

MM : 160

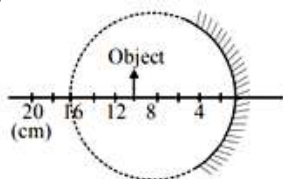
Class-X

TIME : 60 MINUTES

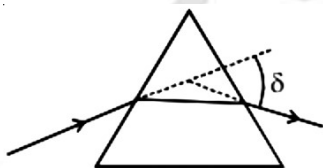
NOTE: There are four sections, Physics, Chemistry, Biology and Maths.
Each section carries 10 questions with four marks each and all are compulsory.

PHYSICS

01. A spherical mirror is obtained as shown in the figure from a hollow glass sphere. If an object is positioned in front of the mirror, what will be the nature and magnification of the image of the object? (Figure drawn as schematic and not to scale)



- (1) Inverted, real and magnified
(2) Erect, virtual and magnified
(3) Erect, virtual and unmagnified
(4) Inverted, real and unmagnified
02. The angle of deviation through a prism is minimum when



- (A) Incident ray and emergent ray are symmetric to the prism.
(B) The refracted ray inside the prism becomes parallel to its base

SKD
NEW
STANDARD
COACHING
INSTITUTE

(C) Angle of incidence is equal to that of the angle of emergence.

(D) When angle of emergence is double the angle of incidence.

- (1) Statements (A), (B) and (C) are true
(2) Only statement (D) is true.
(3) Only statement (A) and (B) are true
(4) Statement (B) and (C) are true

03. When one light ray is reflected from a plane mirror with 30° angle of reflection, the angle of deviation of the ray after reflection is:

- (1) 120° (2) 110°
(3) 140° (4) 130°

04. A convex lens is dipped in a liquid whose refractive index is equal to the refractive index of the lens. Then power of lens will :-

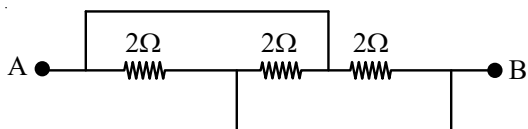
- (1) Become infinite
(2) become small but non zero
(3) remain same
(4) become zero

05. A person wears glasses of power $-2.5D$. The defect of the eye and the far point of the person without the glasses are respectively :-

- (1) Farsightedness, 40cm
(2) nearsightedness, 40cm
(3) astigmatism, 40cm
(4) nearsightedness, 250cm

ROUGH WORK

06. The electrical resistance between points A and B of the figure shown is



- (1) $(2/3)\Omega$ (2) 2Ω
 (3) $(3/2)\Omega$ (4) 6Ω
07. Given below are two statements:
 Statement I: A uniform wire of resistance 80Ω is cut into four equal parts. These parts are now connected in parallel. The equivalent resistance of the combination will be 5Ω
 Statement II: Two resistance $2R$ and $3R$ are connected in parallel in an electric circuit. The value of thermal energy developed in $3R$ and $2R$ will be in the ratio 3:2
 In the light of the above statements, choose the most appropriate answer from the options given below
- (1) Both statement I and II are correct.
 (2) Both statement I and II are incorrect.
 (3) Statement I is correct but statement II is incorrect.
 (4) Statement I is incorrect but statement II is correct.
08. A wire of resistances R is drawn out so that its length is increased by twice of its original length. The ratio of new resistances to original resistance is
- (1) 9:1 (2) 1:9
 (3) 4:1 (4) 2:1
09. An electron is travelling along the x -direction. It encounters a magnetic field in the y -direction. Its subsequent motion will be: -
- (1) Straight line along the x -direction
 (2) A circle in the yz -plane

- (3) A circle in the zx -plane.
 (4) A circle in the xy -plane

10. Which of the following statement is correct related to the magnetic field at the centre of current carrying loop?
- (1) Proportional to current
 (2) Inversely proportional to radius
 (3) Proportional to number of turns
 (4) All the above are correct.

S
K
D
N
E
W
S
T
A
N
D
A
R
D
C
O
A
C
H
I
N
G
I
N
S
T
I
T
U
T
E

CHEMISTRY

11. Silver article turns black when kept in the open for a few days due to formation of
- (1) H_2S (2) AgS
 (3) $AgSO_4$ (4) Ag_2S
12. Rancidity can be prevented by
- (1) adding antioxidants
 (2) storing food away from light
 (3) keeping food in refrigerator
 (4) all of these
13. The bronze medals are made up of
- (1) Cu and Zn (2) Zn and Ni
 (3) Cu and Sn (4) Cu , Zn , Tn
14. An alloy of Zn and Cu is dissolved in dil. HCl . Hydrogen gas is evolved. In this evolution of gas
- (1) only zinc reacts with dil. HCl
 (2) only copper reacts with dil. HCl
 (3) both zinc and copper react with dil. HCl
 (4) only copper reacts with water

ROUGH WORK

15. Which one of the following salts does not contain water of crystallisation?
 (1) Blue vitriol (2) Baking soda
 (3) Washing soda (4) Gypsum
16. Which of the following statements is correct about an aqueous solution of an acid and of a base?
 (i) Higher the pH, stronger the acid
 (ii) Higher the pH, weaker the acid
 (iii) Lower the pH, stronger the base
 (iv) Lower the pH, weaker the base
 (1) (i) and (ii) (2) (ii) and (iii)
 (3) (i) and (iv) (4) (ii) and (iv)
17. Tomato is a natural source of which acid?
 (1) Acetic acid (2) Citric acid
 (3) Tartaric acid (4) Oxalic acid
18. Which of the following will undergo addition reactions?
 (1) CH_4 (2) C_3H_8
 (3) C_2H_6 (4) C_2H_4
19. In diamond, each carbon atom is bonded to four other carbon atoms to form
 (1) a hexagonal array
 (2) a rigid three-dimensional structure
 (3) a structure in the shape of a football
 (4) a structure of a ring
20. A soap molecule has a
 (1) hydrophobic head and hydrophilic tail
 (2) hydrophobic head and hydrophilic tail
 (3) hydrophilic head and hydrophilic tail
 (4) hydrophilic head and hydrophobic tail

21. The concentration of urea is least in:
 (1) Renal artery (2) Renal vein
 (3) Post caval (4) Dorsal aorta
22. In adult man, normal BP is :
 (1) 100/80 mm Hg (2) 120/80 mm Hg
 (3) 100/120 mm Hg (4) 80/12mmHg
23. Mastication occurs in
 (1) Mouth (2) Oesophagus
 (3) Stomach (4) Ileum
24. Production of sperms by testes is known as
 (1) Oogenesis (2) Spermatogenesis
 (3) Testogenesis (4) Ovarygenesis
25. Which one of the following produce sperm?
 (1) Fallopian tubes
 (2) Seminiferous tubules
 (3) Epididymis
 (4) Vasdeferens
26. Test cross is a cross between?
 (1) Hybrid X Hybrid parent
 (2) Hybrid X Recessive parent
 (3) Hybrid X Dominant parent
 (4) Two distantly related species
27. In monohybrid cross, what is the ratio of homozygous dominant and homozygous recessive individual in F_2 -generation?
 (1) 1:2:1 (2) 2:1/1:2
 (3) 3:1/1:3 (4) 1:1

ROUGH WORK

28. **Assertion(A)** : Variations are seen in offspring produced by sexual reproduction.
Reason (R) : DNA molecule generated by replication is not exactly identical to original DNA.
 (1) Both A and R are true and R is the correct explanation of A.
 (2) Both A and R are true but R is not the correct explanation of A.
 (3) A is true but R is false.
 (4) A is false but R is true.

29. Match the following.

- | | |
|---------------|---|
| A. Population | I. Part of the earth consisting of all the ecosystems of the world |
| B. Community | II. Assemblage of all the individuals belonging to different species occurring in an area |
| C. Ecosystem | III. Group of similar individuals belonging to the same species, found in an area |
| D. Ecosphere | IV. Interaction between the living organisms and their physical environmental components
V. Classification of organisms based on the type of environment |

- (1) A(I), B(IV), C(V), D(III)
 (2) A(V), B(II), C(III), D(I)
 (3) A(II), B(III), C(V), D(IV)
 (4) A(III), B(II), C(IV), D(I)

30. IUCD is for
 (1)Vegetative propagation
 (2)Contraception
 (3)Increasing fertility
 (4)Avoiding miscarriage

MATHS

S
K
D
N
E
W
S
T
A
N
D
A
R
D
C
O
A
C
H
I
N
G
I
N
S
T
I
T
U
T
E

31. $P = 2(4)(6)\dots(20)$ and $Q = 1(3)(5) \dots (19)$.
 What is the HCF of P and Q?
 (1) $3^3 \cdot 5 \cdot 7$ (2) $3^4 \cdot 5$
 (3) $3^4 \cdot 5^2 \cdot 7$ (4) $3^3 \cdot 5^2$
32. If one of the zeroes of the cubic polynomial $x^3 + ax^2 + bx + c$ is -1, then the product of the other two zeroes is
 (1) $a - b - 1$ (2) $b - a - 1$
 (3) $1 - a + b$ (4) $1 + a - b$
33. If α, β are roots of $ax^2 + bx + c = 0$, then $\sqrt{\frac{\alpha}{\beta}} + \sqrt{\frac{\beta}{\alpha}} + \sqrt{\frac{b}{a}}$ is
 (1) 1 (2) 0
 (3) 2 (4) $2\sqrt{\frac{b}{a}}$
34. The ratio of the sum of first n even natural numbers and the sum of first n odd natural numbers is
 (1) $\frac{n+1}{n}$ (2) $\frac{n-1}{n}$
 (3) $\frac{1-n}{n}$ (4) $\frac{2n+1}{n}$

ROUGH WORK

35. In an isosceles triangle ABC, if $AC = BC$ and $AB^2 = 2AC^2$, $\angle C$ equals
 (1) 45° (2) 60°
 (3) 90° (4) 30°
36. The three vertices of a rhombus, taken in order, are $(2, -1)$, $(3, 4)$ and $(-2, 3)$. Then the fourth vertex is
 (1) $(3, -2)$ (2) $(3, 2)$
 (3) $(-3, -2)$ (4) none of these
37. If $\sin x + \operatorname{cosec} x = 2$, then $\sin^{19} x + \operatorname{cosec}^{20} x =$
 (1) 2^{19} (2) 2^{20}
 (3) 2 (4) 2^{39}
38. A toy is in the form of a cone mounted on a hemisphere with same radius. The diameter of the base of the conical portion is 6 cm and its height is 4 cm. Then, the surface area of the toy is
 (1) $36\pi m^2$ (2) $33\pi m^2$
 (3) $35\pi m^2$ (4) $24\pi m^2$
39. The mean of 25 observations is 9. If each observation is increased by 4, the new mean is
 (1) 10 (2) 11
 (3) 12 (4) 13
40. The probability of guessing the correct answer to a certain test question is $\frac{x}{12}$. If the probability of not guessing the correct answer to this questions is $\frac{2}{3}$, then x equals
 (1) 3 (2) 4
 (3) 2 (4) 6

ROUGH WORK