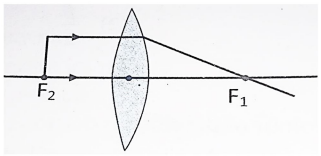
NEW STANDARD ACADEMY

Marks: 120

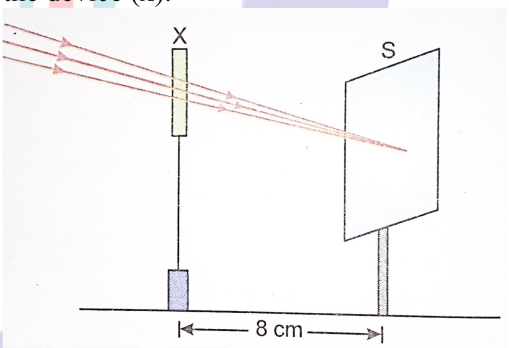
Date : 12-05-25 **CLASS : 10TH** **Time: $2\frac{1}{2}$ hours**

PHYSICS

1. The focal length of concave lens is 25 cm. Then its power will be
   (a) 4D (b) $\frac{1}{4}D$
   (c) -4D (d) All of these
2. What will be the colour of the sky as seen from the earth if there is no atmosphere?
   (a) Black (b) Blue
   (c) Orange (d) Red
3. Magnification produced by a convex lens is always
   (a) More than 1 (b) Less than 1
   (c) Equal to 1
   (d) More or less than 1
4. If'p' and 'q' are distance of object and image from principal focus of a concave mirror then what is the relation between 'p', 'q' and 'f ?
   (a) pq =$\sqrt{f}$ (b) pq = f
   (c) pq = f^2 (d) pq = $\frac{1}{f}$
5. Find the power of a concave lens of focal length 2m?
   (a) -0.5 D (b) +0.5 D
   (c) -4D (d) 4D
6. A spherical mirror and a thin spherical lens each of focal length-10 cm are given. The mirror and lens are likely to be
   (a) The mirror is concave mirror and the lens is concave lens
   (b) The mirror is convex mirror and the lens in convex lens.
   (c) The mirror is convex mirror and the lens is concave lens.
   (d) The mirror is concave mirror and the len convex lens
7. Velocity of light travelling from rarer medium to denser decreases by 30%. Find the refractive index of the dense medium with respect to rarer medium?
   (a) 1.35 (b) 1.5
   (c) 1.6 (d) 1.428
8. The position of image of the object in the ray diagram will be at



   (a) Focal point F_2 (b) Focal point F_1
   (c) Infinity (d) None of these
9. The absolute refractive index of any medium is
   (a) 1 (b) > 1
   (c) < 2 (d) 0
10. The focal length of a concave mirror in air is f.If it is immersed in water $\left(n = \frac{4}{3}\right)$, *then the focal length will be*
    $(a)\ f$ (b) $\frac{4}{3}f$
    (c) $\frac{3}{4}f$ (d) $4f$
11. A student used a device (x) to obtain/focus the image of a well illuminated distant building on a screen (s) as shown below in the diagram. Select the correct statement about the device (x).



    (a) This device is a concave lens of focal length 8 cm.
    (b) This device is a convex mirror of focal length 8 cm.
    (c) This device is a convex lens of focal length 4 cm.
    (d) This device is a convex lens of focal length 8 cm.
12. At what distance from a convex lens of focal length 20 cm should a candle flame be held to observe a virtual image of the flame ?
    (a) 0 to 20 cm (b) 20 to 40 cm
    (c) 40 to 60 cm (d) anywhere

13. The focal length of a combination of convex lens of power 1 dioptre and concave lens of 13 power - 1.5 dioptre is
(a)-2m (b) 0-5m
(c) 2m (d) 5m

14. For conducting an experiment to determine the focal length of a convex lens by focussing the image of a distant object on the screen, we want to use the minimum material. Out of the following four sets A, B, C and D the best choice is:
Set A: Convex lens, lens holder, candle, screen with stand
Set B: Convex lens, lens holder, screen with stand, measuring scale.
Set C: Convex lens, lens holder, concave lens, measuring scale
Set D: Convex lens, burning candle, screen with stand, a lens holder
(a) A (b) B
(c) C (d) D

15. The linear magnification of a convex lens is -1 for the position of an object al for
(a) ∞ (b) F_1
(c) $2F_1$ (d) none of these

CHEMISTRY

16. Which among the following is not double displacement reaction?
(a) $CH_3COOH(aq) + KOH(aq) \rightarrow CH_3COOK(aq) + H_2O(I)$
(b) $HCl(aq) + NaOH(aq) \rightarrow NaCl(aq) + H_2O(1)$
(c) $Pb + CuCl_2 \rightarrow PbCl_2 + Cu$
(d) $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$

17. The following reaction is an example of
$$AgCl \xrightarrow{\text{Sunlight}} Ag + Cl_2$$
(a) Displacement reaction
(b) Decomposition reaction
(c) Redox reaction
(d) Combination reaction

18. Which of the following statements about the given reaction are correct?
$K_2Cr_2O_7 + H_2SO_4 \rightarrow K_2SO_4 + Cr_2(SO_4)_3 + H_2O$
(a) Redox reaction
(b) Neutralization reaction
(c) Decomposition reaction
(d) Double displacement reaction

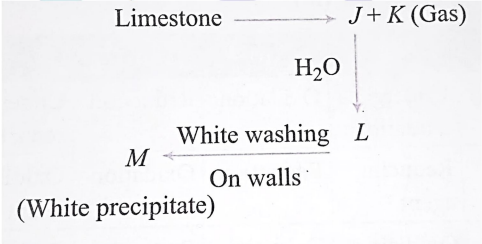
19. What is the balanced chemical equation when ethanol is burnt in air to form carbon dioxide, water and releases heat?
(a) $C_2H_5OH + 2O_2 \rightarrow CO_2 + H_2O$ + heat
(b) $CH_3OH + 4O_2 \rightarrow 3CO_2 + H_2O$ + heat
(c) $C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$ + heat
(d) $C_4H_9OH + O_2 \rightarrow 4CO_2 + H_2O$ + heat

20. On heating blue coloured powder of copper(II) nitrate in a boiling tube, which of the following gases is released?
(a) Oxygen and hydrogen
(b) Nitrogen dioxide
(c) Oxygen
(d) Nitrogen dioxide and oxygen

21. Copper sulphate on treatment with potassium iodide precipitates cuprous iodide and form products
(a) KNO_3, and I_2 (b) KCl_2, and O_2
(c) K_2SO_4 and Cu (d) K_2SO_4 and I_2

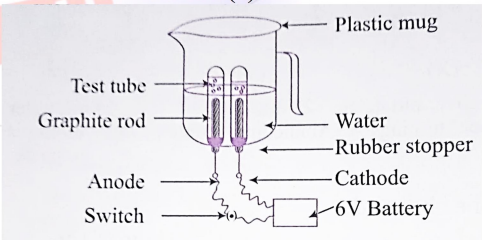
22. What is the ratio of the coefficients of the substance getting reduced to the substance getting oxidized if the following reaction is correctly balanced?
$MnO_2 + AI \rightarrow Mn + AI_2O_3$,
(a) 3:4 (b) 4:3
(c) 3:2 (d) 2:3

23. Observe the following flow chart carefully and identify the incorrect statement(s).



(i) J reacts with both HCl and NaOH to form salt and water.
(ii) K is a supporter of combustion and turns lime water milky.
(iii) Formation of L from / is an endothermic reaction
(iv) K is also produced by the reaction of M with hydrochloric acid
Choose the correct answer from the options given below:
(a) (ii) and (iv) only
(b) (iv) only
(c) (i), (ii) and (iii) only
(d) (i), (ii) and (iv)

24. Observe the given diagram and identify the incorrect statement(s).



(i) At anode, oxygen gas is evolved.
(ii) In the test tube covering the anode, the amount of gas collected is double than of the gas collected in the test tube covering the cathode.

(iii) At cathode, hydrogen gas is evolved.
(iv) It is a decomposition reaction.
(a) (i) and (iii) only (b) (i) and (iv) only
(c) (iii) and (iv) only (d) (ii) only

25. Select the incorrect matches.
(i) Burning of natural gas - Exothermic reaction
(ii) Decomposition of vegetable matter into compost - Endothermic reaction
(iii) Reaction of zinc with copper sulphate Decomposition reaction
(iv) Reaction of barium chloride with sodium sulphate - Single displacement reaction
(a) (ii), (ii) and (iv) only
(b) (ii) and (iii) only
(c) (i), (iii) and (iv) only
(d) (i), (ii) and (iv) only

26. The reaction between Cu and HNO_3, is given below:
$pCu + qHNO_3 \rightarrow 3Cu(NO_3)_2 + sNO + 4H_2O$
Balance the above reaction and select the correct option.

	P	q	S	Oxidizing agent	Reducing agent
(a)	3	6	3	HNO_3	Cu
(b)	3	6	3	Cu	HNO_3
(c)	3	8	2	HNO_3	Cu
(d)	3	8	2	Cu	HNO_3

27. x,y and z in the given reaction are, respectively
$xKClO_3(s) \xrightarrow[MnO_2]{Heat} yKCl(s) + zO_2(g)$
(a) 2, 3 and 3 (b) 3,3 and 1
(c) 2, 2 and 3 (d) 1,3 and 2

28. What kind of reaction occurs when electricity is passed through water?
(a) Displacement reaction
(b) Decomposition reaction
(c) Precipitation reaction
(d) Combination reaction

29. Sumedha mixed two solutions P and Q. She recorded the following observations and conclusions in her notebook.
(i) A yellow precipitate is formed.
(ii) It is a double displacement reaction.
The solutions P. Q and the yellow precipitate formed are, respectively.
(a) $Pb(NO_3)_2$,KI and PbI_2,
(b) $AgNO_3$, NaCl and AgCl
(c) Na_2SO_4 ,$BaCl_2$, and $BaSO_4$,
(d) $FeCl_3$, NH_4OH and $Fe(OH)_2$

30. Study the given reactions carefully
(i) $Mg(s)+Zn^{2+}(aq) \rightarrow Mg^{2+}(aq) + Zn(s)$
(ii) $CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O$
(iii) $NaOH(aq) + HCl(aq) \rightarrow NaCl(aq) + H_2O(s)$
(iv) $Cl_2(g) + S^{-2}(aq) \rightarrow S(s) + 2Cl^-(aq)$
The reaction(s) which do(es) not represent a redox process is/are
(a) i, ii and iv only
(b) i and ii only
(c) iii only
(d) i, ii, iii and iv

BIOLOGY

31. Give the example of vascular tissue in plant
(a) Xylum and phloem (b) Paremchyma
(c) Collenchyma (d) Sclerenchyma

32. What is a function of phloem
(a) Transport water (b) Transport mineral
(c) Transport food
(d) Transport hormone

33. Xylum elements are-
(a) OnlyTrachids
(b) OnlyTrachea
(c) Only Xylum parenchyma and scalrenchyma
(d)All of the above

34. Ascent of cell sap in plant
(a) Unidirectional (b) Bidirectional
(c) Multi-directional (d) None of the Above

35. What is a percentage of plasma in blood
(a) 40% (b) 80%
(c) 55% (d) 70%

36. What is the life span of RBCs
(a) 70 days (b) 90 days
(c) 120 days (d) 200 days

37. How many types of blood cells are present in blood
(a) RBCs (b) WBCs
(c) Platelets (d) All of the above

38. What is the name of RBCs
(a) Leukocytes (b) Erythrocytes
(c) Thrombocytes (d)None of the above

39. How many oxygen molecule carry by 1hemoglobin molecule
(a) 1 oxygen molecule
(b) 2 oxygen molecule
(c) 3 oxygen molecule
(d) 4 oxygen molecule

40. Which type of blood cell help in blood clotting
(a) Erythrocytes (b) Leukocytes
(c) Thrombocytes (d)None of the above

41. Why blood give the red colour,Presence of
(a) Cu (b) Fe^{2+}
(c) Na^+ (d) k

42. In open circuit system blood flow in
(a) Cavity (b) In artery
(c) In vein (d) In capillary

43. In mammals RBCs are
(a) Nucleated (b) Enucleate

(c) Both a and b (d)None of the above

44. Antibody produced by
(a) RBC s (b) eosinophils
(c) Basophil (d) Lymphocytes

45. Granulocytes are-
(a) RBC s (b) Monocytes
(c) Lymphocytes (d) Basophil

MATH

1. The common difference of the AP $\frac{1}{p}, \frac{1-p}{p}, \frac{1-2p}{p}$, ...is
(a) 1 (b) $\frac{1}{p}$
(c) -1 (d) $-\frac{1}{p}$

2. Which of the following is not an Ap?
(a) -1.2, 0.8,2.8,..
(b) 3, $3+\sqrt{2}$,$3+2\sqrt{2}$, $3+3\sqrt{2}$, ...
(c) $\frac{4}{3}, \frac{7}{3}, \frac{9}{3}, \frac{12}{3}$, ...
(d) $\frac{-1}{5}, \frac{-2}{5}, \frac{-3}{5}$, ...

3. The 9^{th} term of the AP-15, -11, -7 ,…, 49 is
(a) 32 (b) 0
(c) 17 (d) 13

4. The nth term of the AP a,3a, 5a, … is
(a) na (b) (2n-1)a
(c) (2n+1)a (d) 2 na

5. In an Ap , If a_{18}-a_{14}=32 then the common difference is
(a) 8 (b) -8
(c) -4 (d) 4

6. In an AP ,if a = 3.5,d = 0, n = 101, then a_n will be
(a) 0 (b) 3.5
(c) 103.5 (d) 104.5

7. The common difference of the AP whose nth term is given by a_n=5n-7 is
(a) -7 (b) 7
(c) 5 (d) -2

8. The 8^{th} term of an AP is 17 and 14^{th} term is 29. The common difference is 6 then its first term is
(a) 3 (b) 3
(c) 5 (d) -2

9. If 7 times the 7^{th} term of an AP is equal to 11 times its 11^{th} term then its 18^{th} term will be
(a) 7 (b) 11
(c) 18 (d) 0

10. If the 18^{th} and 11^{th} terms of an AP are in the ratio 3:2 then its 21 st and 5^{th} terms are in the ratio
(a) 2:3 (b) 1: 3
(c) 3:1 (d) 3: 2

11. In an Ap ,If a = -7.2 ,d = 3.6, a_n=7.2, then n is
(a) 1 (b) 3
(c) 4 (d) 5

12. Which term of the AP: 21 42, 63,84, … is 210 ?
(a) 9^{th} (b) 10^{th}
(c) 11^{th} (d) 12th

13. The number of terms of an AP 5, 9,13,….185 is
(a) 31 (b) 51
(c) 41 (d) 46

14. The value of p for which (2p+1),10, (5p+5) are three consecutive terms of an AP is
(a) -1 (b) -2
(c) 1 (d) 2

15. The 21^{st} term of an AP whose first two terms are -3 and 4 is
(a) 17 (b) 137
(c) 143 (d) -143