## CLASS X
## SCIENCE ASSIGNMENT

Q1. Balance the following equations:

    (i)       $HNO_3 + Ni \rightarrow Ni(NO_3)_2 + H_2$
    (ii)     $MgBr_2 + KOH \rightarrow KBr + Mg(OH)_2$
    (iii)    $LiHCO_3 \rightarrow Li_2CO_3 + H_2O + CO_2$
    (iv)    $Mg(OH)_2 + H_3PO_4 \rightarrow Mg_3(PO_4)_2 + H_2O$
    (v)     $Al_2(CO_3)_3 \rightarrow Al_2O_3 + CO_2$

Q2. Account for the following:
    (i)       White silver chloride turns grey in sunlight.
    (ii)     Brown copper powder on heating in air turns into black substance.
    (iii)    A green coating develops on copper vessels in the rainy season.

Q3. With the help of an activity using diagrams, explain that a change in state of matter and change in temperature takes place during a chemical change.

Q4. (i) In electrolysis of water, name the gas collected at the cathode and the anode.
(ii) Define endothermic reaction.
(iii)  Write the balanced chemical equation for the reaction that takes place during respiration?

Q5. When hydrogen gas is passed over heated copper (II) oxide, copper and steam are formed. Write the balanced chemical equation for this reaction and state (i) the substance oxidized and (ii) the substance reduced in the reaction.

Q6. Solid calcium oxide was taken in a container and water was added slowly to it.
(i) State two observations made in the experiment.
(ii) Write the balanced chemical equation of this reaction.

Q7. Identify the type of chemical reactions in the following processes:
(i) On heating green ferrous sulphate crystals, reddish brown solid is left as residue and a gas having smell of burning sulphur is evolved.
(ii) Iron nails when left dipped in blue copper sulphate solution become brownish in colour and blue colour of copper sulphate solution fades away.
(iii) Quicklime reacts vigorously with water releasing large amount of heat.
(iv) Silver nitrate solution reacts with sodium chloride solution and a white precipitate is formed.

Q8. Focal length of a convex mirror is 30 cm, its radius of curvature will be

(A) any finite value.    (B) 60 cm        (C) -60 cm.      (D) -30 cm

Q9. Where should an object be placed in front of concave mirror to obtain magnified real image?

(A)  b/w  F and C               (B) at  C.        (C) b/w pole and focus.    (D) at infinity

Q10. If a coin is placed at bottom in a glass containing water, coin appears to be raised due to phenomenon of

(A) reflection.        (B) refraction.      (C) dispersion.        (D) scattering

Q11. If we get an inverted real image of same size as object from a lens, the lens will be

(A) convex.        (B) concave.        (C) plane        (D) may be concave or plane glass

Q12. A light ray incident through focus of a convex lens, after refraction it will

(A) retrace its path. (B) become parallel to principal axis (C) pass through optical centre (D) doesn't refract

Q13. magnification (m) of concave mirror is,

(A) m <1, negative        (B) m<1 ,positive        (C) m >1        (D) any finite value

Q14. Reddish appearance of sun at time of sun set is due to phenomenon of

(A) reflection.      (B) atmospheric refraction.  (C) dispersion.   (D) scattering

Q15. A lens and a mirror which may form image of same size as object, Will be

(A) concave lens, convex mirror            (B) convex lens, plane mirror

(C) convex lens, convex mirror.            (D) concave lens, concave mirror

Q16. A convex lens and a concave lens of power +8 D and – 4 D are placed in contact. The focal length of combination will be,

(A) -25 cm        (B) - 50 cm        (C) +25 cm            (D) + 12 cm

Q17. Tyndall effect is related to

(A) Greenhouse gases    (B) refraction        (C) dispersion        (D) scattering of light

Q18. Power of a lens is – 2.5 diopter, its nature and focal length is

(A) convex, f= -12.5 cm        (B) concave, f= 25 cm

(C) convex f= 50 c            (D) concave, f= - 40 cm

Q19. The absolute refractive index of a medium is 1.2, speed of light in that medium will be

(A) $1.67 \times 10^8$ m/s.        (B) $3 \times 10^8$ m/s.      (C) $2 \times 10^8$ m/s.      (D) $2.5 \times 10^8$ m/s

Q20. The angle of incidence of light ray in a medium is 60 ° and angle of refraction in second medium is 75°, then light ray deviate

(A) towards normal by 45°                (B) towards normal by 15°

(C) away from normal by 45°                (D) away   from normal by 15°

Q21. If light ray incident on a glass slab at angle of incidence ($55^0$) then angle of emergence (e), will be

(A)  e = $55^0$        (B) e  <$55^0$        (C) e >$55^0$                (D) none of these

**-Reason type questions**
Choose the correct answer out of following choices.

(A) Assertion and reason both are correct and reason is correct explanation of assertion.

(B) Assertion and reason both are correct and reason is not correct explanation of assertion.

(C) Assertion is correct statement but reason is wrong statement.

(D) Assertion is wrong statement but reason is correct statement.

1. Assertion: refractive index of kerosene oil with respect to air is 1.4, then refractive index of air with respect to kerosine will be 1/1.4.

Reason:  Snell's law of refraction does not follow reciprocal law.

2. Assertion: Danger signals are of red colour.

Reason: Red color light scattered least in atmosphere as of highest wavelength.