

# NEW STANDARD ACADEMY

Marks: 40

Date : 20-04-2026

CLASS : 10<sup>TH</sup>

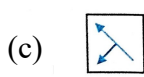
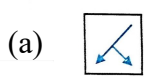
Time: 2 hours

## PHYSICS

1. An object is placed at a distance of 0.25 m in front of a plane mirror. The distance between the object and image will be

- (a) 0.25 m                      (b) 1.0 m  
(c) 0.5 m                        (d) 0.125 m

2. Choose the correct mirror image of figure given below.



3. For a real object, which of the following can produce a real image?

- (a) Plane mirror                (b) Concave mirror  
(c) Concave lens                (d) Convex mirror

4. An object at a distance of 30 cm from a concave mirror gets its image at the same point. The focal length of the mirror is

- (a) -30 cm                      (b) 30 cm  
(c) -15 cm                      (d) +15 cm

5. A concave mirror of focal length 20 cm forms an image having twice the size of object. The position of object will be at

- (a) 25 cm                        (b) 40 cm  
(c) 10 cm                        (d) At infinity

6. The nature of the image formed by concave mirror when the object is placed between the focus ( $f$ ) and centre of curvature ( $C$ ) of the mirror observed by us is

- (a) real, inverted and diminished  
(b) real inverted and enlarged  
(c) virtual, erect and smaller in size  
(d) virtual, upright and enlarged

7. When a glass slab is placed on a dot on a paper, it appears displaced by 4 cm,

viewed normally. What is the thickness of slab if the refractive index is 1.5?

- (a) 10 cm                        (b) 12 cm  
(c) 15 cm                        (d) 11 cm

8. A convex mirror always forms:

- (a) Real and inverted image  
(b) Virtual and diminished image  
(c) Real and enlarged image  
(d) Virtual and enlarged image

9. If the radius of curvature of a concave mirror is 20 cm, its focal length is:

- (a) 5 cm                         (b) 10 cm  
(c) 20 cm                        (d) 40 cm

10. Image formed by a plane mirror is:

- (a) Real, inverted and same size  
(b) Virtual, erect and same size  
(c) Real, erect and diminished  
(d) Virtual, inverted and enlarged

## CHEMISTRY

11.  $\text{Na}_2\text{SO}_4(\text{aq}) + \text{BaCl}_2(\text{aq}) \rightarrow \text{BaSO}_4 + 2\text{NaCl}(\text{aq})$  reaction is an example of

- (a) Double displacement reaction  
(b) Endothermic reaction  
(c) Photochemical reaction  
(d) Exothermic reaction

12. When sodium hydroxide solution is added to copper sulphate solution, a blue precipitate of copper hydroxide is formed along with sodium sulphate solution. What kind of chemical reaction takes place between them?

- (a) Chemical combination reaction  
(b) Chemical decomposition reaction  
(c) Chemical displacement reaction  
(d) Chemical double displacement reaction

13. Burning of magnesium ribbon in air is an example of

- (a) Decomposition reaction  
(b) Combination reaction  
(c) Endothermic reaction  
(d) Reduction reaction

14.  $\text{CH}_3\text{OH} + \text{CH}_3\text{COOH} \rightarrow \text{CH}_3\text{COOCH}_3 + \text{H}_2\text{O}$

This reaction is an example of

- (a) Combination reaction
  - (b) Photolytic decomposition reaction
  - (c) Electrolytic decomposition reaction
  - (d) None of these
15. What happens when dilute HCl is added to iron fillings Select the correct answer
- (a) Hydrogen gas and iron chloride are produced
  - (b) Chlorine gas and iron hydroxide are produced.
  - (c) Iron salt and water are produced
  - (d) No reaction takes place
16. Pieces of Zn metal are added to four different test tubes containing different solutions. In which test tube, no change is observed?
- (a) FeSO<sub>4</sub>
  - (b) CuSO<sub>4</sub>
  - (c) ZnSO<sub>4</sub>
  - (d) Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>
17. CO<sub>2</sub> when passed in excess in lime water turns colourless again because of formation of
- (a) Calcium carbonate
  - (b) Calcium bicarbonate
  - (c) Calcium chloride
  - (d) Copper carbonate
18. In a chemical reaction between sulphuric acid and barium chloride solution, the white precipitates formed are of
- (a) Hydrochloric acid
  - (b) Barium sulphate
  - (c) Chlorine
  - (d) None of these
19. Select the oxidizing agent for the following reaction:  $H_2S + I_2 \rightarrow 2HI + S$
- (a) H<sub>2</sub>S
  - (b) I<sub>2</sub>
  - (c) HI
  - (d) S
20. You mix two colourless solutions and the resulting mixture becomes cloudy. What type of reaction is observed?
- (a) A physical reaction
  - (b) A redox reaction
  - (c) A precipitation reaction
  - (d) An acid-base reaction

### BIOLOGY

21. Which of the following cell organelles is responsible for extracting energy from carbohydrates to form ATP?
- (a) Lysosome
  - (b) Ribosome
  - (c) Chloroplast
  - (d) Mitochondrion
22. Which is the site of Krebs cycle?

- (a) Chloroplast
  - (b) Golgi body
  - (c) Mitochondria
  - (d) Endoplasmic reticulum
23. The net gain of ATP molecules produced during glycolysis is
- (a) 2 ATP
  - (b) 4 ATP
  - (c) 6 ATP
  - (d) 8 ATP
24. In which step of cellular respiration, is carbon dioxide produced?
- (a) Glycolysis
  - (b) Krebs cycle
  - (c) Electron transport chain
  - (d) Fermentation
25. Ptyalin is an enzyme present in
- (a) Gastric juice
  - (b) Pancreatic juice
  - (c) Intestinal juice
  - (d) Saliva
26. The given equation shows which process?
- $$6CO_2 + 12H_2O \xrightarrow{\text{Chlorophyll/Sunlight}} C_6H_{12}O_6 + 6O_2 + 6H_2O$$
- (a) Respiration
  - (b) Photosynthesis
  - (c) Transpiration
  - (d) Excretion
27. Bile is produced and secreted by
- (a) Gall bladder
  - (b) Pancreas
  - (c) Spleen
  - (d) Liver
28. The end products of fat digestion is
- (a) Glucose
  - (b) Fatty acids and glycerol
  - (c) Amino acids
  - (d) Alkaloids
29. The main function of intestinal villi is to
- (a) Stimulate peristalsis
  - (b) Prevent antiperistalsis
  - (c) Provide large surface area for absorption
  - (d) Distribute digestive enzymes uniformly
30. Organisms capable of synthesizing their own food are called
- (a) Heterotrophs
  - (b) Autotrophs
  - (c) Decomposers
  - (d) Parasites

### MATHS

31. If  $\alpha$  and  $\beta$  are zeroes of the polynomial  $p(x) = 2x^2 + 5x + k$  satisfying the relation  $\alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4}$  then find the value of k.
- (a) 1
  - (b) 3
  - (c) 4
  - (d) 2

32. If one zero of the polynomial  $x^2 - 8x + k$  exceeds the other by 2, find the zeroes of the polynomial. Also find the value of k.

- (a) 13 (b) 15  
(c) 16 (d) 14

33. If the sum and the product of the zeroes of the polynomial  $ax^2 - 5x + c$  is equal to 10 each, find the values of a and c.

- (a)  $\frac{1}{2}, 5$  (b)  $-\frac{1}{2}, 6$   
(c)  $\frac{2}{3}, 5$  (d)  $\frac{2}{3}, -5$

34. The zeroes of the polynomial  $x^2 - 3x - m(m + 3)$  are

- (a) m, m + 3 (b) -m, m + 3  
(c) m, -(m + 3) (d) -m, -(m + 3)

35. If one zero of the quadratic polynomial  $kx^2 + 3x + k$  is 2, then the value of k is

- (a) -6/5 (b) 6/5  
(c) 5/6 (d) -5/6

36. If  $\alpha, \beta$  are zeroes of the polynomial  $f(x) = px^2 - 2x + 3p$  and  $\alpha + \beta = \alpha\beta$  then p is

- (a) -2/3 (b) 2/3  
(c) 1/3 (d) -1/3

37. If sum of all zero of the polynomial  $5x^2 - (3 + k)x + 7$  is zero then zeroes of the polynomial  $2x^2 - 2(k+11)x + 30$

- (a) 3,5 (b) 7,9  
(c) 3,6 (d) 2,5

38. Which of the following is a quadratic polynomial having zeroes -2/3 and 2/3 ?

- (a)  $4x^2 - 9$  (b)  $\frac{4}{9}(9x^2 + 4)$   
(c)  $x^2 + \frac{9}{4}$  (d)  $5(9x^2 - 4)$

39. If one of the zeroes of the cubic polynomial  $x^3 - 7x + 6$  is 2, then the product of the other two zeroes is

- (a) 2 (b) -2  
(c) 3 (d) -3

40. The quadratic polynomial p(y) with -15 and -7 as the sum and one of the zeroes respectively is

- (a)  $y^2 - 15y + 56$  (b)  $y^2 + 15y - 56$   
(c)  $y^2 - 15y - 56$  (d)  $y^2 + 15y + 56$