TIME- 3 hrs   M.M.:80 Marks

PHYSICS

[25 Marks]

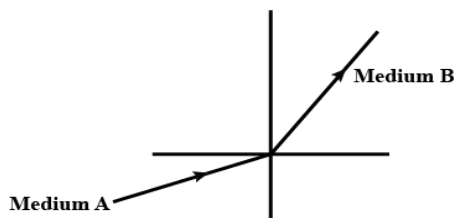SECTION : A   (5X1=5)

Q1. When the diameter of a wire is doubled, its resistance becoms:

    (a) Double   (b) Four Times

    (c) One – Fourth   (d) One - Half

Q2. A light ray enters from medium A to medium B as shown in the figure. The refractive index of medium B relative to A will be :


    (a) greater than unity   (b) less than unity

    (c) equal to unity   (d) zero

Q3. The nature of magnetic field lines passing through the centre of current carrying circular loop is –

    (a) concentric circle   (b) parabolic

    (c) ellipse   (d) straight line

Q4. The following diagram shows the use of an optical device to perform an experiment of light. As per the arrangement shown , the optical device is likely to be a;
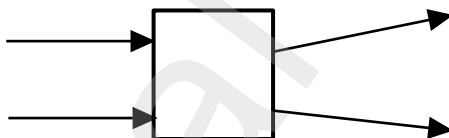
    (a) Concave mirror   (b) Concave lens

    (c) Convex mirror   (d) Convex lens

Q5. In this question , a statement of assertion (A) is followed by a statement of reason (R).

    (a) both A and R are true and R is the correct explanation of A.

    (b) both A and R are true but R is not the correct explanation of A.

    (c) A is true but R is false

    (d) A is false and R is true

Assertion (A) : Magnetic field lines never intersect.

Reason (R) : At a particular point magnetic field has only one direction.

SECTION – B   (2 X 1 = 02)
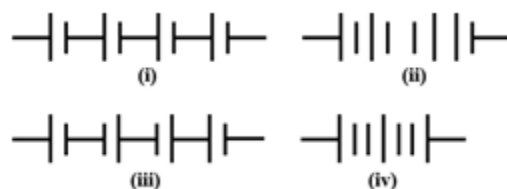
Q6. (i) what happens when a narrow beam of

    (a) a monochromatic light, and

    (b) white light passes through a glass prism ?

  (ii) why are stop signals on road in red coloured light ?

SECTION – C   (3 X 3 = 09)

Q7. The proper representation of series combination of cells (Figure) obtaining maximum potential is

(i)   (ii)   (iii)   (iv)

     (a) (i)   **(b)** (ii)   **(c)** (iii)   **(d)** (iv)

Q8. (a) An object is placed at a distance of 12 cm in front of a concave mirror of radius of curvature 30 cm. Find the position where the image is formed ?

(b) A convex lens has a focal length of 12 cm. At what distance from the lens should an object of height 6 cm be placed so that on the other side of the lens its real and inverted image is formed 24 cm away from the lens? What would be the size of the image formed ?

Q9. (a) Draw the pattern of magnetic field lines produced around a current carrying straight conductor passing perpendicularly through a horizontal cardboard. How will the strength of the magnetic field change when the point where magnetic field is to be determined is moved away from the straight conductor? Give reason to justify your answer.

OR

(b)(i) Why there is no dispersion of light refracted through a rectangular glass slab.

(ii) Following table gives the resistivity of three samples in (Ω - m) .

Which of them is good conduction and which of them is an insulator? Explain why?

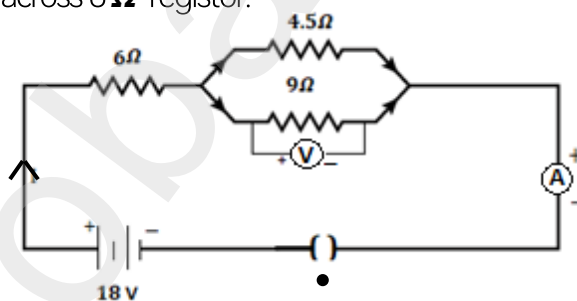| Sample	A	B	C
Resistivity	1.6×10^{-8}	7.5×10^{-7}	44×10^{-6}

SECTION – D   (5 X 1 = 05)

10 . (a) In the circuit show below calculate :

(i) Equivalent resistance

(ii) What would be reading of ammeter

(iii) Calculate voltage across 6 Ω registor.

(b) State joule's law of heating.

(c) An electric heater is rated at 2 kw . Calculate cost of using it for 2 hours daily for a month if each unit cost 4.00 rupees.

SECTION – E

(4 X 1 = 04)

11. An object 4 cm in height is placed at 15 cm in front of a concave mirror of focal length 10 cm. At what distance from the mirror should a screen be placed to obtain a sharp image of the object. Calculate the height of the image.

CHEMESTRY

- This question paper consists of 13 questions in 5sections.
- All questions are compulsory. Choice are provided insome questions

SECTION A

MCQ AND ASSERSTION – REASION BASED QUESTIONS AND ASSERSTION- REASON BASED
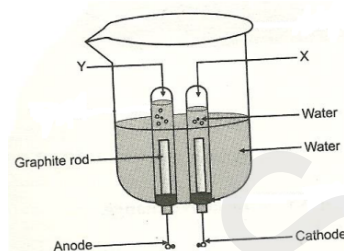(Each question carry one marks)

Ques. 1-Equal volumes of hydrochloric acid and sodium hydroxide solutions of same concentration are mixed and the pH of the resulting solution is checked with a pH paper. What would be the colour obtained?

a. Red
b. Yellow
c. Yellowish Green
d. Blue

**Ques. 2**- Select the gases evolved at cathod (x) and Anode (y)respectively from option -->

a. Hydrogen and oxygen
b. oxygen and Hydrogen
c. Oxygen and Nitrogen
d. carbon di oxide and oxygen

Ques. 3 - Baking powder is a Mixture of -->

a. Sodium bi carbonate and Mild Acid
b. Sodium sulphate and Tarteric acid
c. Sodium bi carbonate and sulphuric Acid
d. Sodium carbonate and Acetic Acid

Ques. 4 - The graph given below depicts a Neutrilization reaction. The PH of solution changes as we add excess of acid to analkali which letter denotes the area of graph where acid present?
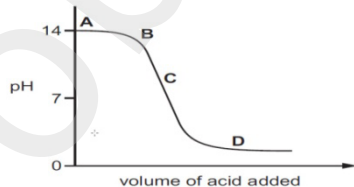
a. B
b. A
c. D
d.C

Ques. 5 - Observe the diagram given below and identify the gasformation in the reaction .
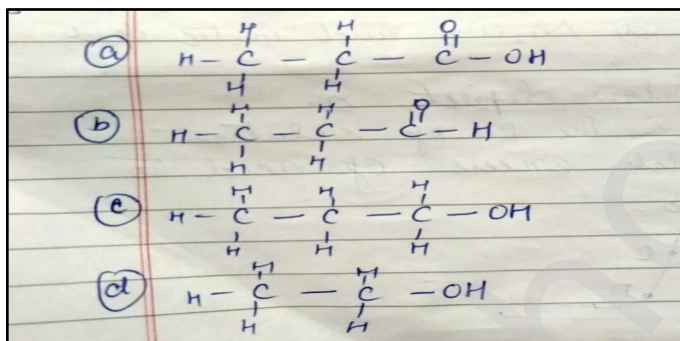

H_2SO_4

Zinc granules

Gas??
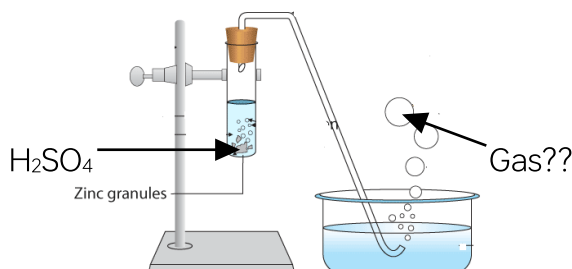
a. oxygen burn with more brightly

b. sulphur di oxide which produce with saffocating smell

c. Hydrogen burn with POP sound

d. Carbon di oxide with extinguisher the burning candle

Ques. 6 - Which one of the following properties is not generalexhibited by ionic compound.

   a. Solubility in water   b. High melting and boiling point

   c. Electrical conductivity in solid state   d. Eletrical conductivity in   molten state

Ques. 7 – Write down the correct structural formula of propanol.

Ques. 8 - ASSERTION - REASON TYPE QUESTION -->

a. Both A is Truesssertion and Reason are True and Reason is acorrect explaination oalse but Ref Assertion

b. Both Assertion and Reason are True but Reason is not acorrect explaination of Assertion

c. Assertion is true but Reasonis F is False

d. Assertion is False but Reason is True

ASSERTION : While silver chloride turns grey in sunlight

REASON : Copper sulphate turns pale green when iron nail isdipped in the copper sulphate

SECTION-B

VERY SHORT ANSWERS TYPE QUESTIONS-
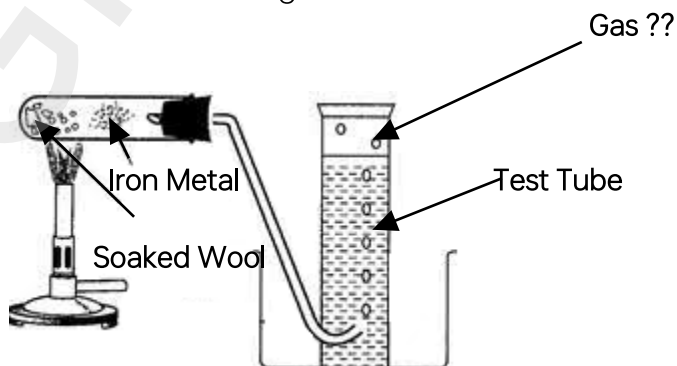
(Each question carry two marks)

Ques. 9 - In the formation of compound XY_2. Atom X denotes oneelectrons to each Y atom. Show electron   dot structure of X and Y and the formation of XY_2. What is the nature of bonding XY_2 ?
Write one property of compound XY_2 (1+1\2+1\2=2)

OR

A metal treated with steam shown in figure.

Answer the following-

a) Name the gas evolves in test tube .

b) Write the equation for the reaction of iron with steam

SECTION-C

SHORT ANSWERS TYPE QUESTIONS-

(Each question carry three marks)

Ques. 10 - Name the type of chemical reaction represented by the following equations: (3)

i) $CaCO_3(s) \xrightarrow{\text{Heat}} CaO(s) + CO_2(g)$

ii) $CaO(s) + H2O(l) \longrightarrow Ca(OH)_2(aq)$

iii) $Zn(s) + H_2SO_4(aq) \longrightarrow ZnSO_4(aq) + H_2(g)$

Ques. 11 –During electrolysis of brine a gas A is liberated atAnode , when this gas A is passed through a slacked lime , acompound C is formed , which is used for disinfecting drinkingwater.

a) Write the formula of A and C

b) State the chemical equation involve

c) What is the common name of compound C ? and give thechemical name .   (1+1+1= 3)

SECTION-D

LONG ANSWERS TYPE QUESTIONS-

(Each question carry five marks)

Ques. 12 - **(a)** An organic compound a is widely used as preservative in pickles and has molecular formula $C_2H_4O_2$. This compound reacts with ethanol to form a sweet smelling compound B .

i)   Identify the compound A

ii) Write the chemical equation for the reaction with ethanol toform compound B

iii)   How can we get compound A from B   (1+1+1=3)

(b) How many isomers are possible of butane ? Explain withstructure .

(c) What is homologous series ? write the next homologousseries 0f C_5H_{10} (1\2+1\2+1\2+1\2=2)

OR

a) Write the two reason for the versatile property of carbon   (1+1=2)

b) Soaps and detergents are both types of salts. State the different between the two. Write the mechanism of the cleaning action of soap. Why do soaps not from lather with hard water? Mention any two problems that arise due to the use of detergents instead of soaps. (1+2=3)

SECTION-E

CASE STUDY BASED TYPE QUESTIONS-

(Question carry four marks)

Ques. 13 - A student took four metals P,Q,R and S and carried out different experiments to study the properties of metals . some of the observation were :

a) All metals could not be cut with knife except metal R

b) Metal P combined with oxygen to form an oxide M_2O_3 which react with both acids and bases

c) Reaction with water

   P – Did not react either with cold or hot water but reacted with steam

   Q - Reacted with hot water and the metal started floating R - Reacted violently with cold water

   S - Did not react with water at all

On the above observation answer the following:

a) Metal which form Amphoteric oxides.   (1)

   i) P   ii) R   iii) Q   iv) S

b) Out of the given metals the one which needs to be stored using kerosene is -   (1)

   i) P   ii) R   iii) S   iv) Q

c) out of the given metals , the metal Q is -   (1)

   i) Iron   ii) Zinc   iii) potassium   iv) Magnisium

d) The increasing order of the reactivity of the four metal is -   (1)

   i) P<Q<R<S   ii) S<R<Q<P   iii) S<P<Q<R   iv) P<R<Q<S

<u>BIOLOGY</u>   **[30 Marks]**
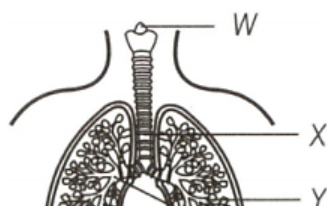
SECTION A

Very short answer type questions   1×7=7

   Q 1. Write the name of the microbe responsible for AIDS.

   Q 2. Name the hormone secreted by testes and ovary.

   Q 3. Define alleles

   Q 4. The diagram shows part of the human gas exchange system.

Here, W,X,Y and Z are?

	Bronchus	Bronchiole	Larynx	Trachea
(a)	W	X	Z	Y
(b)	X	Z	Y	W
(c)	Y	W	X	Z
(d)	Z	Y	W	X

Q 5. How many ATP do we get from aerobic respiration?

     a. 38 ATP   b. 4 ATP   c. 2 ATP   d. 6 ATP

Q 6. Respiratory pigment in human body is

     a. Water   b. Lymph   c. Hemoglobin   d. Chlorophyll

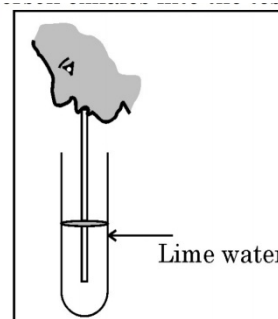Q 7. Which one among the following is not removed as a waste product from the body of a plant?

     a. Resins and Gums   b. Urea   c. Dry Leaves   d. Excess Water

SECTION B

Short answers type questions   2×4=8

    Q 8. Observe the diagram of an activity given below. What does it help to conclude, when the person   exhales into the test-tube?

Lime water

       a. Percentage of carbon dioxide is more in inhaled air.
       b. Fermentation occurs in the presence of oxygen.
       c. Percentage of carbon dioxide is more in the exhaled air.
       d. Fermentation occurs in the presence of carbon dioxide.

  Q 9. Define biodegradable and non biodegradable wastes with example

               OR

     Give any two examples of each:
       a. Organisms occupying the first trophic level
       b. Carnivores

  Q 10. Define photosynthesis and write a chemical equation of it.

  Q 11. Identify the two components of Phloem tissue that help in transportation of food in plants.
       a) Phloem parenchyma & sieve tubes
       b) Sieve tubes & companion cells
       c) Phloem parenchyma & companion cells
       d) phloem fibers and sieve tubes

Short answer type questions   2×3=6

Q12. What is ozone? The depletion of ozone is the cause of concern ,Why? Name the chemical that
damages the ozone layer.

OR

The earth's crust is the major source of metals-seawater contains some soluble salts such as
sodium chloride magnesium chloride etc. The elements or compounds, which occur naturally in
the earth's crust are known as minerals. At some places, minerals contain a very high
percentage of a particular metal and the metal can be profitably extracted from it. These
minerals are called ores.
i) Name the chief ore of mercury and zinc
ii) Write equations for the extraction of copper from its sulfide ore.

OR

ii) Define the process used to convert carbonate ores into metal oxide.

Q13. Draw a well labeled diagram of the human excretory system.

OR

Draw a well labeled diagram of the digestive system.

SECTION D

Long answer type questions   1×5=5

Q 14. Question numbers i-iv are based on the table given below. Study the table and answer the
following questions.

S. No.	Generation	Phenotypic ratio
1.	F_1 generation	23 Pairs
2.	F_2 generation	22 Pairs

i)   State the law of dominance
ii)   What is the dominant allele?
iii)   Define the term phenotype.

OR

Explain the human female reproductive system with a diagram.

Q 15. Case based questions   1×4=4

The rules for inheritance of such traits in human beings are related to the fact that both the father
and the mother contribute practically equal amounts of genetic materials to the child . This means
that each trait can be influenced by both paternal and maternal DNA . Thus , for each trait there will
be two versions in each child What will , then , the traits seen in the child be ?
a.   What was the phenotypic ratio of monohybrid cross?
b.   What was the genotype ratio of monohybrid cross?
c.   What were the contrasting traits used by Mendel?
d.   Write the monohybrid cross between tall and dwarf plants .