NEW STANDARD ACADEMY
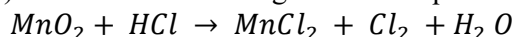
DPP -01 NEET - JEE
CLASS : 10TH

PHYSICS

1. Give two uses of a convex lens.
2. An object 1 cm tall is placed at a distance of 15 cm from aconcave mirror of focal length 10 cm. Find the position, size and nature of the image formed.
3. A 2.0 cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 10 cm. The distance of the object from the lens is 15 cm. Find the position, nature and size of the image forms.
4. A ray of light is incident on a plane mirror, i being the angle of incidence. What is the deviation suffered by the ray of light?
5. A plane mirror reflects a pencil of light to form a real image. What is the nature of the pencil of light incident on the mirror?

CHEMISTRY

1. How will you indicate the following effects in a chemical equation?
   (a) A solution made in water
   (b) Exothermic reaction
   (c) Endothermic reaction
2. Balance the following equations:
   (i) $Na + O_2 \rightarrow Na_2O$
   (ii) $H_2O_2 \rightarrow H_2O + O_2$
   (iii) $Mg (OH)_2 + HCl \rightarrow MgCl_2 + H_2O$
   (iv) $Fe + O_2 \rightarrow Fe_2O_3$
   (v) $Al (OH)_3 \rightarrow Al_2O_3 + H_2O$
   (vi) $NH_3 + CuO \rightarrow Cu + N_2 + H_2O$
   (vii) $Al_2(SO_4)_3 + NaOH \rightarrow Al (OH)_3 + Na_2SO_4$
   (viii) $HNO_3 + Ca (OH)_2 \rightarrow Ca (NO_3)_2 + H_2O$
3. (a) What are the various ways in which a chemical equation can be made more informative?
   Give examples to illustrate your answer.
   (b) Write balanced chemical equation from the following information:
   An aqueous calcium hydroxide solution (lime water) reacts with carbon dioxide gas to produce a solid calcium carbonate precipitate and water.
4. (a) Aluminium hydroxide reacts with sulphuric acid to form aluminium sulphate and water. Write a balanced equation for this reaction.
   (b) Balance the following chemical equation:
   $MnO_2 + HCl \rightarrow MnCl_2 + Cl_2 + H_2O$
5. (a) Potassium chlorate ($KClO_3$) on heating forms potassium chloride and oxygen. Write a balanced equation for this reaction and indicate the evolution of gas.
   (b) Rewrite the following information in the form of a balanced chemical equation:
   Magnesium burns in carbon dioxide to form magnesium oxide and carbon.

BIOLOGY

1. Name one organism each having saprophytic, parasitic and holozoic modes of nutrition.
2. **(A)** Name a gas used in photosynthesis.
   (B) Name a gas produced in photosynthesis.
3. The leaves of a plant first prepare food *A* by photosynthesis. Food *A* then gets converted into food B. What are *A* and B?
4. How does *Amoeba*engulf the food particle?
5. Name the enzyme present in human saliva. What type of food material is digested by this enzyme?

MATHS

1. For what value of p is the coefficient of x^2 in the product $(2x-1)(x-k)(px+1)$ equal to 0 and the constant term equal to 2?
2. If the expressions $(px^3 + 3x^2 - 3)$ and $(2x^3 - 5x + p)$ when divided by $(x-4)$ leave the same remainder, then What is the value ofp?
3. If $a+b+c=0$, then what is the value of $a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2$?
4. If the sum and difference of two expressions are $5a^2 - a - 4$ and $a^2 + 9a - 10$ respectively, then what istheirLCM?
5. If the HCF of $(x^2 + x - 12)$ and $(2x^2 - kx - 9)$ is $(x - k)$, then what is the value of k ?

6. What is the number of zeroes of the polynomial $y = p(x)$??
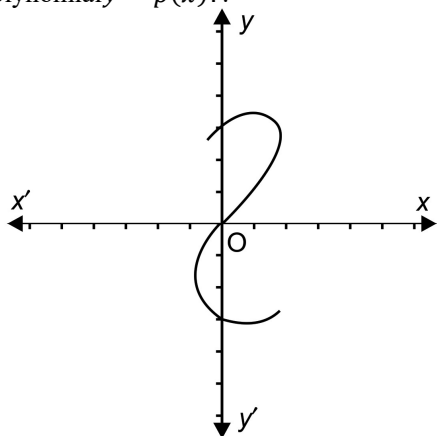
7. Write the polynomial, the product and sum of whose zeroes are $\frac{-9}{2}$ and $-\frac{3}{2}$ respectively.

8. If the sum of the zeroes of the quadratic polynomial $ky^2 + 2y - 3k$ is equal to twice their product, find the value of k.

9. Show that $\frac{1}{2}$ and $\frac{-3}{2}$ are the zeroes of the polynomial $4x^2 + 4x - 3$ and verify the relationship between zeroes and coefficient of the polynomial.

10. Obtain all other zeroes of the polynomial $2x^4 + 3x^3 - 5x^2 - 9x - 3$, if two of its zeroes are $\sqrt{3}$ and $-\sqrt{3}$.