

FOUNDATION COURSE

CLASS X

Max. Marks. : 100

Time : 2 hrs.

PAPER : 03

P_A C_S M_K B_D

TOPICS COVERED:

- PHYSICS** : Electricity
CHEMISTRY : Chemical reaction & Equation
MATHS : Linear Equation in two variables
BIOLOGY : Respiration and Excretion

GENERAL INSTRUCTIONS :

1. Paper consist of **4 Section** each for **Physics, Chemistry, Maths** and **Biology**. Answers for each question should be given in the space provided in the question paper itself.
2. Each section contains 13 questions, all questions are compulsory.
3. Question 1 - 5 are **objective type questions** of 1 Mark each.
4. Question 6 - 7 consist of 1 Marks each.
5. Question 8 - 9 consist of 2 Marks each.
6. Question 10 - 12 consist of 3 Marks.
7. Question 13 consist of 5 Marks.

	Physics	Chemistry	Maths	Biology
Marks				
Total				

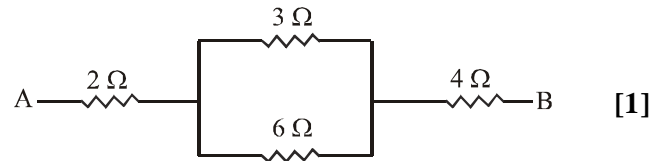
Name of the Student : _____

Centre : _____

Invigilator's Signature: _____

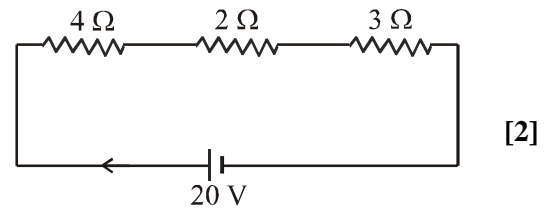
PHYSICS

1. If 2 C of charge flows through a conductor in 0.5 sec then the value of current is
(a) 4 A (b) 3 A (c) 10 A (d) 5 A [1]
2. If 5 C of charge flows through two distinct points having potential difference 20 V, then the work done is
(a) 50 J (b) 75 J (c) 100 J (d) 10 J [1]
3. Three resistors have resistances 2 ohm, 6 ohm and 9 ohm. If they are connected in parallel, their equivalent resistance is
(a) $\frac{9}{7}$ ohm (b) $\frac{7}{9}$ ohm (c) 17 ohm (d) $\frac{1}{17}$ ohm [1]
4. An electric bulb operates at 100 V. If the current flowing through it is 5 A then power consumed is
(a) 20 W (b) 500 W (c) 50 W (d) 25 W [1]
5. The expression for heat produced in a device which has resistance R and current flowing in it is I
(1) IRt (b) IR^2t (c) I^2Rt (d) $\frac{I^2}{Rt}$ [1]
6. Find the equivalent resistance between A & B.

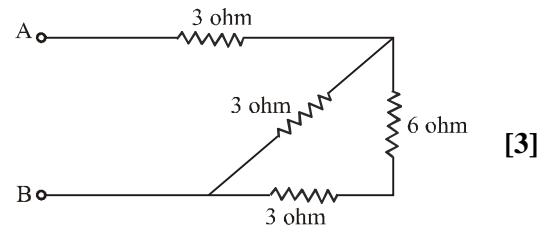


7. A 60 W bulb operates 5 hours per day. Calculate the unit of electrical energy for seven days. [1]
8. Why it is preferable to connect domestic appliances in parallel ? [2]

9. In the given figure, find the current flowing through 3 ohm resistor :



10. Find the equivalent resistance of the following circuit.



11. Derive an expression for the equivalent resistance when three resistors are connected in parallel. [3]

12. Three resistors having resistances 2 ohm, 4 ohm and 6 ohm are first connected in series and then in parallel. Find the ratio of series to the parallel combination. [3]

13. Explain Joule's law of heating. Hence derive an expression for the heat produced in a conductor.. [5]

OR

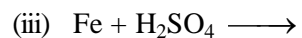
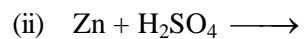
A 100 W bulb, 150 W cooler is being used for 5 hours a day. If the cost of electrical energy is Rs.2 per unit then find the total cost of electrical energy for 30 days.

CHEMISTRY

1. Oxidation is known as
(a) Deelectronation (b) Addition of O
(c) Removal of electropositive element (d) All of the above [1]
2. Reducing agent
(a) oxidise itself (b) reduces others (c) both (a) and (b) (d) reduces itself [1]
3. Law of conservation of mass is shown by
(a) Chemical reaction (b) Balanced chemical reaction
(c) Both (a) and (b) (d) None of the above [1]
4. When calcium carbonate is decomposed into quick lime and CO_2 ?
(a) Heat is absorbed (b) Heat is evolved
(c) Heat is neither absorbed nor evolved (d) Nothing happen [1]
5. Decomposition reaction is opposite of
(a) combination reaction (b) displacement reaction
(c) double displacement reaction (d) redox reaction [1]

6. Define reducing agent. [1]
7. Define reduction. [1]
8. Write brief note about
(i) Law of conservation of mass
(ii) Chemical equation [2]
9. When pure water containing few salt is electrolyzed than H_2 gas evolved at cathode and O_2 gas evolved at anode find out the ratio between the gases. [2]
10. Write in brief note about Reactivity Series. [3]

11. Complete the reaction



[3]

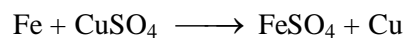
12. True and False

(i) $\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \longrightarrow \text{BaSO}_4 + 2\text{NaCl}$ is an example of precipitation reaction.

(ii) $\text{CaO} + \text{CO}_2 \longrightarrow \text{CaCO}_3$ is an example of exothermic reaction.

(iii) $\text{Zn} + 2\text{HCl} \longrightarrow \text{ZnCl}_2 + \text{H}_2$ is an example of displacement reaction and redox reaction both. [3]

13. Answer the single sentence about the following reaction.



- (i) Why after completion of reaction blue colour disappear ?
- (ii) Why Fe is being oxidised ?
- (iii) Name the oxidising agent.
- (iv) Name the element which is having lower activities among Fe & Cu.
- (v) In above reaction, write the reduction half reaction.

[5]

1. The solution of $3x - 5y = -1$ and $x - y = -1$ is
 (a) $x = -2, y = -1$ (b) $x = 2, y = 1$ (c) $x = -2, y = 1$ (d) $x = 2, y = -1$ [1]
2. The solution of $2x + 3y = 9$ and $3x + 4y = 5$ is
 (a) $x = 21, y = 17$ (b) $x = -21, y = -17$ (c) $x = -21, y = 17$ (d) $x = 21, y = -17$ [1]
3. The solution of $3x + 2y = 11$ and $2x + 3y = 4$ is
 (a) $x = -5, y = -2$ (b) $x = 5, y = 2$ (c) $x = 5, y = -2$ (d) $x = -5, y = 2$ [1]
4. Let the solution of $\frac{x}{10} + \frac{y}{5} = 14$ and $\frac{x}{8} + \frac{y}{6} = 15$ be $x = \alpha$ and $y = \beta$, then the value of $\alpha + \beta$ is
 (a) 120 (b) 100 (c) 90 (d) 110 [1]
5. Let the solution of $\frac{x}{10} + \frac{y}{5} = 14$ and $\frac{x}{8} + \frac{y}{6} = 15$ be $x = \alpha$ and $y = \beta$, then the value of $\alpha\beta$ is
 (a) 2400 (b) 2500 (c) 2000 (d) 2100
6. Solve $\frac{1}{2x} - \frac{1}{y} = -1$ and $\frac{1}{x} + \frac{1}{2y} = 8$ where $x \neq 0, y \neq 0$ [1]
- $$\frac{x}{a} + \frac{y}{b} = a + b$$
7. Solve $\sqrt{2}x - \sqrt{3}y = 0$ and $\sqrt{5}x + \sqrt{2}y = 0$ [1]
8. Solve $\frac{x}{a} + \frac{y}{b} = a + b$ and $\frac{x}{a^2} + \frac{y}{b^2} = 2$ [2]

9. If $2x + y = 35$ and $3x + 3y = 65$, find the value of $\frac{x}{y}$ [2]

10. Solve $\frac{2}{3x+2y} + \frac{3}{3x-2y} = \frac{17}{5}$ and $\frac{5}{3x+2y} + \frac{1}{3x-2y} = 2$ [3]

11. Solve $\frac{7x-2y}{xy} = 5$ and $\frac{8x+7y}{xy} = 15$ [3]

12. For what value of 'k' will the following system of linear equations has no solution ?

[3]

$$3x + y = 1$$

$$(2k - 1)x + (k - 1)y = 2k + 1$$

13. Find the value of 'k' for which the following system of linear equations has infinite solutions

[5]

$$x + (k + 1)y = 5$$

$$(k + 1)x + 9y = 8k - 1$$

BIOLOGY

1. The gas, liberated from aerobic respiration of germinating seeds, is
(a) Oxygen (b) Carbon dioxide (c) Sulphur dioxide (d) Carbon monoxide [1]
2. In aerobic respiration, the Krebs Cycle occurs inside the
(a) Chloroplast (b) Cytoplasm (c) Mitochondria (d) Ribosome [1]
3. During respiration, exchange of gases takes place in
(a) Trachea & Larynx (b) Alveoli of lungs (c) Alveoli & Throat (d) Throat & Larynx [1]
4. The filtration units of kidneys are called
(a) Ureter (b) Urethra (c) Neurons (d) Nephrons [1]
5. Lack of oxygen in muscles often leads to cramps among cricketers. This results due to
(a) Conversion of pyruvate to ethanol (b) Conversion of pyruvate to glucose
(c) Non conversion of glucose to pyruvate (d) Conversion of pyruvate to lactic acid [1]

6. Name the energy currency in the living organisms. When & where is it produced ? [1]
7. Plants have low energy needs as compared to animals. Explain. [1]
8. Differentiate between cutaneous and pulmonary respiration [2]
9. Draw a diagram of the excretory unit of human-Nephron [2]
10. Differentiate between : [3]
- (i) Excretion & osmoregulation
 - (ii) Dialysis & Adam's apple

11. Assign the specific function to the following organs in relation with excretion in human beings. [3]

- (a) Kidney (b) Glomerulus (c) Ureter (d) Tubular part of Nephron

12. Draw a diagram of the human urinary system & label in it [3]

- (a) Kidney (b) Ureter (c) Urinary bladder (d) Urethra

13. Draw the respiratory system of human beings & describe the mechanism of breathing in human beings. [5]