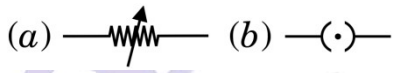
NEW STANDARD ACADEMY

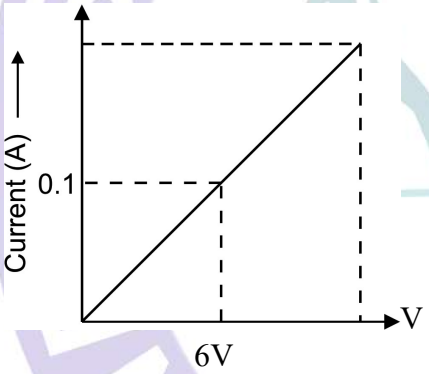
Exam : NEET - JEE **Marks: 60**
Date : 28-08-23 **CLASS : 10TH M** **Time: 2 HRS**

PHYSICS

1. (*i*) Name and state the law that gives relationship between the current through a conductor and the potential difference across its two terminals. Also, express this law mathematically.
(*ii*) Draw the V-I graph for this law. Justify your answer.
(*iii*) Write the name and use of the circuit components whose symbols are given below.



2. (a) Calculate the resistance of the wire using the graph.



Potential difference (V)
(*b*) How many 176Ω resistors in parallel are required to carry 5 A on a 220 V line? (*c*) Define electric power, Derive relation between power, potential difference and resistance.

3. Draw a circuit diagram for a circuit consisting of a battery of five cells of 2 volts each, a 5Ω resistor, a 10Ω resistor and a 15Ω resistor, an ammeter and a plug key; all connected in series. Also, connect a voltmeter to record the potential difference across the 15Ω resistor and calculate:
(*i*) the electric current passing through the above circuit and
(*ii*) potential difference across 5Ω resistor when the key is closed.

4. State Ohm's law. Write the mathematical representation of Ohm's law. Use this relationship to define 1 ohm. List two disadvantages of connecting different electrical appliances in series.

5. Define power. State the difference between 1 watt and 1 watt hour. Establish the relationship between unit of electric energy and SI unit of energy. An electric heater rated $1000\ W / 220V$ operates 2 hours daily. Calculate the cost of energy to operate for 30 days at the rate of $\5.00$ per kWh.

6. (a) (*i*) What is meant by saying that the potential difference between two points is 1 volt?
(*ii*) How much energy is given to 5 coulomb ofcharge passing through a 12 V battery? (*b*) Describe an activity with necessary electric circuit drawn to study the factors on which the resistance of a conducting wire depends.

7. An electric iron has a rating of $750\ W$; 200 V. Calculate:
(*i*) the current required.
(*ii*) the resistance of its heating element.
(*iii*) energy consumed by the iron in 2 hours.

CHEMISTRY

1. What is ionic compound and formation of H2O3
   Properties of ionic compound.
2. Give Short Notes
   a. Froath floation
   b. Bayer process
   c. Roasting
   d. Calcination
3. Define the term
   a. Gangue
   b. Slag
   c. Flux
   d. Ores
4. What is aqua Regia and reaction with less reactive metal.
5. Reaction Completed
   a. $Zn + dil\ HNO_3$
   b. $Cu + Con\ HNO_3$
   c. $Al_2O_3 + HCL$
   d. $NaH + H_2O$
   e. $Fe + H_2O$
   f. $Mn + dil\ HNO_3$

6. What is the different between Metal and Non-Metal
    a. Electronic Configuration
    b. Atomicity
    c. Oxides
    d. Tensile

BIOLOGY

1. What are the phenotypic and genotypic ratio in F2 generation of incomplete dominance. Explain with example.
2. If heterozygous tall plant is crossed with the homozygous dwarf plant,what is the percentage of dwarf plants in progeny.?
3. A lady has 4 kids with blood group AB and one kid with blood group O .if the father of these kids have blood group B, what is the possible genotype of the lady?
4. Explain the exception of law of dominance.
5. How do Mendel's experiment show that traits may be dominant or recessive?
6. A pea plant with Axial violet flower(AAVV) is crossed another pea plant with Terminal, white flower (aavv) flower.what would be the nature of flower in the first generation (F1generation). explain it.
7. How do Mendel's experiment shows that traits are inherited independently? Explain with example.

MATHS

1. What is the perimeter of a sector of a circle whose central angle is 90^o and radius is7 cm?

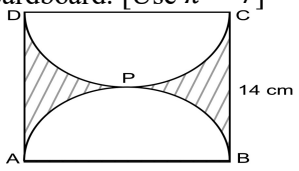
2. What is the diameter of a circle whose area is equal to the sum of the areas of two circles of radii $40cm$ and $9cm^{\mathcal{D}}$

3. If the difference between the circumference and the radius of a circle is 37 cm, then using $\pi = \frac{22}{7}$, fnd the circumference (in cm) of the circle.

4. Find the area (in cm) of the circle that can be inscribed in a square of side 8 cm.

5. If the radius of the circle is 6cm and the length of an arc is 12 cm, find the area of the sector.

6. Two circular pieces of equal radii and maximum area, touching each other area cut out from a rectangular cardboard of dimension $14cm \times 7cm$. Find the area of 22 the remaining cardboard. [Use $\pi = \overline{7}$]



7. Find whether the following pair of linear equations is consistent or inconsistent.$3x + 2y = 8, 6x - 4y = 9$

8. Solve the following pair of equations: $\frac{10}{x+y} + \frac{2}{x-y} = 4; \frac{15}{x+y} - \frac{5}{x-y} = -2$

9. Sum of ages of a father and the son is 40 years. If father's age is three times that of his son, then find their respective ages.

10. The sum of the digits of a two digit number is 12. The number obtained by interchanging the two digits exceeds the given number by 18. Find the number.