use manure or compost instead of Fertilizers.
(ii) We should not throw chemicals like paints, insecticides, solvents, etc in drains.
(iii) We should pump air through clarified water.
(iv) Oils and fats should not be released in the drain.

Q.3. Answer the following:-

(i) List four uses of Water.
(ii) The purpose of passing waste water through bar screens.
(iii) Some ways to control Water pollution at home.
(iv) What problems can arise due to improper drainage?
(v) In what ways can the sludge obtained be made useful?
(vi) How is stagnant water in blocked drains harmful?
(vii) How can contamination of drinking water occur from sewage even in covered drainage system?
(viii) What is sewage? Explain why it is harmful to discharge untreated sewage into rivers or seas?
(ix) Describe the steps involved in getting clarified water from waste water.
(x) What is sludge? Explain how it is treated?
(xi) Untreated human excreta is a health hazard. Explain.

(xii) Explain the function of bar screens in a waste water treatment plant.
(xiii) Explain the relationship between sanitation and disease.
(xiv) Outline your role as an active citizen in relation to sanitation.

Q.4. The following figure shows how domestic sewage is generated.



How domestic sewage is generated

(i) State the importance of drainage.
(ii) Enlist the steps of sewage treatment.

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Module – 18

Revision For Annual Examination

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BIOLOGY

CHAPTER: NUTRITION IN PLANTS

MODULE – 1 & 2

CONTENTS:

- Mode of nutrition in plants
- Photosynthesis
- Other modes nutrition in plants
- Symbiotic relationship
- How nutrients are replenished in the soil

==========

Q1. Give one word answer

(i) Food factories of plants.

(ii) The green pigment present in plant.

(iii) Ultimate source of energy .

(iv) Component of food necessary for our body.

(v) Autotrophs make their own food and are therefore also called-

(vi) Heterotrophs use the food made by autotrophs and are also called-

Q2. Fill in the blanks

(i) Algae are_____(autotrophs/heterotrophs).

(ii) Starch gives_____ colour, when treated with iodine solution.

(iii) Proteins contain carbon,_____,_____ &_____.

(iv) Sunlight, _____, _____, & _____ are the raw materials to carry out photosynthesis in plants.

(v) Plant with red, brown or violet coloured leaves _____ (can /cannot) perform photosynthesis.

(vi) Nitrogen is added to the soil with the help of _____ bacteria and by using _____ & _____ .

(vii) Three main components of cell are_____ , _____, & _____ .

(viii) The plant in which photosynthesis is done by stem instead of leaves is _____.

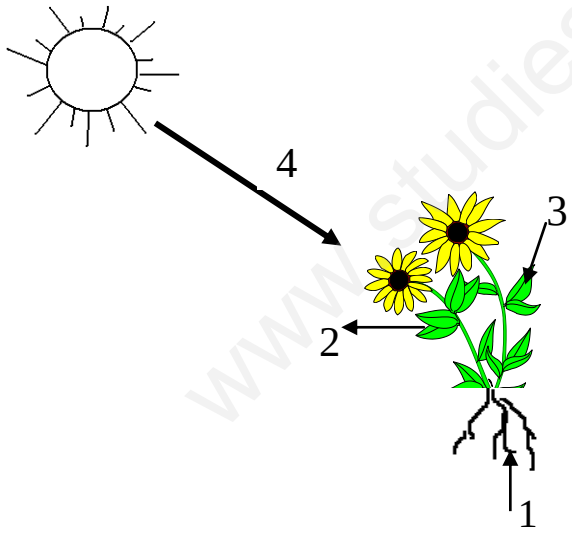
Q3. Complete the following equation:

Carbondioxide + ___?___ $\xrightarrow[?]{\text{sunlight}}$ Carbohydrate + ___?___

Q4. Complete the table giving information about photosynthesis.

Raw Materials	**Source**	**Plant Part**
Carbondioxide	_____?_____	Enter into leaves by_____
Water	soil	Absorbed by _____
Sunlight(gives energy for photosynthesis)	_____?_____	Captured by Chlorophyll pigment present in_____
Chlorophyll (traps solar energy)	Cells containing chlorophyll	_____ & other green parts

Q5. Observe the figure and answer the following questions:



(i) This figure is showing the process called _____.
(ii) Arrow 1 represent absorption of _____&_____ by roots.
(iii) Absorption of carbondioxide is represented by arrow no._____.
(iv) Release of oxygen is represented by arrow no. _____.
(v) Arrow no. 4 represent _____ energy.

Q6. Fill in the blanks

(i) A few plants which depend on other plants or animals for their nutrition are called _____.

(ii) Organisms that take in nutrients from dead and decaying matter are known as _____.

(iii) Organisms that live together & share shelter and nutrients have _____ relationship.

(iv) To grow fungi need _____ & _____ conditions.

(v) Major nutrients present in fertilizers are_____ ,_____ & _____.

(vi) The autotrophic partner in lichens is _____ ,while heterotrophic partner is _____ .

(vii) The bacterium which converts atmospheric nitrogen into soluble form is _____.

(viii) Fungi secrete _____ on dead & decaying matter.

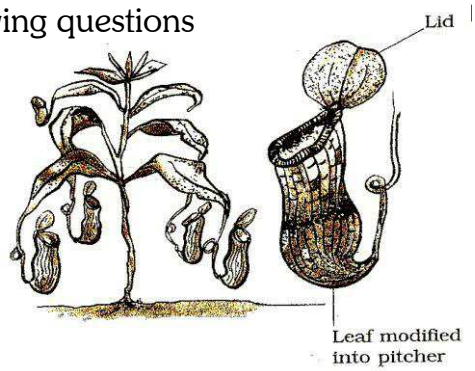
(ix) Fungi convert dead & decaying matter into_____ form & absorb nutrients from it.

(x) Nitrogen can be replenished in the soil by growing_____ crops.

Q7. Give example of:

(i) Saprotroph
(ii) Leguminous plant
(iii) Partial heterotroph
(iv) An insectivorous plant
(v) A parasitic plant

Q8. Observe the figure and answer the following questions



(i) Arrange the sequence,how does Pitcher plant trap & digest the insect

a) Lid closes
b) Insect is digested by digestive juices secreted in the pitcher
c) Insect gets entangled into hair in the pitcher
d) Insect lands in the pitcher

(ii) Name the part of the plant

a) Modified into pitcher
b) Modified to form the lid of the pitcher

(iii) Insectivorous plants do photosynthesis. (true or false)

(iv) The nutrient lacking in the soil where such plant grow (oxygen/nitrogen).

(v) The hair inside pitcher point (upward /downward).

(vi) The part which produces digestive juices (pitcher/lid)

(vii) The given plant closes its lid when insect enters it. What role does insect plays in given plant?

a) Helping in fertilization process
b) Providing nutrients to plants
c) Dispersal of seed
d) Providing co_2 to plants

Q9. Match the following:

(i) Umbrella like patches growing on rotting logs	(a) Algae
(ii) Cotton like threads growing on bread	(b) Symbiotic Relationship
(iii) Lichens show	(c) Useful for plants
(iv) Bacterium Rhizobium in roots of leguminous plants	(d) Cuscuta
(v) Slimy green patches in ponds or stagnant water bodies	(e) Fungi
(vi) Parasite	(f) Mushrooms

Q10. Complete the table.

Symbiotic relationship	**Partners**	**Roles**
Lichens	_____& _____	1)_____ provide food to_____. 2) _____ provide shelter, water & minerals to_____.
Rhizobium-Legume	_____& _____	1)_____ fix atmospheric nitrogen into soluble form which can be utilised by _____. 2)legume plant provide shelter & food to _____.

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QUESTION BANK

Q1. (i) Define nutrition- [hint: pg-1 NCERT, first column, last line]
(ii) Differentiate between Autotrophic and Heterotrophic mode of nutrition- [hint: pg-1, NCERT, 2nd column, 1st para (Do in tabulated form)]

Q2. Define photosynthesis and write its equation. Also draw the diagram- [hint: pg-3, NCERT, figure-1.3, 1st colm. 2nd para]

Q3. Give the importance of:
(i) Chlorophyll [pg-2, NCERT]
(ii) Photosynthesis [pg-2, NCERT]
(iii) Stomata [pg-2, NCERT]

Q4. (i) Fats can easily be made from carbohydrate by plants but not the proteins. Why? [hint: pg-4, NCERT, 1st colm. last line]
(ii) How do plants synthesize proteins? [hint: pg-4, 2nd colm, 2nd para]
~~~~~~

Q5. Show with the help of a sketch that plants are ultimate source of food.
[hint- grass ⟶ deer ⟶ lion]

Q6. (i) What are insectivorous plants? Give example. [hint- pg-5, NCERT, also draw fig, no. 1.6]
(ii) How does Pitcher plant trap and digest insect? [hint- pg-5, NCERT, 2nd colm, 2nd para]
(iii) Why insectivorous plants are called partial heterotrophs? [hint: being green in colour performs photosynthesis, but depends on insects also]

Q7. Differentiate between parasites and saprophytes. Give examples. [hint- pg-5 & 6, NCERT]

Q8. Define symbiotic relationship. Give example. [hint- Assignment booklet, Complete the table Q-10, Module: 1 & 2]

Q9. Give reasons:
(i) In cactus leaves don't do photosynthesis. [hint: leaves reduce to spines to prevent water loss, photosynthesis done by green, fleshy stem]
(ii) Red purple leaves can do photosynthesis. [hint: pg- 4, NCERT, 1st colm, 2nd para]
(iii) There is no need to add nitrogenous fertilizers while growing leguminous plants. [hint: due to rhizobium in these plants' roots which fix nitrogen]

Q10. Name a parasitic plant. How does it derive nourishment? (hint: pg-4 last para 3rd last line)

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CHAPTER: NUTRITION IN ANIMALS
MODULE- 3 &4
CONTENTS:

- Nutrition in humans
- Alimentary canal
- Digestive glands
- Digestion in Grass Eating Animals
- Nutrition in amoeba

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Q1. Arrange the following in sequential order:
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(a) Parts of alimentary canal-

i. Large intestine
ii. Rectum
iii. Small intestine
iv. Buccal cavity
v. Anus
vi. Stomach
vii. Oesophagus

(b) Steps of nutrition-

i. Absorption
ii. Digestion
iii. Assimilation
iv. Egestion
v. Ingestion

Q2. Complete the table:

AGE	TYPE OF TEETH	NO. OF TEETH	AGE OF FALLING
4 YEAR OLD CHILD			
25 YEAR OLD ADULT			

Q3. Fill in the blanks:

(a) The process of taking food into the body is called _____.
(b) Saliva changes starch into _____.
(c) Harmful bacteria in mouth act on left over food and release _____, which causes_____.
(d) The alimentary canal stretches from_____ to _____.
(e) _____ and _____ together constitutes the digestive system.
(f) The term given for "Breakdown of complex component of food into simpler Substances" is _____.
(g) Main digestive glands associated with digestive system are _____ ,_____ & _____.
(h) Inner wall of _____ &_____ also secrete digestive juices.
(i) The _____ is fleshy muscular organ attached to the floor of buccal cavity.
(j) Each tooth is rooted in a separate socket in the _____.

Q4. Complete the table :

TYPE OF TEETH	TOTAL NO.	FUNCTION
Incisor	4 + 4	_____ & _____
_____	_____	Piercing & _____
Premolar	_____	_____ & crushing
Molar	_____	Chewing & _____

Q5. Choose the correct option:

(i) The lining of stomach is protected with the help of:
(a) Hydrochloric acid (b) Mucous
(c) Saliva (d) Enzymes

(ii) Bile juice help in digestion of:
(a) Carbohydrates (b) Proteins
(c) Minerals (d) Fats

(iii) Complete digestion of food takes place in:
(a) Stomach (b) Large Intestine
(c) Small Intestine (d) Liver

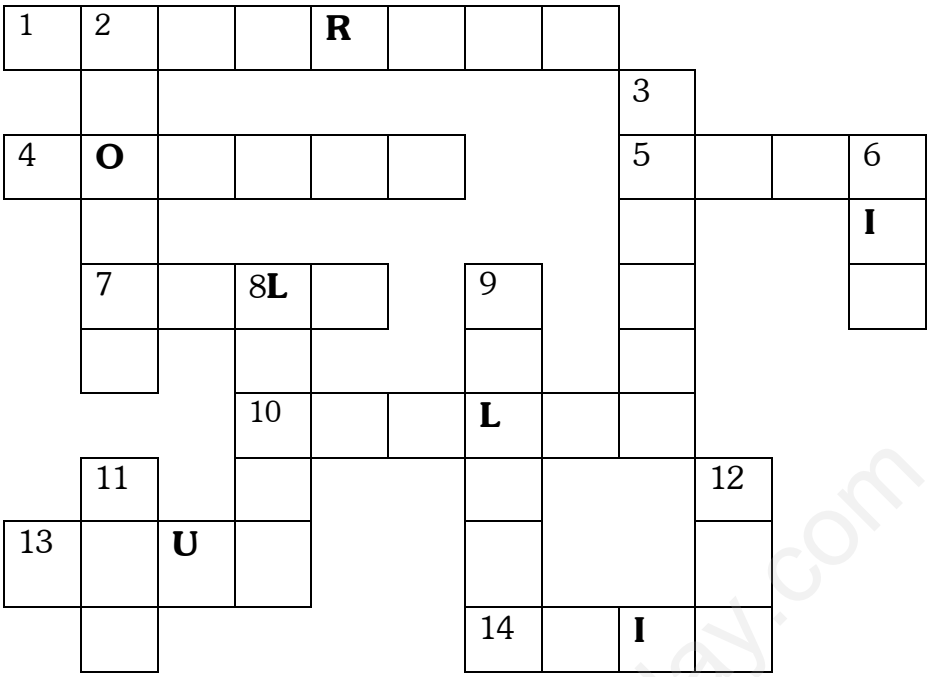
Q6. Solve the cross word puzzle:

ACROSS

1. Cream coloured digestive gland
4. Organ that tastes food
5. Last part of alimentary canal
7. Stored in gall bladder
10. Finger like outgrowth in small intestine
13. A kind of taste
14. Kills bacteria in stomach

DOWN

2. Feeds with the help of pseudopodia
3. Undigested excretory solid residues
6. Number of molars in one jaw of man
8. Secretes bile juice
9. Watery secretion in mouth
11. A ruminant
12. Form of food restfully chewed by Ruminant



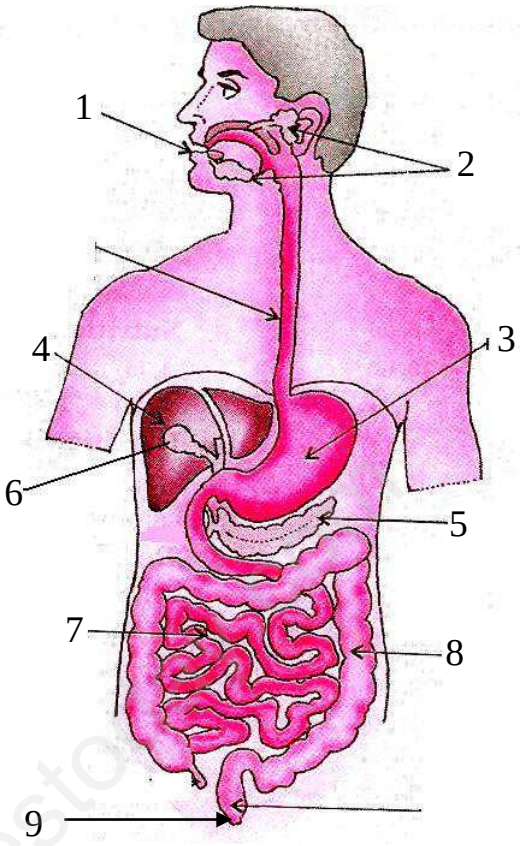
Q7. Complete the table:

SECRETIONS (from inner lining of stomach)	**FUNCTIONS**
Mucous	Protect the lining of _____ from HCl
Hydrochloric acid (HCl)	i)Kills _____ that enter along with food ii)Makes the medium _____ which helps _____ to act
Digestive juice	_____

Q.8. In the given diagram of Human Digestive System, name & label the part involved in:

(i) Ingestion of food
(ii) Secretion of saliva
(iii) Secretion of hydrochloric acid
(iv) Secretion of bile
(v) Secretion of pancreatic juice

(vi) Storage of bile
(vii) Absorption of food
(viii) Absorption of water & some salts from undigested food
(ix) Removal of undigested food from the body



Q9. Fill in the blanks:

(i) The digestive juice which completes the digestion of all components of food in small intestine is called _____.

(ii) After complete digestion , products formed are

(a) Carbohydrates ___break down to ⟶ _____

(b) Proteins ___break down to ⟶ _____

(c) Fats ___break down to ⟶ _____ & _____

(iii) The function of large intestine is to absorb_____& _____ from undigested food material

(iv) Grass eating animals which chew cud & digest _____ are called _____ .

(v) Human beings _____ (can /can't) digest cellulose as they _____ (have/don't have) cellulose digesting bacteria in their digestive tract.

Q10. Complete the steps of:

(i) Digestion in grass eating animals (ruminants)

(a) Ruminants quickly swallow grass & store it in _______________ (part of stomach).

(b) Here the food gets partially digested & is called __________________.

(c) Partly digested food return to ___________ in small lumps & animal chews it. This process of chewing of _______________ is called ________________.

(d) Cellulose present in _____________ is digested with the help of certain______________ , present in ______________ (sac like structure between small intestine & large intestine).

(ii) Nutrition in Amoeba

(a) Amoeba captures and ingests food using ______________________.

(b) Food is digested in a cavity called ____________________.

(c) Digested food is ________________ into cytoplasm.

(d) Absorbed substances are assimilated for __________________,_______________&_____________________.

(e) Undigested food is egested out by __________________.

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QUESTION BANK

Q.1. Name all the parts of alimentary canal or digestive tract in a sequential manner through which food passes for digestion (should be written as a flow chart). Draw a neat and labelled diagram of human digestive system. [hint: pg12, NCERT, 1st colm, last para, fig- 2.2 pg 12, NCERT]

Q.2. What are the steps included in animal nutrition? [hint: pg- 11,NCERT, 1st colm, 1st para, for animal nutrition, draw and complete the table]

STEPS OF NUTRITION	DEFINE	ORGAN /ASSOCIATED GLANDS
Ingestion		
Digestion		
Absorption		
~~~~~~

Assimilation		
Egestion		

Q.3. Name the glands associated with human digestive tract. How do these glands help in digestion? [hint: do in tabulated form under following headings?

Name of gland	Location	Secretion produced	Function of secretion

Q.4. (i) In which part of the alimentary canal neither digestion nor absorption of food takes place ?[hint: Oesophagus]

(ii) What are villi? What is their location and function? [hint: NCERT page 17, 1st colm.,2nd para]

Q.5. Which two organ systems help the digestive system in deriving energy from food? [hint : Circulatory and respiratory system. Write the role of each of these systems]

Q.6. (i) What is formed after complete digestion of different components of food ? . [Hint. complete digestion of food occurs in small intestine with the help of intestinal juice. Also add from module 3 & 4, Q.9 (ii) part of assignment booklet]

(ii)Why do we get instant energy from glucose ? [hint : Glucose is the simplest form of food component, its breakdown becomes easy to provide us with instant energy]

Q.7. (i) Name the type of carbohydrate that can be digested by ruminants but not by humans. Give reasons also.[hint : NCERT page 18,2nd colm.,1st para]
(ii) Draw neat and labelled images of digestion in ruminants. [hint: fig. 2.9 and 2.10, pg-18, NCERT]

Q.8. (i) Write one similarity and one difference between nutrition in amoeba and human beings. [Hint. : similarity- both show all steps of nutrition and secrete digestive juices. Difference – Humans have digestive system,an organ system for digestion while in amoeba the digestion occurs in a single cell]

(ii) Illustrate nutrition in amoeba with the help of flow chart. [hint: module 3 & 4, Q.10 (b) part of assignment booklet]

Q.9. Can humans survive only on raw, leafy, vegetables or grass? [hint: No, since humans don't have cellulose digesting bacteria, so no energy will be provided]

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CHAPTER: WEATHER, CLIMATE AND ADAPTATIONS OF ANIMALS TO CLIMATE

MODULE-5 & 6

CONTENTS:

- Weather, Elements of weather
- Climate
- Climate & adaptation
- Polar region & tropical rainforest
- Adaptations of animals to survive in these regions

==========

Q1. Fill in the blanks:

(i) Rainfall is measured by an instrument called _____ & the unit in which it is measured is_____.

(ii) The four main elements of weather are_____,_____, _____, &_____.

(iii) _____is the primary source of energy that causes changes in weather.

(iv) _____ is the weather conditions of a place over a long period of time.

(v) The scientists who study & forecast weather are called _____.

(vi) Minimum temperature of the day is likely to occur during _____ while maximum temperature is likely to occur during _____.

(vii) Maximum & minimum temperature of the day are recorded by_____.

(viii) _____ (weather/climate) may change frequently & even from hour to hour.

(ix) _____ (weather/climate) remain same for many years.

(x) The two regions of earth having extreme climatic conditions are _____& _____.

Q2. Categorise the following:

(i) Places as polar regions / tropical rainforests- Indonesia, Canada, Greenland, Iceland, Norway, India, Alaska, Congo, Kenya, Siberia, Uganda, Nigeria

(ii) Animals as polar animals/ tropical animals/ migratory birds- Lion, Reindeer, Musk oxen, Red eyed frog, Beard ape, Seal, Whale, Siberian crane, snake, leopard, Arctic tern, Elephant

Q3. Fill in the blanks:

(i) Tropical region are characterized by _____ & _____ climate.

(ii) The presence of specific features or certain habits which enable a plant or an animal to live in its surroundings is called _____.

(iii) Penguins _____ together to keep themselves warm.

(iv) The elephant is well adapted to live in _____.

(v) In India tropical rainforests are found in_____ &_____.

(vi) Tropical rainforests support wide variety of plants & animals due to its _____ & _____ climate.

Q4. Match the following:

(a)	Climate of north east India	(i)	Rainforests of western ghats
(b)	Red eyed frog	(ii)	Wet
(c)	Siberian crane	(iii)	Toucan
(d)	Lion tailed macaque	(iv)	Bharatpur in Rajasthan
(e)	Large long beak	(v)	sticky pad

Q5. Write the adaptive features of Polar bear & Penguin which,

	Polar bear	Penguin
Protect them from cold		
Help them to swim		

Q6. Write the adaptive feature of Polar bear which help it to,

	Adaptive feature
Catch its prey	
Walk on ice	
Walk easily on snow	

Q7. Give the adaptation of following animals of tropical rainforests

ANIMALS	ADAPTIVE FEATURE	REASON
Red eyed frog		
Toucan		
Big cats(Lion & Tiger)		
Monkeys		

~~~~~~

QUESTION BANK

Q.1. (i) Define Weather and its elements.

(ii) What is Climate? Which of the two changes frequently, Weather or Climate? [Hint. Pg-69,71,NCERT]

Q.2. Explain with example why do we find animals of certain kind living in particular Climatic conditions? [Hint. Pg-72, NCERT, 1st colum, 4th para. Also include examples of animals and their adaptations in both polar and tropical regions]

Q.3. (i) What are migratory birds? Name a migratory bird. Why & where does it migrate to in winter? [Hint. Pg- 74, 2nd colm. 1st para]

(ii) Which factors help the migratory birds travelling to the same place year after year? [hint: pg-74, blue box, NCERT]

Q.4. (i) The tropical rainforests have a large population of animals. Explain with reason. [hint: pg 75, NCERT, 1st colum]

(ii) How do elephants, living in the tropical rainforests adapt themselves. (Hint. Pg-76, NCERT.)

Q.5. Give any two differences between Polar region & Tropical region on basis of their climate conditions.

Q.6. Do Q. 5,6,7 of module 5 & 6 of assignment booklet in notebooks.
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Q.7. Write the advantages of following features/ habits found in these animals.

(i) Presence of white fur on penguin's & polar bear's body. [Hint: camouflage]

(ii) Lion tailed Macaque spends its more time on the trees & rarely comes down on the ground. [Hint: is able to get sufficient food on the trees]

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CHAPTER: RESPIRATION IN ORGANISMS
MODULE-7 & 8
CONTENTS:

- Why do we respire?
- Aerobic/ anaerobic respiration
- Breathing, its mechanism
- Breathing in other animals
- Breathing & respiration in plants

==========

Q1. Fill in the blanks:

(i) The taking in of air rich in oxygen into the body is called _____ and giving out of air rich in carbon dioxide is known as _____.

(ii) Yeast are _____ organisms and they respire _____.

(iii) A breath means one _____ plus one _____.

(iv) A large muscular sheet called _____forms the floor of chest cavity.

(v) Accumulation of _____causes muscle cramps.

(vi) The process of release of energy by breakdown of food is called_____.

(vii) All living organisms respire to get _____ from food, which can be utilised for various _____ processes.

(viii) The two steps of aerobic respiration are _____ & _____.

(ix) Main organs of human respiratory system in sequence are: Nostrils,_____ cavity, _____ (windpipe),_____, lungs, _____.

(x) While exercising we breathe faster to inhale more _____.
~~~~~~

Q.2. Complete the following equations –

(i) Glucose $\xrightarrow{\text{In presence of } O_2}$ _____ + water + _____

(ii) Glucose $\xrightarrow[\text{(in muscles)}]{\text{In absence of } O_2}$ _____ + energy

(iii) Glucose $\xrightarrow[\text{(in yeast)}]{\text{In absence of } O_2}$ _____ + energy + _____

Q.3. Choose the correct option:

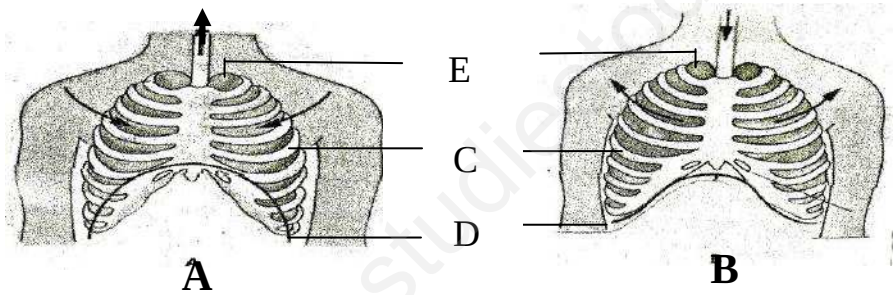
(i) During cellular respiration (aerobic), glucose is broken down into:

(a) Alcohol , CO_2, energy
(b) CO_2 & energy
(c) CO_2 & Water
(d) CO_2, energy & water

(ii)In which of the following cases will the rate of breathing be slowest:

(a) Reading
(b) Eating
(c) Sleeping
(d) Brisk walking

Q4. Observe the given figure & answer the following questions



(i) Given figure represents _____.

(ii) Which of following figures A or B , represents inhalation?

(iii) Label C, D, E.

(iv) Complete the table showing the mechanism of breathing.

MECHANISM	DURING INHALATION	DURING EXHALATION
Ribs move	_____& outward	Down & _____
Diaphragm moves	_____	_____
Chest cavity	_____	_____
Air	Rushes into lungs	Pushed _____ of lungs

Q5. Give one word answer –

(i) Small opening in plants for gaseous exchange.
(ii) The air tubes of insects.
(iii) An organism with tracheal system.
(iv) Small opening on the sides of the body of an insect.

Q6. Name the organ of respiration in the following-

(i)	Cockroach	*(ii)*	Earthworm
(iii)	Human beings	*(iv)*	Fish
(v)	Whales & Dolphins	(vi)	Birds
(vii)	Snake	(viii)	Lizard
(ix)	Plants	(x)	Lion

Q7. Complete the table.

	INHALED AIR	EXHALED AIR
% OF OXYGEN		
% OF CARBON DIOXIDE		

Q8. Fill in the blanks

(i) During respiration plants take in _____ & release _____.

(ii) Frogs can breathe through _____ as well as _____.

(iii)Roots absorb _____ needed for respiration from space between _____ particles.

(iv)Lime water [$Ca(OH)_2$] turns _____ [$CaCO_3$]when we exhale into it , as exhaled air contain more _____ than inhaled air.

Q9. Differentiate between:

	Aerobic respiration	Anaerobic respiration
1. Presence/ Absence of oxygen		
2. Equation		

3. Examples		
4. Breakdown of food		
5. Energy released		

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QUESTION BANK

Q.1. (i) How is Cellular Respiration different from breathing? (Hint. Pg- 108, 109, NCERT in tabulated form including 2 points i.e. definition & energy release)
(ii) What are the 2 types of Cellular Respiration? Differentiate between them. (Hint. Module 7 & 8, Q.9, Assignment booklet)

Q.2. (i) Why do we suffer from muscle cramps after heavy exercise? (Hint. Pg- 109,NCERT, write equation also)
(ii) How does hot water bath or massage give relief from cramps? (Hint. Pg- 109, 2nd colm. 1st para.)

Q.3. Draw neat & labelled diagram of human respiratory system, with the help of a flow chart, write the names of its various organs, through which air passes during breathing in a sequential manner. (Hint: fig. 10.4, pg-112, NCERT)

Q.4. Give reasons:

(i) Why does an athlete breathe faster & deeper than usual after finishing race? (Hint: more O_2 supplied, breakdown of food speeds up to release more energy]

(ii) Why do we often sneeze when we inhale a lot of dust laden air? (Hint: pg-112, NCERT, Blue box)

Q.5. How do various organisms exchange gases O_2 & CO_2 during breathing? (pg-115, 116 of NCERT, including aquatic organisms, Amphibians and Terrestrial organisms, giving different examples).

Q.6. How do plants respire? (Hint- pg-116, NCERT)

Q.7. Explain what happens when-

(i) We e111xhale into lime water. (Hint- lime water turns milky)

(ii) A potted plant is overwatered. (hint- roots will not be able to breathe)

(iii) Vaseline is applied on the surface of leaves of a potted plant. (It prevents photosynthesis, respiration as well as transpiration)
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MODULE – 9

Revision For Half Yearly Examinations

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CHAPTER: TRANSPORTATION IN ANIMALS AND PLANTS
MODULE-10, 11 &12
CONTENTS:

- Human circulatory system
- Heart – structure and function
- Human excretory system
- Dialysis
- Transportation of substances in plants- xylem, phloem

==========

Q.1. Match the following –

(i)	W.B.C.	*(a)*	Chambers of Heart
(ii)	Veins	*(b)*	Red pigment of blood which carries oxygen in blood
(iii)	Haemoglobin	*(c)*	William Harvey
(iv)	Stethoscope	*(d)*	CO_2 rich blood
(v)	Ventricles	*(e)*	Heart beat
(vi)	Circulation of blood	*(g)*	Fluid part of blood
(vii)	Plasma	*(f)*	Fight germs

Q2. Fill in the blanks:

(i) Human circulatory system consists of_____, _____ &_____.

(ii) Three main type of blood vessels are _____, _____, &_____.

(iii) Arteries and veins are joined by a network of _____.

(iv) Blood consist of _____, _____, _____ and _____.

(v) The rhythmic contraction and expansion of heart is called _____

(vii) Human heart has _____ chambers, upper two chambers of heart are called _____ & the lower two chambers of heart are called _____.

(viii) _____ (arteries/ veins) carry blood away from heart, while _____(arteries/ veins) carry blood towards the heart.

(ix) Each heartbeat generates _____ pulse in the arteries.

(x) The _____ between chambers separate heart into two halves which prevent mixing of _____ & _____ blood.

(xi) The animals which do not possess any circulatory system are_____ &_____.

Q3. Give one word answer:

(i) Instrument used by doctors to amplify the sound of heart
(ii) Side of the heart having oxygen rich blood
(iii) Circulatory fluid in human
(iv) Throbbing movement due to blood flow in arteries

Q4. Complete the table

CONSTITUENTS	CHARACTERISTICS	F UNCTION
Plasma	_____ part of blood, _____in colour	Carries/transports water, digested_____, waste products. R.B.C, _____, & platelets float in it.

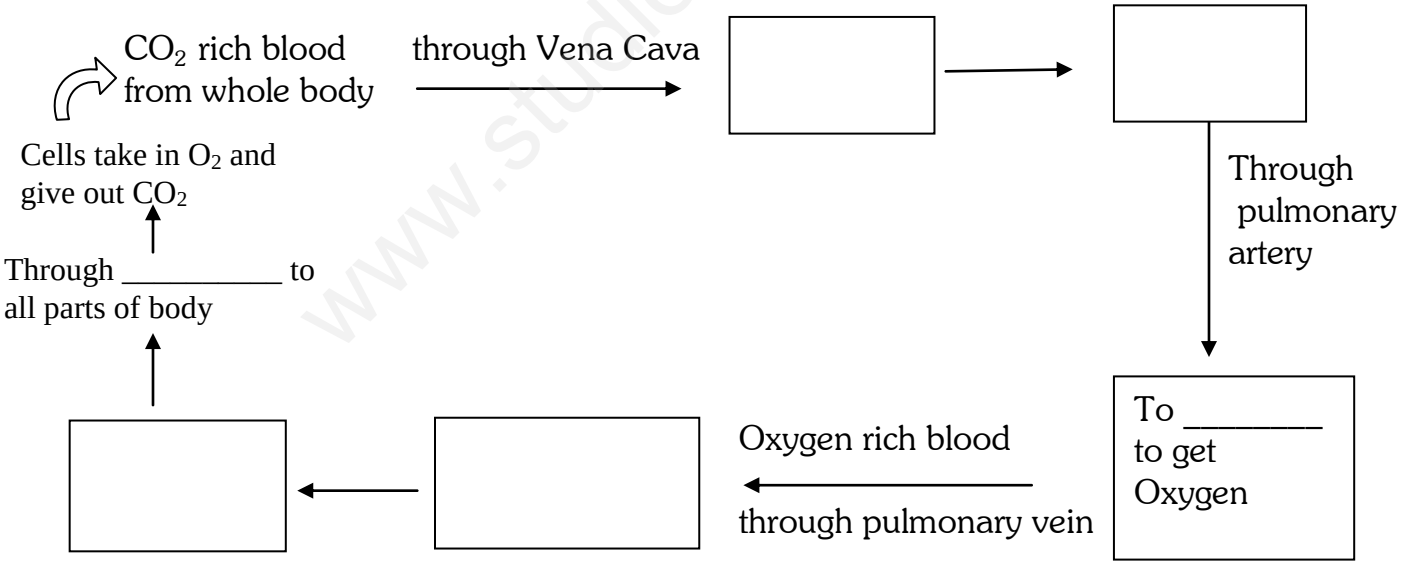
Red blood cells (R.B.C)	Contain red coloured pigment called _____, Disc shaped, largest in number	_____ in R.B.C binds & transports _____ to all parts of body.
White blood cells (W.B.C)	_____ in size than R.B.C, _____ in no. than R.B.C and can change their shape.	Fight against _____ that may enter our body.
Platelets	_____ in size & _____ in no. than R.B.C	These cells help in _____ of blood to prevent blood _____ in case of injury.

Q5. Differentiate between:

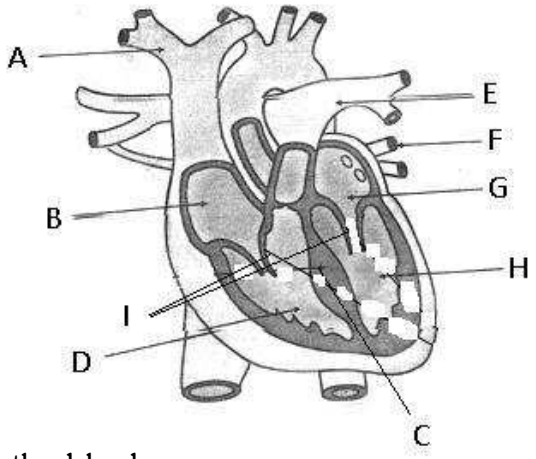
	Artery	Vein
1. Direction of flow of blood	Vessels which carry blood from _____ to all parts of the body	Vessels which carry blood from all parts of the _____ back to heart
2. Type of blood: O_2 rich/ CO_2 rich	Generally carry _____ rich blood	Generally carry _____ rich blood
3. Exception		
4. Type of wall	Have thick, _____ wall	Have _____ wall

5. Location in body	There are _____ seated	There are _____
6. Valve present/ absent		
7. Speed of blood flow		
8. Pressure		
9. Pulse observed/ not observed		

Q6. Complete the flow chart showing circulation of blood.



Q7. Label the diagram showing sections of human heart.



Q8. Fill in the blanks

(i) The major excretory product in human beings is _____.

(ii) The process used for separating waste products from the blood using artificial kidney is called _____.

(iii) The process of removal of waste produced in cells of living organisms is called _____.

(iv) Sweat contains _____ & _____ along with water.

(v) The urine consists of _____% water,_____ % urea & _____% other waste products.

(vi) It is necessary to excrete waste because they are _____ and thus harmful for our body.

(vii) Human excretory system consists of a pair of _____, a pair of _____, a _____ & _____.

(viii) Filtration of blood to remove waste is done by the blood capillaries in_____.(ureter/ kidney)

(ix) Sweating helps to_____ (heat/ cool) our body.

Q9. Name the waste chemicals excreted by the following animals:

(i) Fish (ii) Lizard

(iii) Humans (iv) Birds

Q10. Complete the information showing the working of human excretory system.

(i) Each kidney consists of tiny filtering units called _____.

(ii) Kidney _____ the blood.

(iii) From filtrate useful substances like glucose, amino acids are _____ into blood.

(iv) The waste products like _____, _____ & excess water are formed into urine.

(v) Urine is carried by two _____ & stored in _____.

(vi) Urine is passed out from the body through _____.

Q11. State true or false & correct the false statement.

(i) Xylem conducts food in plants.

(ii) Transpiration is responsible to pull water to great heights in tall trees.

(iii) All the water absorbed by plant is utilized by the plant.

(iv) Transpiration cools the plant.

(v) Leaves help in absorption of water in plants.

Q12. Differentiate between:

	Xylem	**Phloem**
1. Substance transported	Transports _____ and _____	Transports _____
2. Direction of transport	From _____to leaves	From leaves to_____
3. Process involved		Translocation

Q13. Fill in the blanks:

(i) A _____ is a group of cells that perform specialised function.

(ii) _____ increases the surface area of absorption of water & minerals from the soil.

(iii) Xylem & phloem are called _____ tissue.

(iv) The process of loss of water in the form of _____ through _____ on the leaves is called transpiration.

(v) The process which creates suction pull for upward movement of water through xylem is _____.

(vi) Tiny pores on the surface of leaves are called _____, which help in _____ of gases & _____.

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QUESTION BANK:

Q1. Why is blood needed by all body parts?

Or

Why do living organisms(plants & animals) need a transport system?
(Hint. 121, 1st para, To transport_____, _____, _____ to cells To carry away harmful _____ produced in their bodies)

Q2. What is the composition of blood? Explain the characteristics features and functions of each of its component. (Hint : Module 10, 11, 12 Q. 4 of Assignment booklet)

Q3. (i) Differentiate between arteries & veins. (Hint : Module 10, 11, 12 Q.5 of Assignment booklet)

(ii) What are capillaries? Give their location & function. (Hint. pg- 123, 2nd colm. 1stpara NCERT. Location- present inside organs, Function- help in exchange of materials eg. food, waste, oxygen, CO_2 between blood & cells of body.)

Q4. Draw the structure of the heart. Describe the location, structure and functions of heart. (Hint : Fig. No. 11.4 pg no. 123, 124 of NCERT)

Q5. Define

(i) Pulse - (Hint. pg- 122, 2nd colm. NCERT)

(ii) Pulse Rate - (Hint. pg- 122, 2nd colm. NCERT)

(iii) Heart Beat- (Hint. pg- 125, 1st para.NCERT)

(iv) Stethoscope- (Hint. pg- 125, 2nd para.NCERT)

(v) Transpiration

Q6. Define the term excretion. Why is it necessary to excrete waste products? (Hint : pg – 126, NCERT 2nd colm)

Q7. (i) Draw a diagram of human excretory system and label its various parts. (Hint : pg – 127 NCERT, fig. no. 11.6)

(ii) Describe the working of human excretory system. (Hint : Q 10 of Assignment booklet)
~~~~~~

(iii) Define dialysis. When is dialysis required by body? (Hint : pg-127 NCERT)

Q8. What is the role of (i) root hair (ii) Valves? (Hint : pg – 128 NCERT)

Q9. What are vascular tissue? Name two types of vascular tissue & differentiate between them. (Hint. Tissue which transport _____, _____ , _____ to different parts in plants is called _____tissue.
Two types:Pg-129, label fig 11.7(b) pg-128 NCERT)

Q10. What helps in transport of substances in the body of sponges and hydra? (Hint : pg-126 NCERT)

~~~~~~

CHAPTER: REPRODUCTION IN PLANTS
MODULE-13 & 14
CONTENTS:

- Asexual reproduction in plants
- Sexual reproduction: flower
- Self/ cross pollination
- Fertilization
- Dispersal of seeds

==========

Q1. Fill in the blanks:

(i) The reproductive part of the plant is_____.

(ii) The vegetative parts of plant are _____,_____,_____.

(iii) Production of new individuals from the vegetative part of parent plant is called _____.

(iv) The part of the stem at which leaf arises is called _____.

(v) A short stem surrounded by immature, overlapping leaves is _____ bud. It is generally present in leaf_____.

(vi) Spore forming bodies of fern are called _____, while spore forming bodies of Bread mould are called _____.

Q2. Name the method of asexual reproduction in:

(i) Spirogyra
(ii) Fern
(iii) Yeast
(iv) Bryophyllum
(v) Potato
(vi) Bread mould
~~~~~~

(vii) Rose *(viii)* Money plant

Q3. Match the following –

(i)	Eyes	*(a)*	Bryophyllum
(ii)	Cutting	*(b)*	Bread Mould
(iii)	Spores	*(c)*	Potato
(iv)	Leaf Buds	*(d)*	Rose
(v)	Egg	*(e)*	Female gamete
(vi)	Stamen and pistil	*(f)*	Bisexual flower
(vii)	Style	*(g)*	Pistil
(viii)	Fusion	*(h)*	Gamete

Q4. Complete the table

VEGETATIVE PROPAGATION		EXAMPLES
BY STEM	i) aerial stem	Rose,_____,_____
	ii) underground stem	Potato, _____,_____
BY ROOT		_____,_____
BY LEAVES		_____
IN CACTUS		Each _____ part develop into new plant.

Q5. With the help of given clue identify the method of asexual reproduction.

(i) In this method a small bulb like projection called bud grows out of parent organism which then detaches & becomes a new organism.
Method:_____, Example:_____.

(ii) The breaking up of plant body into two or more fragments, each of which grows to form new individual plant. Method:_____,

Example:_____.

(iii) Production of spores covered by hard protective coat, which germinates under favourable conditions to develop into new individuals.
Method: _____, Example:_____.

Q6. Choose the correct option:

(i) It produces unisexual flower

(a) Rose (c) Papaya

(b) Petunia (d) Fern

(ii) Seed production in plants is the result of

(a) Sexual reproduction (b) Spore formation

(c) Budding (d) Fragmentation

(iii) It produces bisexual flower.

(a) Corn (c) Rose

(b) Mustard (d) Both (b) and (c)

(iv) Transfer of pollen grains from anther to stigma of same flower is called

(a) Pollination (c) Self pollination

(b) Fertilization (d) Cross pollination

(v) Transfer of pollen grains from anther to stigma of another flower of same plant or different plant of same kind is called

(e) Pollination (g) Self pollination

(f) Fertilization (h) Cross pollination

(vi) Which of these is the male reproductive organ in plants

(a) Pistil (c) Pollen grain

(b) Stamen (d) Ovule

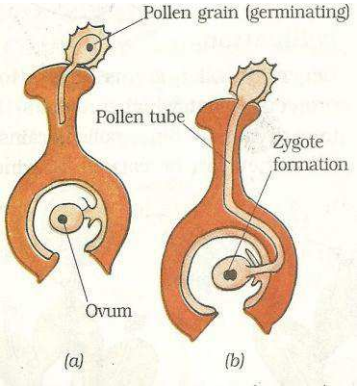
Q7. Observe the figure & complete the steps showing <u>the process of fertilization</u> in plants.

(i) Pollen grain lands on _____.

(ii) Pollen _____ is formed & it carries male gamete.Pollen _____ grows through style & reaches _____.

(iii) Pollen tube containing _____ gamete enter _____ & fuse with _____ gamete(egg) to form _____.

(iv) This process of fusion of male & female _____ to form _____



is called _____.

Q8. Fill in the blanks:

(i) Seed contains _____ enclosed in a protective seed coat.

(ii) After fertilization,

a) Zygote(fertilized egg) develops into _____.

b) Ovary grows into _____.

c) Ovules develop into _____.

(iii) Dispersal of seeds means to _____ seeds over a wide area.

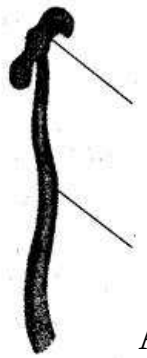
(iv) Three agents of pollination are _____, _____, _____.

(v) Three agents of seed dispersal are _____, _____ and _____.

Q9. Give examples of seeds, dispersed by –

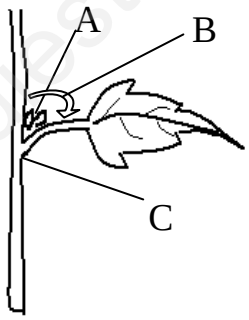
(i) Animals *(ii)* Wind *(iii)* Water *(iv)* Explosive mechanism

Q10. Identify the diagram & label it



A

_____



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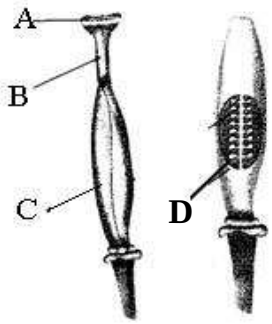

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Q11. Name the plant which has

(i) Winged seed

(ii) Hairy seed

(iii) Light seed

(iv) Hairy fruit

Q.12. Give difference between:

(i)

CHARACTERSTICS	ASEXUAL REPRODUATION	SEXUAL REPRODUCTION
1) Seeds produced /not		
2) no. of parents		
3) gametes formed / not		
4)fertilization occurs /not		
5) new individuals- identical to parents/ characters of both the parents		

(ii)

CHARACTERSTICS	STAMEN	PISTIL
Male part/female part		
Name its parts		
Part containing male gamete/female gamete		

(iii)

	UNISEXUAL	BISEXUAL
Define		
Type of pollination		
Example		

(iv)

	SELF POLLINATION	CROSS POLLINATION
Define		
Agents of pollination		
Unisexual/ bisexual flowers		
Flower features	Less showy, no scent or nectar	

~~~~~~
~~~~~~

QUESTION BANK

Q1. (i) What is reproduction? Why it is important? (Hint. pg- 133, 1st para NCERT.)
(ii) What are the different modes of reproduction? Differentiate between them. (Hint. Module 13, 14 Q.13 1st part of Assignment booklet)

Q2. (i) Define vegetative propagation. Give its examples. (Hint. pg-133, 134, 135 NCERT)
(ii) What are the advantages of vegetative propagation? (Hint. Pg-133, 134, 135 NCERT)

Q3. Explain the following terms and give example of each :
(i) Budding (ii) Fragmentation
(iii) Spore formation (Hint : module 13, 14 Q.5 of Assignment booklet. Also draw diagram from NCERT)

Q4. (i) What is a flower? State its role in plant reproduction.
(ii) Draw a well labeled diagram of flower. (Hint. Pg-136 NCERT)

Q5. Differentiate between :
(i) Stamen and Pistil
(ii) Unisexual and Bisexual flower
(Hint. Module 13, 14 Q. 13 of Assignment booklet)

Q6. Define pollination. Differentiate between self and cross pollination. (Hint. Module 13, 14 Q. 13 of Assignment booklet)

Q7. (i) With the help of diagram explain how a male gamete in pollen grain reaches female gamete to bring about fertilization. (Hint. Module 13, 14 Q. 8 of Assignment booklet)
(ii) What changes are observed in the flower after fertilization? (Hint. Pg-138 NCERT)

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CHAPTER: FORESTS OUR LIFELINE
MODULE-15 & 16
CONTENTS:

- Interdependence of plants & animals
- Crown, canopy, understorey
- Decomposers
- Conservation of forests

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Q1. Fill in the blanks:

(i) In a forest, _____ form the uppermost layer, followed by _____ and _____ forms the lowermost layer of vegetation.

(ii) All animals whether herbivore or carnivore depend ultimately on _____ for food.

(iii) Microorganisms act on dead plants and animals to produce _____.

(iv) Decomposers help in maintaining the supply of _____ to the growing plants in the forest.

(v) Living organisms show interdependence in the form of _____.

(vi) The microorganisms which breakdown dead plants & animals into humus are called_____.

(vii) The dark coloured substance formed by the action of microorganisms is called _____.

Q2. Match the following:

(a) Forests	(i) Oxygen
(b) Humus	(ii) Prevent soil erosion
(c) Decaying matter	(iii) Food & habitat
(d) Photosynthesis	(iv) Dark coloured substance
(e) Roots	(v) Moist & warm

Q3. Give two examples of (i) Decomposers (ii) Scavengers

Q4. Choose the correct option:

(i) In forest, trees with crowns of different types & sizes create different horizontal layers called as

(a) Canopy (b) Crown
(c) Roofcover (d) Understorey

(ii) The branchy part of a tree above the stem is called:

(a) Roof top (b) Crown
(c) Canopy (d) None of these

(iii) The roof like structure formed by the branches of tall trees over other plants in forest is called

(a) Roofcover (b) Crown
(c)Understorey (d) Canopy

(iv) The food chain begins with

(a) Grasshopper (b) Snake

(c) Grass (d) Frog

Q5. Complete the food chain:

______ ⟶ insect ⟶ _______ ⟶ snake ⟶ _________

~~~~~~

QUESTION BANK

Q1. Define the following :
(i) Crown (ii) Canopy (iii) Understorey
(Hint. Module 15, 16 Q. 4 of Assignment booklet)

Q2. What are decomposers? Give examples. Also mention their role in forest. (Hint. Pg-212 of NCERT)

Q3. What do you mean by the following :
(i) Humus (ii) Food Chain (iii) Scavengers
(Hint. Pg-211, 212 of NCERT)

Q4. (i) Why are forests called green lungs?

Or

Explain the role of forest in maintaining the balance between oxygen and carbon di oxide in the atmosphere.

(ii) Why are forest called water purifying system in nature/ maintain water cycle (Hint. pg-212, NCERT 2nd colm. 2nd para)

Q5. Give reason how forests

(i) Prevent flood/ maintain water table (Hint. Pg-214, the rain drops……+ 2 pg- 215, 3rd para)

(ii) Prevent soil erosion (Hint. Pg-215, 3rd para- Roots of trees….)

(iii) Prevent global warming (Hint. CO_2 is a greenhouse gas which absorbs heat rays)

Q6. Why there is no waste in the forest? (Hint. – role of decomposers and scavengers)

Q7. How do animals living in forest help it grow and regenerate? (Hint. – role of animals in pollination, seed dispersal, decomposition of their dead bodies to add nutrients etc.)

Q8. Explain why there is a need of variety of animals and plants in a forest? (Hint. Pg-213 NCERT)

Q9. What would happen if the forests disappear? (Hint. pg-216 NCERT, 4 points)
~~~~~~

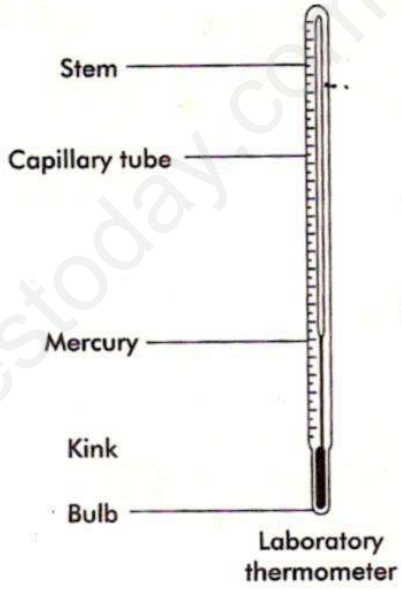
MODULE – 17 & 18

Revision For Annual Examinations

LAB ACTIVITIES

P. 1

Aim: To determine the temperature of given water by using laboratory thermometer.
Materials Required: Laboratory thermometer, beaker, water
Theory: The thermometer used to take the temperature of different things or materials is called laboratory thermometer



Procedure:

1. Take water in beaker
2. Note down the least count and range of given thermometer
3. Dip the thermometer in water
4. Record the observations
5. Repeat it 3 times

Observations:

Least count:
Range of thermometer:
Reading of thermometer:

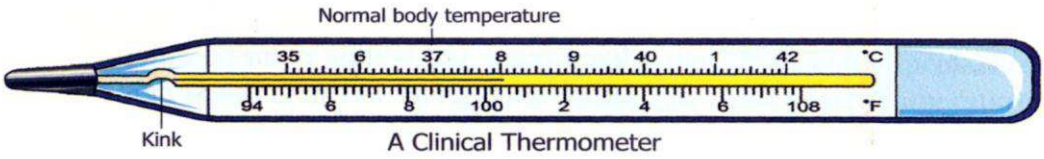
Precautions: Do not tilt the thermometer

Do not take the thermometer out of water

P. 2

Aim: To measure the temperature of a person using clinical thermometer

Materials Required: Clinical thermometer and a person



A Clinical Thermometer

Theory: Clinical thermometer is used to measure the temperature of human body.

Observations: **(i)** Range of clinical thermometer =_____

(ii) Least count = _____

(iii) Temperature of human body = _____

Precautions: **(i)** Handle it with care.

(ii) Never hold the thermometer by bulb while reading it.

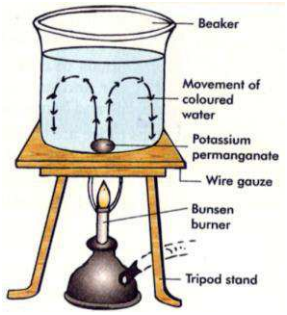
~~~~~~

P. 3

Aim: To study the convection in liquids

Materials Required: Beaker, water, tripod stand, wire gauze, burner, and potassium permanganate crystals

Theory: Convection is the transfer of heat through the movement of fluid which is in contact of heat source



Procedure: (i) Take a beaker and fill it half with water.

(ii) Drop some crystals of $KMnO_4$ in it.

(iii) Now heat the beaker and watch the movement of colored water

Observations:

Result:

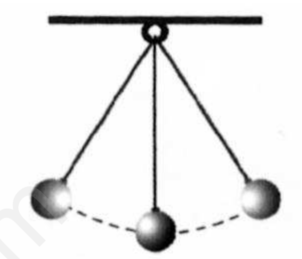
Precautions: Handle the beaker with ease

~~~~~~

P. 4

Aim: To calculate time period of a given pendulum
Materials Required: Iron stand, metallic bob, thread, stop watch
Theory: Time period of pendulum is defined as time taken to complete one oscillation

Procedure:



1. Hand the metallic bob by keeping other and fixed rigid stand
2. Displace pendulum from its mean position
3. Note down the time by stop watch for 20 oscillations
4. Repeat it 3 times

Observations:
Least count of stop watch:

S No.	No of Oscillations (N)	Time taken(t) (s)	Time period t/N(S)

Calculation:
Result:
Precautions:
1. While displacing pendulum, we should not give it a jerk
2. We should note down the time period carefully

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P. 5

Aim: To differentiate between different types of mirrors by using different methods
Materials Required: Spherical Mirrors, Object
Theory:
Concave Mirror: When the reflecting surface of the spherical mirrors curves inwards and outer bulging side is polished, it is called convex mirror
Convex Mirror: When the outer bulging surface of spherical mirror is reflecting, then it is called convex mirror
Method: By Touching
If the reflecting side of the mirror is depressed in then the mirror is concave and if the
~~~~~~

reflecting side is bulging out then it is a convex mirror

By Image Formation: Keep the mirror near to your face, if it forms virtual erect and enlarged image of the face, then it is concave mirror but if it forms virtual erect and smaller image, then it is convex mirror

Precautions: Handle the mirror with care.
Always hold the mirror from edges.

~~~~~~

P. 6

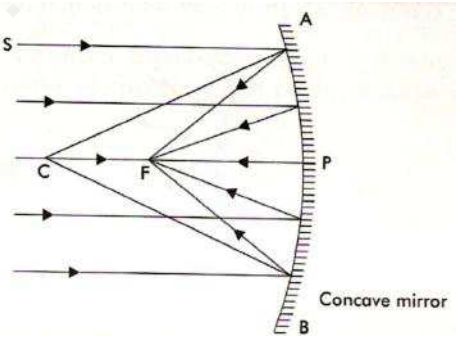
Aim: To study nature of image formed by concave mirror by keeping the object at different distances from mirror

Materials Required: Candle, scale, concave mirror, and screen

Theory: When object is at infinity from mirror then image will fall on focus. As we move the object towards the mirror, image will move away from mirror.

Procedure:

1. Fix a concave mirror in a stand
2. Paste a piece of white sheet on a cardboard that acts as a screen
3. Keep a lighted candle in front of the mirror and try to obtain image on the screen
4. Note the nature of the image formed
5. Move the mirror towards the candle and place at different distances
6. Observe the nature of the image formed in different cases



Observations:

S No.	Distance between candle and mirror	Size of image	Nature of image
~~~~~~

Conclusion:

1. As we put the object away from the mirror, we will get _________ and _________ images
2. As we shift the object towards the mirror, the image will shift _________ from the mirror

Precautions: Always check the focal length before starting
Adjust the screen for getting sharp image of object

~~~~~~

P. 7

Aim: To study nature of image formed by convex lens by keeping the object at different distances of object from lens

Materials Required: Candle, scale, convex lens and screen

Theory: When object is kept beyond focus, it forms a real and inverted image

Procedure:

1. Fix a convex lens in a stand
2. Fix a piece of white sheet on a cardboard that acts as a screen
3. Keep a lighted candle in front of the lens and try to obtain image on the screen
4. Note the nature of the image formed
5. Move the lens towards the candle and place at different distances
6. Observe the nature of the image formed in different cases

Observations:

S No.	Distance between candle and lens	Size of image	Nature of image

Conclusion:

1. As we put the object away from the lens, we will get _________ and _________ images
2. As we shift the object towards the lens, the image will shift _________ from the lens
~~~~~~

Precautions: Always check the focal length before starting

Adjust the screen for getting sharp image of object

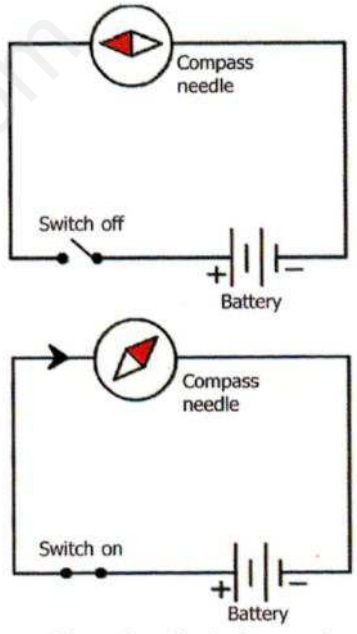
~~~~~~

P. 8

Aim: To demonstrate the magnetic effect of electric current
Materials Required: A magnetic compass, a bulb in a bulb holder, a 6 V battery, a switch and an insulated copper wire.
Theory: When current passes through a coil, a magnetic field is created around it.

Procedure:

1. Make a circuit using a battery, a switch and a bulb in a holder.
2. Switch on.
3. Place the compass on the wire and observe.
4. Now place the compass in the box and wind the copper wire five times around the box.
5. Switch it on again and observe.
6. Now wind the copper wire 20 times around the box and observe.



Magnetic effect of current

Observations:
Conclusion:
Precautions: Handle the circuit with care

P. 9

Aim: To make an electromagnet
Materials Required: 4.5 V battery, a long iron nail, insulated copper wire, a compass needle
Theory: When current passes through a wire, it creates a magnetic field around it

Procedure:

1. Wind the wire tightly and uniformly around the iron nail.
2. Connect both the ends of the battery to the wire.
~~~~~~

3. Bring safety pins near it

Observations:
Result:
Precautions: Handle the circuit with care

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LAB ACTIVITIES

C. 1

Aim - To detect the chemical nature of the following substances with the help of different indicators.

Material Required – Solutions of NaOH, HCl, H_2SO_4, HNO_3, NH_4OH, different indicators, water.
Theory- indicators are the substances which are used to test whether a substance is acidic or basic by bringing about a change in their colour.

Procedure – Take test solutions in different test tubes. Test with different indicators and record your observations.

Observation table –

S.No.	Name of the test solution	Litmus paper		Methyl orange	Phenolphthalein	Inference
		Blue	Red			

Conclusion

~~~~~~~~~~

C – 2

Aim – To observe the process of neutralisation.

Materials required – Dilute hydrochloric acid, Sodium hydroxide Phenolphthalein, test tubes

Theory – the reaction of acids and bases to produce salt, water and heat is known as neutralisation reaction

Procedure – Take 10 drops of acid in a test tube with a few drops of the indicator mixed
~~~~~~~~~~

in it. Add the base drop by drop and observe the change.

Observation Table

No. of drops of base	Change in colour

Conclusion:

~~~~~~

C – 3

Aim – To find out the chemical properties of wool.

Material Required – Burner , hydrochloric acid , sodium hydroxide solution , bleaching agent.

Theory – Wool is an animal fiber which does not catch fire easily and reacts with acids and alkalis. It can be bleached without the loss of strength.

Procedure – Take four small pieces of woolen yarn and test them with heat, acid , alkali and bleaching powder solution. Record your observation.

Observation table-

Action of heat	Action of acids	Action of base	Action of bleaching powder

Conclusion –

~~~~~~

C – 4

Aim- To find out the nature of product formed when a magnesium ribbon burns.

Material required – Magnesium ribbon, tongs, sandpaper, water, blue and red litmus paper.

Theory – Metals react with oxygen to give metal oxides which are basic in nature.

Procedure –Take a thin strip of magnesium ribbon. Clean it with sand paper and bring its tip near a candle flame. Observe the change.

Observations –

1. Colour of the flame =
2. Colour of the product formed =
3. Effect on Litmus=
4. Nature of the product formed =

Conclusion –

C – 5

Aim – To determine the conditions in which rusting occurs.

Materials required – 3 test tubes, iron nails, oil, anhydrous calcium chloride.

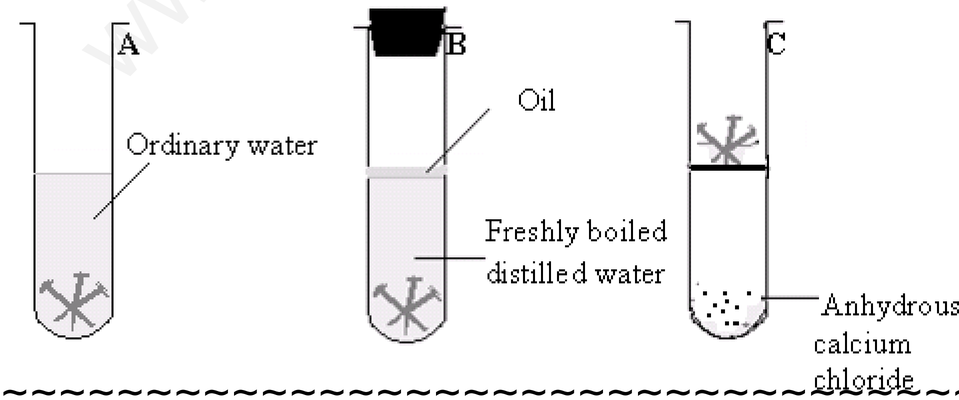
Theory – Rusting is the process in which iron reacts with oxygen and moisture to form a brown layer on its surface. This layer is of hydrated iron oxide.

Procedure – Take a few iron nails in test tube A and B. Add ordinary water in A and boiled water with oil in B. Put a few pieces of anhydrous calcium chloride in test tube C. Place a perforated cardboard disc with iron nails on it. Observe.

Observations table–

	Test Tube- A	Test Tube- B	Test Tube-C
Rusting of iron nails			

Conclusion -



C – 6

Aim – To find out the percolation rate and water retaining capacity of the given soil sample.

Materials Required – 500 ml of water, 50gm of clayey soil and sandy soil, 2 beakers, 2 strainers.

Theory – Sandy soil has large particles which are packed loosely with a lot of air space. Clayey soil has closely packed fine particles.

Procedure – Put the samples of soil in two different strainers and place the strainers over the beakers. Pour water and record your observations.

Observation table –

Time taken (min)

1. Sandy soil –

2. Clayey soil –

Formula for percolation rate=
Percolation rate =
Water retaining capacity =

Conclusion –

==

LAB ACTIVITIES
B– 1

AIM- To observe the permanent slide of stomata & draw its well labelled diagram

OBSERVATIONS

1. Stomata are tiny pores present on _____________ of leaves.
2. These pores are called stomatal___________.
3. Each pore is surrounded by two kidney shaped ____________ cells.
4. Cells surrounding guard cells are called __________________ cells
5. The function of stomata is to allow ____________ of gases & the process of__________ to occur.

~~~~~~
~~~~~~

B – 2

AIM – To observe the specimens of Mushroom, Cuscuta, Pitcher plant, Root Nodule in Leguminous plant & draw their labelled diagrams.

OBSERVATIONS

1. MUSHROOM

i. Mushroom is a kind of___________ (alga/fungus) which derive nutrition from _____________________________ matter & is therefore called _________________.

ii. Main parts of mushroom are________, stalk & gills.

2. CUSCUTA

i. It is commonly called ______________.

ii. It is a_______________ plant with____________ coloured tubular stem.

iii. The plant on which climbs is called __________, from which it obtain ______________.

3. PITCHER PLANT

i. It is an _______________________ plant.

ii. It traps insect & digest it to fulfil the deficiency of _____________ to make_____________.

4. ROOT NODULES IN LEGUMINOUS PLANTS

i. Root nodule in leguminous plant contain the bacteria called _________________.

ii. This bacteria converts atmospheric _______________ into __________________ form , which can be utilized by plants.

iii. Legume plant give _____________ & _____________ to bacteria.

iv. This association is called _________________ relationship.

~~~~~~

B -3

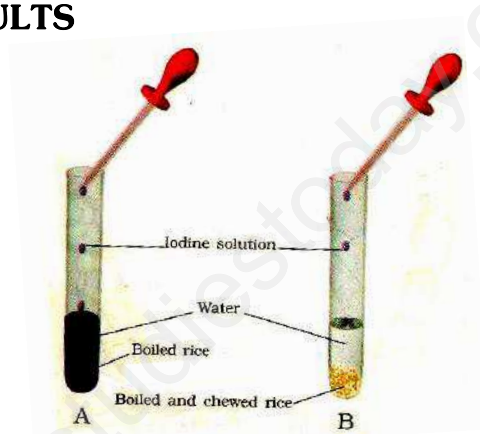
AIM - To study the effect of saliva on starch.
~~~~~~

MATERIALS REQUIRED - Boiled rice, __________ solution, test tube, dropper, ____________

PROCEDURE -

(i) Take two test tubes.
(ii) Label them as A & B.
(iii) In test tube A, add 1 teaspoon full of ______________.
(iv) In test tube B, add 1 teaspoon of __________________ after chewing it for _________ minutes.
(v) Add 3-4ml of ______________ in both test tubes
(vi) Now pour 2-3 drops of _______________ solution in each test tube & observe the colour change.

OBSERVATIONS & RESULTS



(i) Test tube ________ shows change in colour i.e __________________ ,as boiled rice has starch.
(ii) Test tube ________ doesn't show change in colour because starch in boiled rice is converted into_____________ by action of ____________ , while chewing.

CONCLUSION-

The secretion of____________ in the mouth converts starch into ____________.

~~~~~~

B-4

AIM- To understand the mechanism of breathing by constructing a model.
MATERIALS REQUIRED- Plastic bottle, y- shaped ________, _________, thin rubber or plastic sheet, rubber bands
~~~~~~

PROCEDURE-

(i) Take a wide plastic bottle.

(ii) Remove the bottom.

(iii) Take a Y- shaped plastic tube.

(iv) Make a hole in bottle lid so that tube can pass through it.

(v) To the forked end of tube fix two deflated ___________________.

(vi) Introduce the tube in bottle, cap the bottle and seal it to make it ___________________.

(vii) To the open base of the bottle tie a thin _____________ sheet using rubber band.

OBSERVATIONS-

(i) When the rubber sheet is pushed downward , the balloons will get_______________.(inflated/ deflated)

(ii) When the rubber sheet is pushed upward , the balloons will get_______________.(inflated/ deflated)

CONCLUSION-

(i) This model shows the mechanism of __________________________.

(ii) Space in bottle represents chest cavity.

(iii) Balloons represent ____________.

(iv) Rubber sheet tied over open end of bottle represent _____________________.

(v) This model shows that, during inhalation diaphragm goes ___________(up/down), chest cavity ____________ (expands/contracts), so air rushes into ___________.

(vi) During exhalation, diaphragm goes _____________(up/down), chest cavity _______________ (expands/contracts), so air is pushed out of _____________.

(Draw fig-10.7, pg-114 Textbook)

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B-5

AIM- To study the effect of exhaled air on lime water.

MATERIALS REQUIRED- Test tube, straw, _________ water, rubber stopper with a hole

PROCEDURE-

(i) Take a test tube, fill it 1/4th with lime water, cover it with a rubber stopper having a hole in the centre.

(ii) Insert a straw through it so that it touches the solution.
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(iii) Blow gently through the tube a few times.
(iv) Note the change in the colour of lime water.

OBSERVATIONS- Lime water turns _____.

CONCLUSION- Exhaled air is rich in _____.

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B6

AIM- To construct a model of a stethoscope with the materials that are available around us.

MATERIALS REQUIRED- Small funnel, rubber tube, a rubber sheet or a balloon

PROCEDURE-

(i) Take a small funnel of 6 to 7 cm in diameter.
(ii) Fix a rubber tube 50 cm long tightly on the stem of the funnel.
(iii) Stretch a rubber sheet or balloon on the mouth of the funnel & fix it tightly with a rubber band.
(iv) Put the open end of the tube on one of your ears.
(v) Place the mouth of the funnel on your chest.
(vi) Now try to listen carefully.

OBSERVATIONS- A regular thumping sound is that of heartbeats.

	While resting		**After running (4- 5 minutes)**	
	Heartbeat per minute	Pulse rate	Heartbeat per minute	Pulse rate
Name of the student				
Name of the family member				

CONCLUSION- Each heartbeat generates one _____ in the arteries and the pulse rate per minute indicates the rate of heartbeat.

~~~~~~

B-7

AIM- To observe the permanent slide of

(i) Budding in yeast

(ii) Fragmentation in spirogyra

(iii) Spore formation in bread mould

Name the type of reproduction-sexual/asexual, define the method of reproduction in given organism & draw their labelled diagrams- fig. 12.5,12.6,12.7(pg-135,136 NCERT)

~~~~~~

B- 8

AIM- To observe the characteristics of the seeds dispersed by wind, water and animals.

MATERIAL REQUIRED: Specimens of the seeds dispersed by various agents.

OBSERVATION:

Agents of dispersal	Examples	Features
1. By Wind a. Winged seeds b. Light seeds c. Hairy seeds d. Hairy fruit	_____, _____ _____ _____ _____	Have wing like structure or have hair or very small and light.
2. By Water	_____, _____	Have floating ability in the form of spongy or fibrous outer coat.
3. By Animals	_____, _____	Spiny with hooks, get attached to bodies of the animals
~~~~~~

4.By Explosive Method	__________, __________	Fruits of these plants burst with sudden jerk and get scattered far from parent plant.

CONCLUSION: Seed dispersal is beneficial to plants as

(i) it prevents overcrowding,

(ii) it prevents competition between the plant and its own seedlings for sunlight, water and minerals.

(iii) It enables the plants to invade new habitats for wider distribution.

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B-9

Make a list of various products obtained from forest. Also paste pictures of some forest products in your practical file.

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MODEL TEST PAPER SUMMATIVE ASSESSMENT-I

Time : 2 hrs 30 min. **Max Marks : 80**

Section- A (PHYSICS)[27]

Q.1. Fill in the blanks: (1)

(i) In vehicles, the device that measures distance covered is _____ and the device that measures speed is _____.

Q.2. Draw the distance time graph for a truck parked on the road. (1)

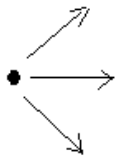
Q.3. Answer in one word- (2)

(i) Image that can be obtained on screen.

(ii) The method of heat transfer in a steel rod.

Q.4. What are the two laws of reflection? (2)

Q.5. Convert 45°C to °F. (2)

Q.6.  Identify and define the beam of light. (2)

Q.7. (i) Define convection. (1+2=3)

(ii)Find the time period when the pendulum completes 30 oscillations in 15 seconds.

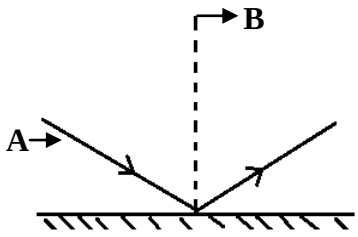
Q.8. Explain with diagram, why sea breeze occurs during day time? (1+2=3)

Q.9. Give reasons: (1½+ 1½=3)

(i) Why do we use woollen clothes in winter?

(ii) Why does the word 'PHYSICS' appear as ' ' when we look at it in a mirror? Explain.

Q.10. (3)



Identify and define A and B in the above diagram.

Q.11. (i) What is speed? (1+3+1=5)

(ii) Plot the following distance time graph on the graph paper.

Time (s)	2	4	6	8
Distance (m)	4	8	12	16

(iii)Which type of motion is represented by the above graph?

Section- B (CHEMISTRY)[26]

Q.1 The process by which plants loose water is known as (1)

(i) Perspiration *(iii)* Infiltration
(ii) Transpiration *(iv)* Condensation

Q.2 Which year is observed as the international year of freshwater (1)

(i) 2005 *(iii)* 2003
(ii) 2004 *(iv)* 2007

Q.3 The chemical formula of potassium hydroxide is (1)

(i) KOH *(iii)* $Ca(OH)_2$
(ii) NaOH *(iv)* $Mg(OH)_2$

Q.4 Which of these is not an Indian breed of sheep (1)

(i) Lohi *(iii)* Mooga
(ii) Nali *(iv)* Patanwadi

Q.5 Give one word: (1)

(i) Traditional way of collecting water.
(ii) Water stored between layers of hard rock below water table.

Q.6 (i) Which liquid is an excellent solvent? (½+1+½=2)

(ii)Mention the importance of this liquid in human body. (2 points)

(iii)What is the major cause of its depletion under the ground?

Q.7 Differentiate between rain water harvesting and drip irrigation. (2 points) (2)

Q.8 (i)If the soil is basic, organic matter is added to it- (1+½=1½)

(a) Why is it done so?

(b) What should be added if the soil is acidic?

(ii)Give one example of an organic acid. (½)

Q.9 Draw the life cycle of silk moth. (2)

Q.10 (i) Tassar, mooga,eri, pashmina. Choose the odd one out and give reason. (1½+½=2)

(ii)What is the scientific name of mulberry tree?

Q.11 (i) Name the most common silk moth. (½)

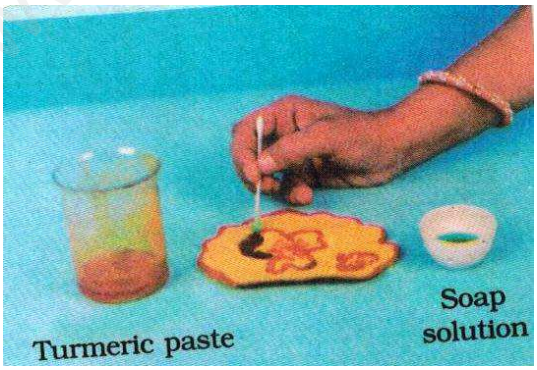
(ii)State 2 characteristics of the silk produced by silk moth. (1)

(iii)What is a cocoon? Name the process involved in taking out silk thread from cocoon. (1+½=1½)

Q.12 (i) Name the processes involved in label (i) and (ii) of this figure. (1+2= 3)

(ii) Nearly three fourths of the earth is covered with water, yet there is an acute scarcity of water in many parts of the world. Give two reasons.

Q.13



(i) What is the colour of the flower drawn in the picture with the soap solution? (½)

(ii) What is the indicator used here? Define indicators. (½+1= 1½)

(iii) Will there be any colour change if we would have used vinegar to make the flower. Why? (½+1= 1½)

(iv) What is the chemical name of the base present in soap solution? (½)

(v) Complete the following equation: (1)

Magnesium hydroxide + Sulphuric acid

⟶ _____ + _____ + heat

Section- C(BIOLOGY) [27]

Q.1.

(i) Which of the following is formed after photosynthesis? (1)

a) Carbohydrates c) Proteins

b) Fats d) Water

(ii) Which of the following is provided to Rhizobium by Legumes?

a) Food *c)* Both of these

b) Shelter *d)* None of these

Q.2. **After complete digestion, fats breakdown into fatty acids and _____.** (1)

Q.3. **Naman observed that 'Desert' is described as 'hot' & dry'. Which of the following statement explains this observation:** (1)

(i) Weather of Desert is hot & dry

(ii) Climate of Desert is hot & dry

(iii) Atmosphere of Desert is hot & dry

(iv) Environment of Desert is hot & dry

Q.4. **The breathing rate in humans depend on** (1)

(i) Food taken *(iii)* Activity done

(ii) Size of lungs *(iv)* None of these

Q.5. **Sam lives in a region where the temperature can be as low as – 37°C. Name the region and write the duration of day in this region.** (1)

STOMATA

Q.6. **(i) The part of plant which contains stomata is _____.** (2)

(ii)The cells present around stomatal pore are called _____

(iii)During respiration, _____ gas enters and _____ gas comes out through stomata.

Q.7. Observe the following reactions: (2)

Reaction A : Glucose ⟶ Lactic acid + energy
Reaction B : Glucose ⟶ Carbon dioxide + water + Energy

(i) Which of the above reactions (A/ B) occur in our muscle cell while exercising?
(ii) Accumulation of lactic acid in muscle cell causes _____.
(iii) Which of the reactions (A/ B) occur in the presence of oxygen & what is it called?

Q.8. Differentiate between Cuscuta & Mushroom on the basis of: (2)
(i) Place of growing *(ii)* Mode of nutrition

Q.9. Give reason: (2)
(i) An athlete breathes faster after finishing race. Why?
(ii) We sneeze, when we inhale dust-laden air. Why?

Q.10. (i)Name the part: (3)
(a) of Amoeba, which helps in ingestion of food.
(b) of Cow's stomach, in which cellulose is digested.
(c) of Human alimentary canal, in which digestion is completed.
(ii)What is assimilation? Where does it occur?

Q.11. (i) How does elephant's long trunk help it to live in tropical rainforest? (two points) (3)
(ii)Which two adaptations protect penguins from cold climate?
(iii)Write two adaptations of polar bears which help them to swim.

Q.12. (i) Which partner of lichens lacks chlorophyll? Write its role. (3)
(ii)Which plants are called partial heterotrophs? Why?

Q.13. (i) Draw human digestive system and label the following organs in it: (5)
(a) Oesophagus *(c)* Gall 1Bladder
(b) Pancreas *(d)* Large intestine

(ii) Where is 'Bile' produced & where is it stored? Write the function of bile juice?

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SUMMATIVE ASSESSMENT-1
Model Paper-1

Time : 2 hrs 30 min. **Max Marks : 80**

Section- A (PHYSICS)

Q.1. Fill in the blanks:- (1)

(i) 0°C = _____ °F.

(ii) The basic unit of time is _____.

Q.2. Write the two methods which were used in early time to measure time. (1)

Q.3. Answer in one word- (2)

(i) The process involved with the rise of mercury when clinical thermometer is kept under tongue.

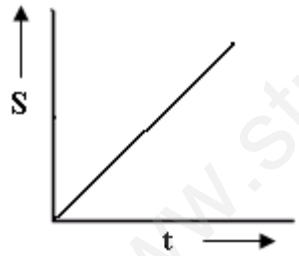
(ii) The resting position of the bob of pendulum.

Q.4. Define: (i) Divergent beam of light. (2)

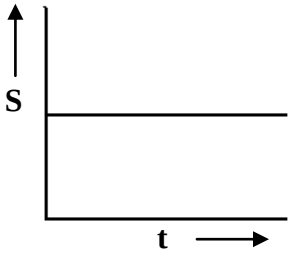
(ii) Time period of a pendulum.

Q.5. Identify the type of motion represented by the following graphs- (2)

(i)



(ii)



Q.6. (i) Define the term "oscillation" for a simple pendulum. (2)

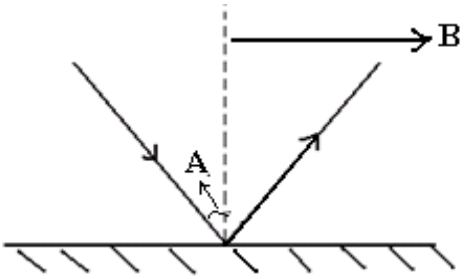
(ii) If a pendulum completes 40 oscillation in 20 seconds. Find its time period.

Q.7. (i) Define non- uniform motion. (3)

(ii) A body covers a distance of 50 km in 15 minutes. Calculate the speed in km/ h.

Q.8. (i) Differentiate between real and virtual images. (3)

(ii) Identify A and B in the following diagram and define them.



Q.9. Give reason - (3)

(i) Why does land breeze occur during night time?

(ii) Why do we wear light coloured clothes in summers and dark coloured clothes in winter?

Q.10. Medical vans used to transport patients to hospital has words "AMBULANCE" inscripted on it. Name the phenomenon associated and explain. (3)

Q.11. (i) Plot the distance time graph for the following data. (5)

Time (h)	0	2	4	6	8
Distance (km)	0	3	8	9	13

(ii) With the help of graph, identify the type of motion.

(iii)Calculate the speed of car when time was 4h.

Section- B (CHEMISTRY) (26)

Q.14 Tartaric acid is present in _____ (1)

Q.15 Carpet wool is obtained from which breed of sheep. (1)

(i) Nali *(iii)* Marwari

(ii) Lohi *(iv)* Bakharwal

Q.16 Chemical formula of Sulphuric acid is (1)

(i) HSO_4 *(iii)* H_2SO_4

(ii) H_2SO_3 *(iv)* K_2SO_4

Q.17 When is 'World Water Day' celebrated? (1)

(i) 23rd March *(iii)* 22nd May

(ii) 22nd March *(iv)* 22nd July

Q.18 (i) How does aquifers get recharged? (2)
(ii)Name two water borne diseases.

Q.19 (i) Define shearing. (2)
(ii)Why shearing does not hurt the sheep?

Q.20 (i) Draw a flow chart to show production of silk from silk moth. (2)
(ii)Which microorganism is responsible for causing a fatal blood disease called sorter's disease?

Q.21 Name and define two processes that take place in the water cycle. (2)

Q.22 (i) Complete the following equation: (3)

Potassium hydroxide + Sulpheric acid ⟶
_____ + _____ + _____

(ii) Encircle the odd- one out. Give reasons for your choice.
Milk of magnesia, Sodium bi carbonate solution, Soap solution, Sugar solution.

Q.23 (i) Name two types of silk. (1+ 1+ ½+ ½)
(ii) Why do wool- yielding animals have thick fur?
(iii) What name is given to the hair of sheep?
(iv) Write the scientific name of Mulberry tree.

Q.24 (i) Why ice cubes float on water? (1 +1 +1)
(ii) Name the chemical constituents of water.
(iii)Define water table.

Q.25 Five solutions have been labelled as A, B, C, D and E. They have been tested with four indicators- methyl orange, phenolphthalein, blue litmus paper and red litmus paper. The observations have been recorded in the following table. Think and answer the questions that follow: (5)

SOLUTION	METHYL ORANGE	PHENOLPHTHALEIN	BLUE LITMUS	RED LITMUS
A	red	colourless	red	red
B	red	colourless	red	red
C	yellow	pink	blue	blue
D	orange	colourless	blue	red
E	red	colourless	¿red	red

(i) Which of the following solutions can be used for neutralization?
(a) A and B *(c)* C and D
(b) C and B *(d)* D and E

(ii) What would be the colour of turmeric paper indicator in solution C?
(iii) How many acids have been tested?

(iv) Which solution is neutral?
(v) Which solution is a base?

Section- C [27]

(BIOLOGY)

Q.1. During photosynthesis, light energy helps to combine:- (1)

(i) Carbohydrate + Oxygen
(ii) Oxygen + Water
(iii) Carbohydrate + Water
(iv) Carbon dioxide + Water

Q.2. The piercing & tearing teeth are:- (1)

(i) Milk teeth
(ii) Permanent teeth
(iii) Incisors
(iv) Canines

Q.3. The digestion of starch into sugar occurs in:- (1)

(i) Buccal cavity
(ii) Oesophagus
(iii) Stomach
(iv) Small intestine

Q.4. In humans, breathing involves movement of:- (1)

(i) Lungs & rib- cage
(ii) Lungs & diaphragm
(iii) Rib- cage and diaphragm
(iv) Nasal cavity and trachea

Q.5. When you are sleepy or drowsy, you breathe:- (1)

(i) Faster
(ii) Slower
(iii) No change in breathing rate
(iv) Depends on the age of person

Q.6. Name one tropical and one polar animal each which has skin colour which help it to blend with its surrounding. What is the term given to above adaptation and how is it helpful to the animals? (2)

Q.7. Why do we get relief from cramps after hot water bath/ massage? (2)

Q.8. Write the equation for anaerobic respiration in yeast. (2)

Q.9. Name all the elements of weather. (2)

Q.10. (i) Write two features of penguins which help them to swim in water. (3)
(ii)Why do polar bears have strong sense of smell?

Q.11. (i) Name one organ of digestive system, in which:- (3)

(a) both digestion and absorption occur
(b) Egestion occur

(ii)Write one function of:-

(a) Mucous in stomach
(b) Bile juice

Q.12. Name, draw and label one saprotrophic plant. While feeding on rotten material, what does this plant:- (3)

(v) secretes into rotten material
(vi) absorbs from rotten material

Q.13. (i) Which component of food are plants not able to make from carbohydrates synthesized during photosynthesis and why? (5)

(ii) What are cud- chewing animals called? In which part of their stomach:-

(a) the quickly- swallowed food is stored
(b) the cellulose of grass is digested

(iii) What is breathing rate?

==========

SUMMATIVE ASSESSMENT-1

Model Paper-2

Time : 2 hrs 30 min. **Max Marks : 80**

Section- A (PHYSICS)

Q.1. Fill in the blanks:- (1)

(iii) 100°C = _____ °F.

(iv) The basic unit of speed is _____.

Q.2. Write two properties of image formed by a plane mirror. (1)

Q.3. Answer in one word- (2)

(i) The process involved in the circulation of air through ventilators.

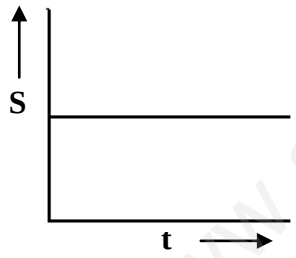
(ii) Device used in vehicles which shows the distance covered.

Q.4. Define: (i) Convergent beam of light. (2)

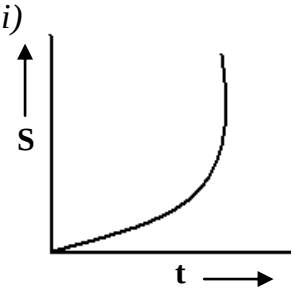
(ii) Amplitude of a pendulum.

Q.5. Identify the type of motion represented by the following graphs- (2)

(i)



(ii)



Q.6. (i) Define time period of a simple pendulum. (2)

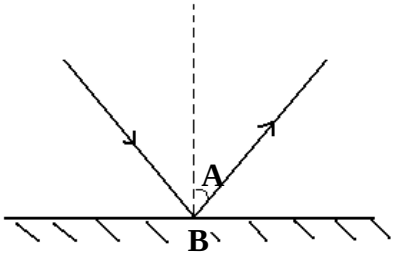
(ii) If a pendulum completes 50 oscillation in 25 seconds. Find its time period.

Q.7. (i) Define uniform motion. (3)

(ii) A body covers a distance of 40 km in 20 minutes. Calculate the speed in km/ h.

Q.8. (i) State the two laws of reflection of light. (3)

(ii) Identify A and B in the following diagram and define them.



Q.9. Give reason - (3)

(i) Why does sea breeze occur during day time?

(ii) Why do we wear light coloured clothes in summers and dark coloured clothes in winters?

Q.10. Medical vans used to transport patients to hospital has words " AMBULANCE" inscripted on it. Name the phenomenon associated and explain. (3)

Q.11. (i) Plot the distance time graph for the following data. (5)

Time (h)	0	2	4	6	8
Distance (km)	0	3	6	9	12

(ii)With the help of graph, identify the type of motion.

(iii)Calculate the speed of car when time was 4h.

Section- B (CHEMISTRY)

Q.12 Chemical formula of Nitric acid is (1)

(i) HCl *(iii)* HNO_3

(ii) NaCl *(iv)* NH_4OH

Q.13 Which one is not an indicator? (1)

(i) Methyl orange *(iii)* Acetic acid

(ii) Litmus *(iv)* Phenolphthalein

Q.14 Hosiery wool is obtained from which breed of (1)

(i) Patanwadi *(iii)* Nali

(ii) Lohi *(iv)* Marwari

Q.15 When is 'World Water Day' celebrated? (1)

(i) 23rd March *(iii)* 22nd May

(ii) 22nd March *(iv)* 22nd July

Q.16 (i) Why ice cubes float on water? (2)
(ii)Name the chemical constituents of water.

Q.17 Name the two processes which takes place in the water cycle. (2)

Q.18 (i) What is the scientific name of 'Mulberry tree'? (2)
(ii)Draw well labelled diagram for life cycle of silk moth.

Q.19 (i) Name the bacteria responsible for sorter's disease. (2)
(ii)What is the removal of hair from sheep called?

(iii)Define selective breeding.

Q.20 (i) Name natural source of litmus. (3)

(ii)Complete the following equation:

Calcium hydroxide + Hydrochloric acid ⟶

_____ + _____ + _____

(iii)Why does a turmeric stain on a white shirt turn red when washed with a soap?

Q.21 (i) Where does underground water come from? (3)

(ii)Explain two ways which can help in increasing the water table.

Q.22 (i) Why is a sheep dipped in an antiseptic solution soon after shearing? (3)

(ii)Why do animals living in cold region have a thick coat of hair?

(iii)Name the state where following breed of sheep are found.

(a) Lohi *(b)* Marwari

Q.23 Five solutions have been labelled as A, B, C, D and E. They have been tested with four indicators- methyl orange, phenolphthalein, blue litmus paper and red litmus paper. The observations have been recorded in the following table. Think and answer the questions that follow: (5)

SOLUTION	METHYL ORANGE	PHENOLPHTHALEIN	BLUE LITMUS	RED LITMUS
A	red	colourless	red	red
B	red	colourless	red	red
C	yellow	pink	blue	blue
D	orange	colourless	blue	red
E	red	colourless	¿red	red

(i) Which solution is a base?

(ii) Which solution is neutral?

(iii) How many acids have been tested?

(iv) What would be the colour of turmeric paper indicator in solution C?

(v) Which of the following solutions can be used for neutralization?

(a) A and B *(c)* C and D

(b) C and B *(d)* D and E

Section- C [27]

(BIOLOGY)

Q.24. In which of the following, photosynthesis will not occur:- (1)

(i) Green leaves
(ii) Red leaves
(iii) Cactus stem
(iv) Cactus leaves

Q.25. The first set of teeth in humans are called:- (1)

(i) Milk teeth
(ii) Permanent teeth
(iii) Incisors
(iv) Canines

Q.26. The widest part of alimentary canal is:- (1)

(v) Buccal cavity
(vi) Oesophagus
(vii) Stomach
(viii) Small intestine

Q.27. The process of breakdown of food to release energy (Respiration) occurs in:- (1)

(i) Lungs
(ii) Small intestine
(iii) Blood
(iv) Cells

Q.28. When you are active/ exercising, you breathe:- (1)

(i) Faster
(ii) Slower
(iii) No change in breathing rate
(iv) Depends on the age of person

Q.29. Name one tropical and one polar animal which has 'thick skin'. How is it helpful in each case? (2)

Q.30. Why do we get muscular cramps after heavy exercise? (2)

Q.31. Write the equation for aerobic respiration. (2)

Q.32. Write any two adaptations of elephants to tropical rainforest. (2)

Q.33. (i) Write two features which help polar bear to swim in water. (3)

(ii)Why do penguins huddle together?

Q.34. (i) Name one organ of digestive system, in which:- (3)

(i) only digestion occurs
(ii) both ingestion and digestion occur

(ii)Write one function of:-

(i) HCl in stomach
(ii) Villi

Q.35. Name the plant which shows both auto tropic and heterotrophic mode of nutrition. Why do they do so? Draw it and label its parts. (3)

Q.36. (i) Name the elements which form carbohydrates. (5)

(ii)Which component of food:-

(c) can be made from same elements
(d) cannot be made using same elements

(iii)Name one animal:-

(a) Which can digest cellulose found in grass
(b) Which cannot digest cellulose

(iv)How is cellulose digested?

(v) Correct the statement:-

'Respiration is a part of breathing'

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SUMMATIVE ASSESSMENT-II
(SOLVED) MODEL PAPER-3

Time : 2 hrs 30 min. **Max Marks : 80**

Section – A (Physics)

General Instructions:-

Q. 1 to Q.8 carries 1 mark.
Q. 9 to Q.13 carries 2 marks.
Q. 14 to Q.16 carries 3 marks.

Q1. Fill in the blanks:

a) The coil of wire is called an _____

b) White light consists of _____ colour.

Ans. a) element **b)** seven

Q.2 Correct the following statement.

a) Convex lens is called diverging lens.

b) Air exerts pressure only in upward direction.

Ans. a) Convex lens is called converging lens.

b) Air exerts pressure in all directions.

Q3. Choose the correct answer.

a) Meera is making a closed electric circuit. What she does not need for it?

i. Battery
ii. Switch
iii. Wire
iv. Test tube

b) What is the other name of cyclone?

i. Typhoon
ii. Storm
iii. Tsunami
iv. Monsoon

Ans. (i) d) Test tube **(ii) a)** Typhoon

Q.4 What does 'VIBGYOR' stand for in spectrum?

Ans. 'VIBGYOR' stand for seven in spectrum.

V – Violet
I – Indigo
B – Blue
G – Green
Y – yellow
O – Orange
R – Red

Q5. Write one use of convex lens.

Ans. Convex lens is used in making magnifying glasses.

Q6. Draw symbols for following electric component:

a) Battery

b) Open switch

Ans.

(a) **(b)**

Q.7 Name the lens if it is thicker in middle than at it edges.

Ans. Convex lens

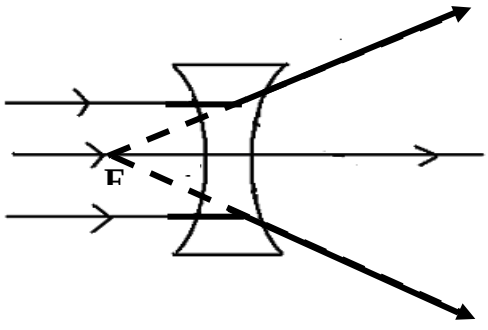
Q.8 Give the name of two devices based on heating effect of current.

Ans. The names of two devices based on heating effect of current are:

a) Hot plates **b)** Electric Iron

Q.9) Draw a ray diagram to show refraction through a concave lens.

Ans



Q.10 When the current is switched on through a wire, a compass needle kept nearby gets deflected from its north-south position. Why?

Ans. When the current is switched on through a wire, a compass needle kept nearby gets deflected from its north-south position because of the magnetic effect of electric current.

Q.11 Write two effective safety measures for the cyclones.

Ans. Two effective safety measures for the cyclones are: -

a) A cyclone forecast and warning service.

b) Rapid communication of warning to the Government agencies, the ports, fishermen, ships and the general public.

Q.12 Why holes are made in hanging banners and hoardings?

Ans. Holes are made in hanging banners and hoardings to allow the wind to move from one side to the other.

Q.13 What is electromagnet? Write one use of electromagnet.

Ans. A current carrying coil of an insulated wire wrapped around a piece of iron is called an electromagnet. It is used to separate magnetic materials from the junk.

Q.14 State three differences between convex and concave lens.

Ans. Three differences between convex and concave lens are –

Convex lens	**Concave lens**
1. It is thick in middle and thin at edges.	**a)** It is thin in middle and thick at edges.
2. It is also called converging lens.	**b)** It is also called diverging lens.
3. Convex lens can forme real and inverted image.	**c)** Concave lens always forms erect, virtual and smaller image than object.

Q.15 a) What kind of wires are used in making an electric fuse?

b) Name the scientist who first noticed the deflection in compass needle when kept in a closed electric circuit.

Ans. a) Wires used in an electric fuse are made up of special material which melt quickly and break when large electric current are passed through them.

b) Hans Christian Orested was first noticed the deflection in compass needle when kept in a closed electric circuit.

Q.16 a) How does the air move?
b) What are tornadoes?

Ans.a) Air moves from the region where the pressure is high to the region where the pressure is low.

b) A tornado is a dark funnel shaped cloud that reaches from the sky to the ground. Most of the tornadoes are weak. A violent tornado can travel at speed of about 300km/hr.

Section B (Chemistry)

General Instructions:-

Q. 1 to Q.4 carries 1 mark.
Q. 5 to Q.7 carries 2 marks.
Q. 8 to Q.9 carries 3 marks.
Q. 10 to Q.11 carries 5 marks.

Q1. Give the chemical name of washing soda.
A1. Sodium Carbonate.

Q2. What is Humus?
A2. The rotting dead matter in the soil is known as Humus.

***Q3.* What is sewage?**
A3. Sewage is a liquid waste.

Q4. Name the ingredient that makes lemon taste sour.
A4. Citric acid.

Q5. Why is it necessary to treat sewage before disposing it off in water body?
A5. Sewage should be treated before being dropped in a water body because it contains harmful substances and contaminants.

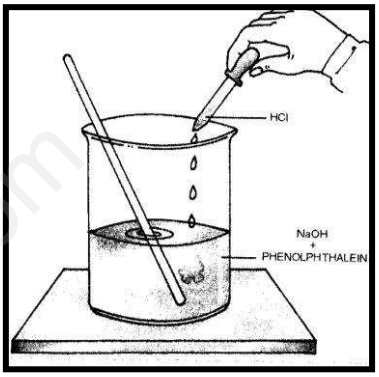
Q6. Why is Earthworm known as 'Nature's Ploughman' or 'Farmers Friend'?

A6. Earthworm makes burrows in the soil, thus mixing the soil well, and its excreta enriches the soil with nitrogen.

Q7. Fill in the blanks:

a) Acids turn blue litmus red.
b) Alkalis are soapy in touch.

Q8. Observe the diagram and answer the question:



a) What is phenolphthalein?

Ans. Phenolphthalein is a base indicator

b) Do you see any change in colour of the indicator?

Ans. Phenolphthalein was pink but gets colourless as the acid drops down.

c) Name the acid and the base in the diagram.

Ans. Acid- Hydrochloric acid
Base- Sodium Hydroxide

Q9. Name the changes the following solutions will show with blue litmus.

a) Lime juice --- Blue litmus turns red
b) Baking Soda ---No effect
c) Vinegar ---Blue litmus turns red

Q10. Give one use of the following

a) Hydrochloric acid – Helps in digestion.
b) Silk moth --- Produces Silk.
c) Milk of magnesia – Helps to relieve acidity.
d) Baking Soda – To bake cakes.
e) Litmus Paper – To differentiate between acids and bases.

Q11. Write short notes on:

a) Sanitation and Disease:

Sanitation means maintenance of cleanliness in the surroundings involving proper disposal of Drainage water and sewage. Disease is the outcome of improper sanitation. Various flies and mosquitoes breed where water collects and stagnates.

Contamination of drinking water is one such outcome. All of us should contribute in maintaining sanitation in public places. We should not scatter litter anywhere and try and keep our environment clean.

b) Soil Types:

The mixture of rock particles and humus is called the soil. It is of the following types:

(i) Sandy Soil – If the soil contains a greater proportion of big particles it is called Sandy soil. It is well aerated.

(ii) Clayey soil – If the proportion of fine particles is relatively higher it is called clayey soil. This soil holds more water.

(iii) Loamy Soil – It is a mixture of sand, clay and silt. It is the best soil for growing crops.

Section – C (Biology)

General Instructions **:-**

Q.1. to Q.5. carries one mark each.
Q.6. to Q.9. carries two marks each.
Q.10. to Q.12. carries three marks each.
Q.13. carries five marks.

Q1 Name the red pigment present in the blood.

Ans Haemoglobin

Q 2 Name the instrument used to hear heart beats

Ans Stethoscope

Q 3 Name the upper and lower chambers of heart.

Ans Upper chambers of heart- Atria
Lower chambers of heart- Ventricles

Q 4 Name two decomposers.

Ans Bacteria, & Fungi

Q 5 Define Pollination –

Ans The transfer of pollen from anther to stigma of a flower is called pollination.

Q 6 Differentiate between unisexual and bisexual flowers.

Ans **Unisexual flower**	**Bisexual flower**
1) These flowers contain either pistil or only the stamens.	These flowers contain both stamens and pistil
2) Eg. Corn, Papaya	Eg. Mustard, Rose.

Q 7 Differentiate between xylem and phloem.

Ans	**Xylem**	**Phloem**
a)	It is the vascular tissue that transports water from roots to entire plant.	It is the vascular tissue that transports food from leaves to other parts of the plant.
b)	Transport is unidirectional	Transport is bidirectional

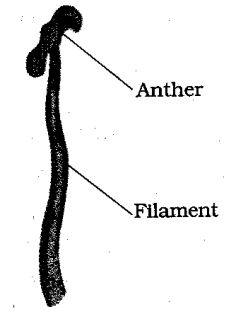
Q 8 Write any four functions of blood.

Ans Functions of blood are-:

a) It transports digested food from small intestines to the other parts of the body.
b) It carries oxygen from the lungs to the cells of the body.
c) It transports wastes for removal from the body.
d) It transports hormones from endocrine glands to the other parts of the body.

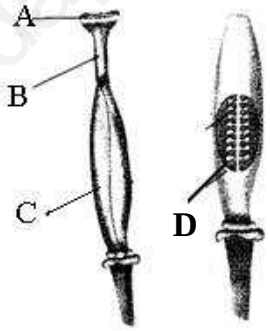
Q9 Draw the reproductive parts of a flower.

(i)



(a) Stamen

(ii)



Ans. (ii) (A) Stigma (B) Style (C) Ovary (D)Ovule

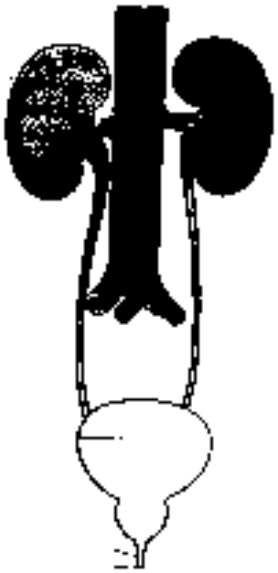
Q10. Define the following terms:

a) Crown **b)** Canopy **c)** Under storey

Ans a) **Crown–** The branchy part of a tree above the stem is known as the crown.
b) **Canopy-** The branches of tall trees looks like a roof over the other plants in the forest. This roof like structure is known as canopy.
c) **Under storey-** The trees in a forest have crowns of different types & sizes which create different horizontal layers. These are known as under storey.

Q11 Draw the human excretory system.

Ans



Q12. What is transpiration? What role does it play?

Ans The process of loss of water by the plants from the stomata of leaves in the form of water vapour is known as transpiration.

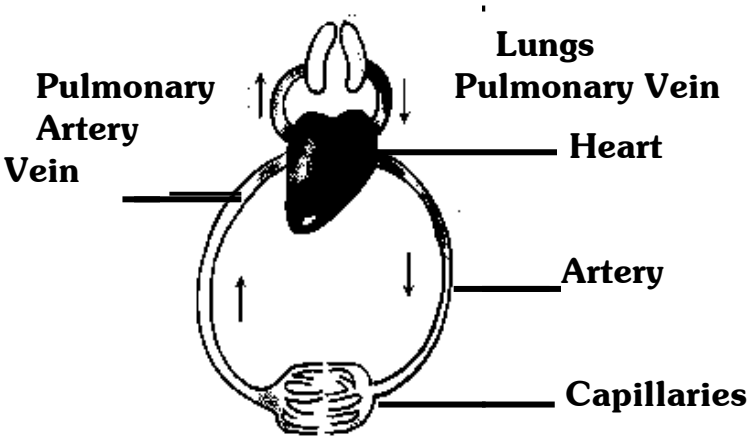
It helps the plants by:

a) Pulling the water to great heights in tall trees.

b) It also cools the plant.

Q13. Differentiate between artery and vein. Draw a schematic diagram of blood circulation. Name the scientist who discovered circulation of blood in humans.

Ans.	**Artery**	**Vein**
a)	Have thick elastic wall.	Have thin walls.
b)	They generally carry oxygen-rich blood.	They carry carbon dioxide –rich blood.
c)	They do not have valves.	They have valves to allow blood to flow only towards heart.



The English Physician William Harvey discovered circulation of blood in Humans.

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SUMMATIVE ASSESSMENT-II
MODEL PAPER-4

Time : 2 hrs 30 min. **Max Marks : 80**

Section- A (PHYSICS) [27]

Q.1. Fill in the blanks:- (1)

(v) The wire used for making element of an electric heater is made up of _____.

(vi) An image that cannot be obtained on a screen is called a _____ image.

Q.2. Write any other one name of cyclone. (1)

Q.3. What are the essential parts of an electric circuit? (Any two) (1)

Q.4. Answer in one word. (2)

(i) A transparent glass piece thinner in the middle and thicker at the edges.

(ii) A mirror which can form magnified image of an object.

Q.5. Correct the following statements: (2)

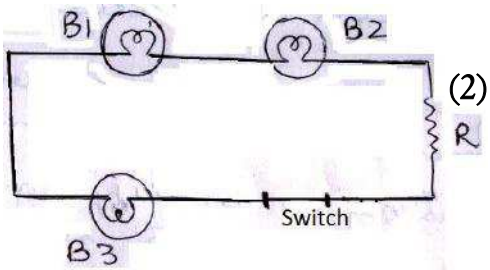
(i) The speed of wind is measured with an instrument called speedometer.

(ii) The device used to prevent flow of excess current in a circuit is a switch.

Q.6. Give one use each of a concave mirror and a concave lens. (2)

Q.7. How does a thunderstorm become a cyclone? (2)

Q.8. Will the bulbs glow in the given circuit?
Give reason to support your answer. (2)



Q.9. Explain the working of an electric bell (without diagram). (3)

Q.10. Give reason, why (3)

(i) We keep melting point of a fuse lower than the melting point of remaining circuit.

(ii) A closed plastic bottle filled with warm water shrinks, when cold water is poured over it.

Q.11. What safety measures one must take in advance to tackle with the problems created by a cyclone? (Write 3 points) (3)

Q.12. (i) What is magnetic effect of electric current? (1 + 2 +2= 5)
(ii)What are the factors on which the strength of an electromagnet depends?

(iii)Paheli takes a wire 'A' of radius 1 cm and Boojho takes a wire 'B' of radius 2 cm and pass same amount of current through them. In which case, heat produced will be more and why?

Section- B (CHEMISTRY)[26]

Q.26 The point of origin of sullage water is (1)

(i) Kitchen *(iii)* Toilets
(ii) Industries *(iv)* Hospitals

Q.27 The water holding capacity is highest in (1)

(i) Sandy soil *(iii)* Loamy soil
(ii) Clayey soil *(iv)* Mixture of sand and loam

Q.28 This layer is made up of small lumps of broken rocks and lacks humus (1)

(i) A horizon *(iii)* C- horizon
(ii) B- horizon *(iv)* Bedrock

Q.29 The gas which protect us from harmful ultraviolet radiations coming from the sun is (1)

(i) Nitrogen *(iii)* Ozone
(ii) Oxygen *(iv)* None of these

Q.30 Name 2 organic impurities present in sewage. (1)

Q.31 (i) Which type of soil is the best for making toys and statues? (½ + ½ + 1= 2)
(ii)Name the plant which grows well in this type of soil.
(iii)Mention 1 difference between the above type of soil and sandy soil.

Q.32 Calculate the rate of percolation of a soil sample if the soil takes 50 minutes for 250 ml of water to percolate through it. (2)

Q.33 Draw the sketch of the soil profile and label the various horizons. (2)

Q.34 (i) Complete the following word equation: (½ + ½ + 1= 2)

Citric acid + _____ ⟶ sodium citrate + _____ + water

(ii)Mention the standard test or confirmatory test for carbon dioxide.

Q.35 (i) Give reason: (2)
If a copper wire is added in a solution of ferrous sulphate it will not react.
(ii)Identify the molecule of the elements from the following: NaCl, H_2, CO_2, N_2

Q.36 (i) Choose the old one out and give a reason for your choice. (1½ + 1½= 3)
(a) Stretching of a rubber band
(b) Formation of clouds
(c) Photosynthesis in plants
(d) Melting of wax
(ii)Define alloying and name an alloy of iron.

Q.37 (i) Why should oil and fats be not released in the drain? (1 + 1 + 1= 3)
(ii) Expand WWTP.
(iii)Differentiate between sludge and activated sludge. (1 point)

Q.38 Observe the diagram given below and answer the following questions:
(i) What is the role of bar screens in WWTP? (1)
(ii) What is the waste deposited in tank (b). Which process helps in the removal of this waste? (½ + ½= 1)
(iii) Which bacteria grows in aeration tank. What is the role of this bacteria in this tank? (½ + 1= 1½)
(iv) How is the sludge decomposed in digester tank? (½)
(v) Mention two uses of biogas produced in this tank. (½ + ½ =1)

Section- C(BIOLOGY)[27]

Q.2. Name the following: (1)
(i) the air tube of insects
(ii) small openings on the sides of an insect body

Q.3. Name the blood component: (1)
(i) Which helps in fighting against germs.
(ii) Which helps in clotting of blood.

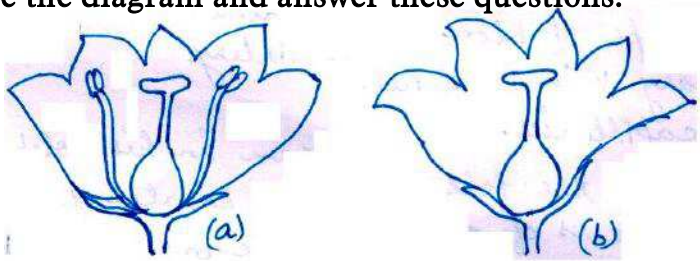
Q.4. What is common between transpiration in plants and sweating in human beings?(1)

Q.5. Correct the following statements: (1)
(i) Fruit is the ripened ovule.
(ii) Root, stem and leaves are reproductive parts of plant.

Q.6. (i) Fragmentation : _____ : : spore formation : fern. (1)
(ii)Pollen grain : male gamete :: _____ female gamete.

Q.7. Lime water turns _____ when we exhale into it, as exhaled air contains more _____ than inhaled air. (1)

Q.8. Observe the diagram and answer these questions: (2)



(i) Identify the flowers. (unisexual/ bisexual) (a) _____ (b) _____

(ii) In which flower (a)/ (b) is self pollination possible? Can it perform cross pollination too? (Yes/ No)

Q.9. (i) Name two types of vascular tissues. (2)

(ii)Give one difference between the two vascular tissues.

Q.10. Complete the table: (2)

Characteristics	Asexual reproduction	Sexual reproduction
i) Seeds produced or not		
ii)New individuals identical to parents or characters of both the parents		

Q.11. Choose the correct option: (2)

(i) Egg is formed in which part of the flower?
- *(i)* Sepal
- *(ii)* Ovary
- *(iii)* Stamen
- *(iv)* Petal

(ii) Yeast reproduces by which of the following asexual method?
- *(i)* Budding
- *(ii)* Spore formation
- *(iii)* Fragmentation
- *(iv)* Fusion of gametes

(iii) Veins have _____ wall.
- *(i)* Thin
- *(ii)* Thick
- *(iii)* Thin and elastic
- *(iv)* Thick and elastic

(iv) The major excretory waste produced in aquatic animals like fishes is _____.
- *(i)* Urea
- *(ii)* Uric acid
- *(iii)* Ammonia
- *(iv)* None of these

Q.12. (i) Which type of blood (O_2 rich/ C O_2 rich) is carried by: (2)

(i) Pulmonary vein

(ii) Pulmonary Artery

(ii)Define capillaries.

Q.13. Ravi drew the following diagram in his notebook to show the process of exhalation during breathing. (3)

(i) Is this diagram correct? Yes/ No.
Give one reason in support of your answer?

(ii) Write the percentage of CO_2 in inhaled and exhaled air.

(iii) Name the part (A)

Q.14. (i)Give reason: (2)

(i) Why do veins have valves?

(ii) Seed dispersal is an important process. Give one reason.

(ii) Define transpiration. **(1)**

Q.14. (i) (a) **Draw a neat diagram of human excretory system.** **(1)**

(b) **Label the following in the diagram:** **(1)**

- a part in which tiny filtering units called nephrons are present.
- a part which stores urine.

(ii)Give one example and one feature of the seeds for which dispersal agent is wind.

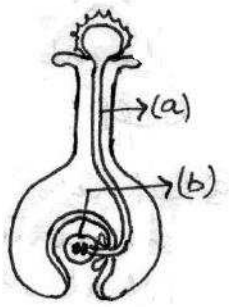
(1)

Q.15. Observe the diagram and answer the questions:

(i) Name the process in this diagram. **(½)**

(ii) Label parts (A) and (B). **(1)**

(iii) (B) will develop into _____ after this process. **(½)**



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SUMMATIVE ASSESSMENT-II
MODEL PAPER-5

Time : 2 hrs 30 min. **Max Marks : 80**

Section- A (PHYSICS)

Q.1. Fill in the blanks:- (1)

(vii) Moisture laden winds are called _____.

(viii) The central calm area of a cyclone is known as _____.

Q.2. A man standing close and in front of a spherical mirror finds image having a small head and a fat body. What is the shape of (1)

(i) top part of the mirror?

(ii) bottom part of the mirror?

Q.3. Which effect of current does the filament in an electric bulb utilize? (1)

Q.4. Complete the analog- (2)

(i) speed of vehicles : speedometer :: speed of wind : _____.

(ii) length : metre :: current : _____.

Q.5. Differentiate between converging and diverging mirrors. (Give two points each)

(2)

Q.6. Name a safety device based on the heating effect of current. How does it work?

(2)

Q.7. How are thunderstorms caused? (2)

Q.8. Draw a circuit diagram of a dry cell connected to a bulb through a switch. Mark the negative and positive terminals of the cell and the direction of flow of current in the diagram. (2)

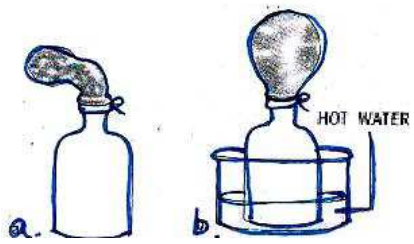
Q.9. Give reason, why- (3)

(i) When we blow over a paper strip, it blows upwards.

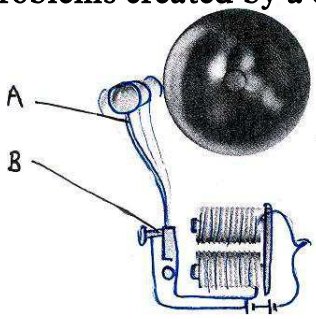
(ii) Concave mirrors are used as shaving mirrors.

Q.10. (i) Observe the diagram and write the aim of the experiment? (1 + 2= 3)

(ii) Why does the balloon inflate when it is kept under hot water?



Q.11. Write down three precautions which one must take in advance to tackle with the problems created by a cyclone. (3)

Q.12. 

(1+2+2= 5)

(i) What is the underlying principle behind the working of an electric bell?
(ii) Identify 'A' and 'B' and tell their functions.
(iii) Why do we prefer to use an electromagnet instead of a permanent magnet in an electric bulb?

Section- B (CHEMISTRY)

Q.13 The process of preparing pure crystals of a substance from its concentrated solution is (1)

(i) Galvanization
(ii) Rusting
(iii) Crystallization
(iv) Weathering

Q.14 Clean water fit for drinking is (1)

(i) Potable water
(ii) Clarified water
(iii) Treated water
(iv) None of above

Q.15 The product formed when a zinc piece is introduced in a solution of copper sulphate is (1)

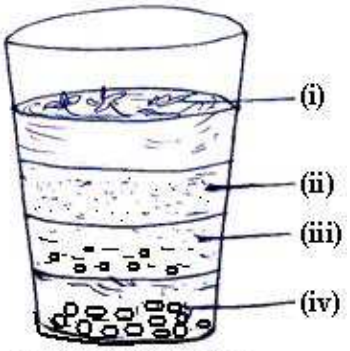
(i) Ammonium sulphate
(ii) Copper sulphate
(iii) Zinc sulphate
(iv) Zinc hydroxide

Q.16 Which of these soil particles are largest in size (1)

(i) Sand
(ii) Clay
(iii) Silt
(iv) Humus

Q.17 (i) State two conditions necessary for rusting. (1 +1= 2)
(ii)Give the word equation for the chemical reaction involved in the process of rusting.

Q.18 Label the diagram given below: (2)



Layers of the soil

Q.19 Define the following: (2)
(i) Sewerage *(ii)* Sewers

Q.20 Calculate the percentage of water absorbed by 90 gm of soil sample when the initial volume of water taken is 60 ml and the final volume of water is 30 ml in the measuring cylinder. (2)

Q.21 (i) Complete the following word equation: (3)
(a) Magnesium + Oxygen ⟶ _____
(b) Calcium hydroxide + Carbon dioxide ⟶ _____ + _____

(ii)Arrange clayey, sandy and loamy soils in the increasing order of their percentage of water absorbed.

Q.22 (i) What is the function of bar screens? (3)
(ii)Expand STP.
(iii)What is activated sludge?
(iv)Which horizon of soil is the home for soil organisms?

Q.23 (i) Name the following: (1 + 2= 3)
(a) Breaking down of rocks by the climatic changes.
(b) A section of soil showing distinct layers of soil.

(ii)Trees help in making the soil as well as protecting it. How? (2 points)

Q.24 (i) Why oils, fats and paints should not be discharged in the household drains? (5)
(ii)Which gas is produced during anaerobic decomposition of sludge?
(iii)Give the chemical name and formula of the product formed when magnesium ribbon is burnt in air.
(iv)Classify the following changes into physical and chemical changes:
(a) clothes being ironed *(b)* burning of petrol

(v) How can you show that iron is more reactive than copper?

<u>Section- C [27]</u> (BIOLOGY)

Q.25 Name the organ of respiration and the type of excretory waste produced by fish. (1)

Q.26 Which scientist was called the 'circulator'? (1)

Q.27 (i) The cells which prevent blood- loss during injury are called _____. (1)
(ii)The pulse is observed in _____.

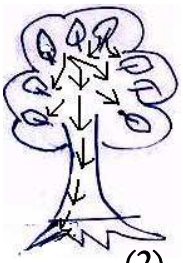
Q.28 (i) Root : Sweet Potato :: Leaf buds : _____. (1)
(ii)Yeast : Budding :: _____ : Fragmentation.

Q.29 Correct the statement:
(1)

(i) Sepals, Petals and Ovary fall off after fertilization.
(ii) Each detached part of Rose plant develop into new plant.

Q.30 How is dispersal of seeds beneficial to plants (1 point). (1)

Q.31 Observe this figure and answer the question given
(2)



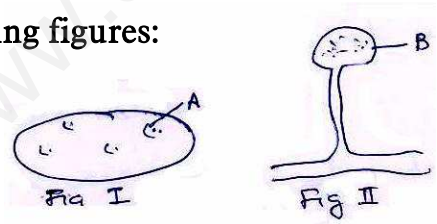
(i) The arrow marks are showing movement of which substance?
(ii) In which direction is this substance moving?
(iii) Name the tissue in which the substance is moving.
(iv) Vascular tissue is made of the above tissue and _____.

Q.32 On exhaling into a particular solution, it turned milky. (2)
(i) Name the solution and the gas which turned it milky.
(ii) Why do plants die when they are over watered?

Q.33 Explain how forests help to prevent. (2)
(i) Soil erosion *(ii)* Global warming

Q.34 (i) Flowers with both stamen or pistil are called _____. (2)
(ii)Which type(s) of pollination will they show?
(iii)Give one example of such a flower.

Q.35 Observe the following figures: (2)



(i) Which type of asexual reproduction is shown by Fig. I and Fig. II?
(ii) What is the name given to part A and part B in above figures.

Q.36 What are decomposers? Give two examples of decomposers. (2)

Q.37 (i) The right ventricle contains _____ rich blood and sends it out through a blood vessel called _____. (3)

(ii)What is present between left and right side of the Heart and what is its function?
(iii)Exchange of materials between blood and cells occur through _____.
(veins/ capillaries)

Q.38 Choose the correct option: (3)

(i) Ovary contains _____.

(a) Male gamete
(b) Female gamete
(c) Pollen grain
(d) Ovule

(ii) A fusion of male and female gamete occurs during

(a) Sexual reproduction
(b) Vegetative propogation
(c) Spore formation
(d) Budding

(iii) The Reproductive part of plant is

(a) Root
(b) Stem
(c) Leaf
(d) Flower

(iv) The part of the stem at which leaf arises is

(a) Leaf axil
(b) Axillary bud
(c) Node
(d) Internode

(v) The branchy part of a tree above the stem is called

(a) Canopy
(b) Crown
(c) Understorey
(d) Roofcover

(vi) The food chain begins with

(e) Herbivores
(f) Carnivores
(g) Green plants
(h) Omnivore

Q.39 (i) Draw schematic diagram of blood circulation in humans. (3)
(ii) Label Lungs and Pulmonary vein in the above diagram.
(iii)Name the following parts of human excretory system.

(a) The part which stores the urine.
(b) The part which contain tiny filtering units called nephrons.

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