NEW STANDARD ACADEMY

Exam : MOCK- 12 | **NEET - JEE** | **Marks: 80**
Date : 19-06-2023 | **CLASS : 10TH** | **Time: 2 HRS**

PHYSICS

1. A concave shaving mirror has a radius of curvature of 35.0cm.It is positioned so that the (upright) image of a man's face is 2.50 times the size of the face. How far is the mirror from face?
(a) 5.25 cm (b) 21.0 cm (c)10.5 cm (d)42 Cm

2. The focal length of a concave mirror is f and the distance of the object from the principal focus is a. The magnitude of magnification obtained will be-

(A) $(f + a)/f$ (B) f/a
(C) $\sqrt{f}/\sqrt{a}$ (D) f^2/a^2

3. The magnification of an object placed 10 cm from a convex mirror of radius of curvature 20 cm will be-

(A) 0.2 (B) 0.5
(C) 1 (D) infinity

4. The image formed by a concave mirror is observed to be virtual, erect and larger than the object. then the position of the object should be-

(A) between the focus and the centre of curvature
(B) at the centre of curvature
(C) beyond the centre of curvature
(D) between the pole of the mirror and the focus

5. How will the image formed by a convex lens be affected, if the central portion of the lens is wrapped in black paper, as shown in the fig.

(A) No image will be formed
(B) Full image will be formed but it is less bright
(C) Full image will be formed but without the central portion
(D) Two images will be formed, one due to each exposed half.

6. A swimming pool appears to be 2m deep. Its actual depth is (μ for water = 1.33)-

(A) 2.66 m (B) 2 m
(C) 2.34 (D) 2.54 m

7. To get a real and inverted image of the same size as that of the object the object should be placed in front of the convex lens at-

(A) F
(B) 2F
(C) between F and 2F
(D) away from 2F, where F is focus

8. Where should an object be placed so that a real and inverted image of very large size is obtained, using a convex lens ?

(A) At the focus (B) At 2F
(C) Between F and 2F (D) Beyond 2F

9. A convex lens forms a real image of a point object placed on its principal axis. If the upper half of the lens is painted black.

(A) the image will be shifted backward
(B) the image will not be shifted
(C) the intensity of the image will decrease
(D) both (B) and (C)

10. A ray light strikes a transparent rectangular slab of refractive index $\sqrt{2}$ at an angle of incidence of 45^0. The angle between the reflected and refracted rays is :
(a) 75^0 (b) 90^0 (c) 105^0 (d) 120^0

CHEMISTRY

11. Which of the following does not involve a chemical reaction?
(a) digestion of food in our body

(b) process of respiration
(c) burning of candle wax when heated
(d) melting of candle wax on heating

12. You are given the solution of lead nitrate. In order to obtain a yellow precipitate you should mix with it a solution of:
(a) potassium chloride
(b) potassium nitride
(c) potassium sulphide
(d) potassium iodide

13. An acid which can decolourise purple coloured potassium permanganate solution is:
(a) sulphuric acid
(b) citric acid
(c) carbonic acid
(d) hydrochloric acid

14. Which of the following is not an endothermic reaction?
(a) $CaCO_3 \rightarrow CaO + CO_2$
(b) $2H_2O \rightarrow 2H_2 + O_2$
(c) $6\,CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
(d) $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

15. One of the following is an exothermic reaction. This is:
(a) electrolysis of water
(b) conversion of limestone into quicklime
(c) process of respiration
(d) process of photosynthesis

16. The chemical equations are balanced to satisfy one of the following laws in chemical reactions. This law is known as:
(a) law of conservation of momentum
(b) law of conservation of mass
(c) law of conservation of motion
(d) law of conservation of magnetism

17. The removal of oxygen from a substance is called:
(a) oxidation
(b) corrosion
(c) reduction
(d) rancidity

BIOLOGY

18. Useful materials filtered out in nephric filtrate are mostly reabsorbed in the area of -

(A) Bowman's capsule
(B) Distal convoluted tubule
(C) Loop of Henle
(D) Proximal convoluted tubule

19. Dilution of concentration of urine is determined by availability of -

(A) Hormone thyroxine
(B) Hormone thymosine
(C) Hormone ADH
(D) Both A and B

20. Ureotelic animals are those that eliminate the nitrogenous wastes predominatly in the form of -

(A) Uric acid (B) Ammonia
(C) Amino acids (D) Urea

21. The conversin of protein waste, the ammonia into urea occurs mainly in -

(A) Kidney (B) Lungs
(C) Liver (D) Intestine

22. In which of the following groups of animal the heart pumps only deoxygenated blood ?

(A) Fishes (B) Reptile
(C) Birds (D) Amphibians

23. Both erythrocytes and leucocytes are formed in the -

(A) Bone marrow (B) Thymus
(C) Arterial walls (D) Lymph nodes

24. Which chamber of the heart has the thickest muscular walls ?

(A) Right atrium (B) Left atrium
(C) Right ventricle (D) Left ventricle

25. Which one of the following is called pace maker of the heart ?

(A) SA node (B) AV node
(C) Bundle of His (D) AV septum

MATHS

26. Let a_n be the n^{th} term of an A.P. If $\sum_{r=1}^{100} a_{2r} = \alpha$ & $\sum_{r=1}^{100} a_{2r-1} = \beta$, then the common difference of the A.P. is

(a) $\alpha - \beta$ (b) $\beta - \alpha$ (c) $\frac{\alpha-\beta}{2}$ (d) None of these

27. If n– arithmetic means are inserted between 1 and 31 such that the 7^{th} mean : the $(n-1)^{th}$ mean = 5 : 9, then 'n' is equal to
(a) 12 (b) 13
(c) 14 (d) None of these

28. If α&β are the roots of the equation, $x^2 - 2px + q = 0$ and γ and δ be those of the equation, $x^2 - 2rx + s = 0$ and if α, β, γ, δ be in A.P., then (s –q) is equal to-
(a) $p^2 - r^2$ (b) $p^2 - q^2$
(c) $q^2 - p^2$ (d) $r^2 - p^2$

29. The first and last term of an A.P. are a and l respectively. If s be the sum of all terms of the A.P., then the common difference is -

(a) $\frac{l^2-a^2}{2s-(l+a)}$ (b) $\frac{l^2-a^2}{2s-(l-a)}$

(c) $\frac{l^2+a^2}{2s+(l+a)}$ (d) $\frac{l^2+a^2}{2s-(l+a)}$

30. A club consists of members whose ages are in A.P., the common difference being 3 months. If the youngest member of the club is just 7 years old and the sum of the ages of all the numbers is 250 years, then the number of members in the club are -

(a) 15 (b) 25

(c) 20 (d) 30

31. In a certain A.P., 5 times the 5^{th} term is equal to 8 times the 8^{th} term, then its 13^{th} term is

(a) 0 (b) – 1

(c) – 12 (d) – 13

32. The n^{th} term of the series 3 + 10 + 17 + ….. and 63 + 65 + 67 + …… are equal, then the value of n is

(a) 11 (b) 12

(c) 13 (d) 15

33. If the sum of the first 2n terms of 2, 5, 8…. is equal to the sum of the first n terms of 57, 59, 61…., then n is equal to

(a) 10 (b) 12

(c) 11 (d) 13

34. If the sum of first p terms, first q terms and first r terms of an A.P. be x, y and z respectively, then $\frac{x}{p}(q-r)+\frac{y}{q}(r-p)+\frac{z}{r}(p-q)$ is

(a) 0 (b) 2

(c) pqr (d) $\frac{8xyz}{pqr}$

35. If sum of n terms of an A.P. is $3n^2+5n$ and $T_m=164$, then m =

(a) 26 (b) 27

(c) 28 (d) None of these

36. The sum of n terms of two series in A.P. are in the ratio 5n +4 : 9n + 6. Find the ratio of their 13^{th} terms.

(a) $\frac{129}{131}$ (b) $\frac{127}{132}$

(c) $\frac{125}{134}$ (d) $\frac{121}{139}$

37. At what values of parameter 'a' are there values of n such that the numbers : $5^{1+x}+5^{1-x}$, $\frac{a}{2}$, 25^x+25^{-x} form an A.P.?

(a) $a \le 8$ (b) $a \ge 8$

(c) $a \ge 12$ (d) $a \le 12$

38. Let a_1, a_2, a_3, ... be terms of an A.P. If $\frac{a_1+a_2+....+a_p}{a_1+a_2+.....+a_q}=\frac{p^2}{q^2}$, $p \ne q$, then $\frac{a_6}{a_{21}}$ equals-

(a) 41/11 (b) 7/2

(c) 2/7 (d) 11/41

39. Let T_r be rth term of an A.P. whose first term is a and common difference is d. If for some positive integers m, n, $m \ne n$, $T_m=\frac{1}{n}$ and $T_n=\frac{1}{m}$, then $a-d$ equals

(a) $\frac{1}{m}+\frac{1}{n}$ (b) 1

(c) $\frac{1}{mn}$ (d) 0

40. If first, fifth and last terms of an A.P. is ℓ, m, p respectively and sum of the A.P. is $\frac{(\ell+p)(4p+m-5\ell)}{k(m-\ell)}$ then k is -

(a) 2 (b) 3 (c) 4 (d) 5