TARGET IIT JEE-PMT CLASSES™

(NTTSE) National Target Talent Search Examination

(FOR CLASS XI) (Engineering)

TIME: 2:15 Hrs. **INSTRUCTIONS FOR THE CANDIDATES** **M.M: 360**

Section	Subject	No. of Questions	Mark per Question	Negative Marking	Total Marks
A	Physics	30	4	-1/4th	120
B	Chemistry	30	4	-1/4th	120
C	Mathematics	30	4	-1/4th	120
	Total	90			360

- Read each question carefully.
- Do not use white – fluid or any other rubbing material on sheet. No change in the answer once marked.
- Student can not use log tables and calculators or any other electronic material in the examination hall.
- Rough work is to be done on the rough sheet provided for this purpose with the booklet.
- Immediately after the prescribed examination time is over, the answer sheet to be returned to the invigilator.
- Marking Scheme:

  a. If darkened bubble is RIGHT answer: **4 Marks**.

  b. If no bubble is darkened in any question: **No Mark.**

  c. If darkened bubble is WRONG answer: **1/4 Mark (Minus).**

- If you are found involved in cheating or disturbing others then your OMR Sheet will be cancelled.
- Do not put any stain on OMR Sheet and hand it over back properly to the invigilator.

SECTION –A: PHYSICS

This section contains **30 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

1) The pressure on a square plate is measured by measuring the force on the plate and the length of the sides of plate. If the maximum error in the measurement of force and length are respectively 4% and 2%, the maximum error in the measurement of pressure is :

a) 1%

b) 2%

c) 6%

d) 8%

2) What is the percentage error in the measurement of time period of a pendulum if maximum errors in the measurement of l and g are 2% and 4% respectively ?

a) 6%

b) 4%

c) 3%

d) 5%

3) A plane is inclined at an angle of 30° with horizontal. The component of a vector $\vec{A} = -10\hat{k}$ perpendicular to this plane is (here z-direction is vertically upwards)

a) $5\sqrt{2}$

b) $5\sqrt{3}$

c) 5

d) 2.5

4) The unit of permittivity of free space ε_0 is :

a) coulomb / newton - metre

b) newton - m^2 / $coul^2$

c) $coul^2$ / (newton- $m)^2$

d) $coul^2$ / (newton- m^2)

5) A new system of units is evolved in which the values of μ_0 and ε_0 are 2 and 8 respectively. Then the speed of light in this system will be :

a) 0.25

b) 0.5

c) 0.75

d) 1

6) What is angle between $\vec{A}$ and the resultant of $(\vec{A}+\vec{B})$ and $(\vec{A}-\vec{B})$?

a) 0°

b) $\tan^{-1}\left(\frac{A}{B}\right)$

c) $\tan^{-1}\left(\frac{B}{A}\right)$

d) $\tan^{-1}\left(\frac{A-B}{A+B}\right)$

7) A ball is dropped into a well in which the water level is at a depth h below the top. If the speed of sound be c, then the time after which the splash is heard will be given by :

a) $h\left[\sqrt{\frac{2}{gh}}+\frac{1}{c}\right]$

b) $h\left[\sqrt{\frac{2}{gh}}-\frac{1}{c}\right]$

c) $h\left[\frac{2}{g}+\frac{1}{c}\right]$

d) $h\left[\frac{2}{g}-\frac{1}{c}\right]$

8) A person travels along a straight road for the first half time with a velocity v_1 and the second half time with a velocity v_2. Then the mean velocity $\bar{v}$ is given by :

a) $\bar{v} = \frac{v_1 + v_2}{2}$

b) $\frac{2}{\bar{v}} = \frac{1}{v_1} + \frac{1}{v_2}$

c) $\bar{v} = \sqrt{v_1 v_2}$

d) $\bar{v} = \sqrt{\frac{v_2}{v_1}}$

9) A particle returns to the starting point after 10 s. If the rate of change of velocity during the motion is constant in magnitude, then its location after 7 seconds will be same as that after :

a) 1 s

b) 2 s

c) 3 s

d) 3.5 s

10) Two cars are moving in the same direction with the same speed of 30 km/hr. They are separated by 5 km. What is the speed of the car moving in the opposite direction if it meets the two cars at an interval of 4 minutes ?

a) 15 km/hr

b) 30 km/hr

c) 45 km/hr

d) 60 kg/hr

11) A body of mass 5 kg starts from the origin with an initial velocity $\vec{u} = (30\hat{i} + 40\hat{j})\ ms^{-1}$. If a constant force $(-6\hat{i} - 5\hat{j})\ N$ acts on the body, the time in which the y component of the velocity becomes zero, is :

a) 5 s

b) 20 s

c) 40 s

d) 80 s

12) A particle of mass m is projected with a velocity u making an angle of 45° with the horizontal. The magnitude of the angular momentum of the projectile about the point of projection when the particle is at its maximum height h is:

a) zero

b) $mu^3 / 4\sqrt{2}\,g$

c) $mu^3 / \sqrt{2}\,g$

d) $m\sqrt{2gh^3}$

13) A gun fires two bullets at 60° and 30° with the horizontal. The bullets strike at some horizontal distance. The ratio of maximum height for the two bullets is in the ratio.

a) 2 : 1

b) 3 : 1

c) 4 : 1

d) 1 : 1

14) A heavy block of mass M is slowly placed on a conveyor belt moving with a speed v. The coefficient of friction between the block and the belt is μ. Through what distance will the block slide on the belt ?

a) $\frac{v}{\mu g}$

b) $\frac{v^2}{\mu g}$

c) $\frac{v}{2\mu g}$

d) $\frac{v^2}{2\mu g}$

15) An ice cube is kept on an inclined plane of angle 30°. The coefficient of kinetic friction between the block and the inclined plane is $(1/\sqrt{3})$. What is the acceleration of block ?

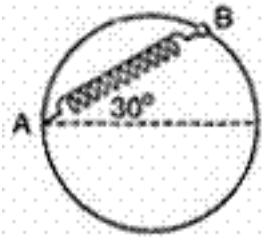
a) zero

b) $2 m/s^2$

c) $1.5 m/s^2$

d) $5 m/s^2$

16) A bead of mass m is attached to one end of a spring of natural length R and spring constant $k = \frac{(\sqrt{3}+1)mg}{R}$. The other end of the spring is fixed at a point A on a smooth vertical ring of radius R as shown in the figure, tangential acceleration of bead just after it is released is :



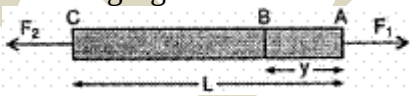
a) g/2

b) 3 g/ 4

c) g/4

d) 2g/3

17) A rod of length L and mass M is acted on by two unequal forces F_1 and $F_2 (< F_1)$ as shown in the following figure: The tension in the rod at a distance y from the end A is given by :



a) $F_1\left(1-\frac{y}{L}\right)+F_2\left(\frac{y}{L}\right)$

b) $F_2\left(1-\frac{y}{L}\right)+F_1\left(\frac{y}{L}\right)$

c) $(F_1 - F_2)\frac{y}{L}$

d) none of these

18) Two masses of 10 kg and 20 kg respectively are connected by a massless spring as shown in figure. A force of 200 N acts on the 20 kg mass. At the instant when the 10 kg mass has an acceleration of 12 ms^{-2}, the acceleration of the 20 kg mass is :

a) $2ms^{-2}$

b) $4ms^{-2}$

c) $10ms^{-2}$

d) $20ms^{-2}$

19) Bullets of 0.03 kg mass each hit a plate at the rate of 200 bullets per second, with a velocity of 50 m/sec and reflect back with a velocity of 30 ms^{-1}. The average force acting on the plate in Newton is

a) 120

b) 180

c) 300

d) 480

20) A particle of mass m is moving in a circular path of constant radius r such that its centripetal acceleration a_c is varying with time t as $a_c = k^2rt^2$ where k is a constant. The power delivered to the particle by the forces acting on it, is :

a) zero

b) $mk^2r^2t^2$

c) mk^2r^2t

d) mk^2rt

21) A block of mass m slides down a rough inclined plane of inclination θ with horizontal with zero initial velocity. The coefficient of friction between the block and the plane is μ with $\theta > \tan^{-1}(\mu)$. Rate of work done by the force of friction at time t is :

a) $\mu mg^2 t \sin\theta$

b) $mg^2 t(\sin\theta - \mu\cos\theta)$

c) $\mu mg^2 t\cos\theta(\sin\theta - \mu\cos\theta)$

d) $\mu m g^2 t\cos\theta$

22) A uniform chain has a mass m and length l. It is held on a frictionless table with one-sixth of its length hanging over the edge. The work done in just pulling the hanging part back on the table is :

a) $\frac{mgl}{72}$

b) $\frac{mgl}{36}$

c) $\frac{mgl}{12}$

d) $\frac{mgl}{6}$

23) Under the action of force a 2 kg body moves such that its position x as a function of time is given by $x = t^3/3$, where x is in metres and t in seconds. The work done by the force in the first two seconds is :

a) 1.6 J

b) 16 J

c) 160 J

d) 1600 J

24) In a conservative force field we can find the radial component of force from the potential energy function by using $F = -\frac{dU}{dr}$. Here, a positive force means repulsion and a negative force means attraction. From the given potential energy function U(r) we can find the equilibrium position where force is zero. We can also find the ionization energy which is the work done to move the particle from a certain position to infinity.

Let us consider a case in which a particle is bound to a certain point at a distance r from the centre of the force. The potential energy of the particle is

$U(r) = \frac{A}{r^2} - \frac{B}{r}$: where r is the distance from the centre of the force and A and B are positive constants.

Answer the following question.

The equilibrium distance is given by

a) $\frac{A}{B}$

b) $\frac{2A}{B}$

c) $\frac{3A}{B}$

d) $\frac{B}{2A}$

25) Two cars having masses m_1 and m_2 move in circles of radii r_1 and r_2 respectively. If they complete the circle in equal time, the ratio of their angular speeds ω_1 / ω_2 is

a) m_1/m_2

b) r_1/r_2

c) m_1r_1/m_2r_2

d) 1.

26) A particle of mass m is observed from an INERTIAL frame of reference and is found to move in a circle of radius r with a uniform speed v. the centrifugal force on it is

a) $\frac{mv^2}{r}$ towards the centre

b) $\frac{mv^2}{r}$ away from the centre

c) $\frac{mv^2}{r}$ along the tangent through the particle

d) zero.

27) Two bodies of mass m and 4 m have equal kinetic energy. What is the ratio of their momentum?

a) 1 : 4

b) 1 : 2

c) 1 : 1

d) 2 : 1

28) The dimension of k in the equation $W = \frac{1}{2}kx^2$ is

a) $[M^1L^0T^{-2}]$

b) $[M^0L^1T^{-1}]$

c) $[M^1L^1T^{-2}]$

d) $[M^1L^0T^{-1}]$

29) A block is kept on an inclined plane of inclination θ and length *l*. The velocity of particle at the bottom of incline (the coefficient of friction is μ) is

a) $\sqrt{2gl(\mu\cos\theta - \sin\theta)}$

b) $\sqrt{2gl(\sin\theta - \mu\cos\theta)}$

c) $\sqrt{2gl(\sin\theta + \mu\cos\theta)}$

d) $\sqrt{2gl(\cos\theta + \mu\sin\theta)}$

30) An object of mass m accelerates uniformly from rest to a speed v_F in time t_F. The work done on the object as a function of time t in terms of v_F and t_F is :

a) $W = \frac{1}{2}mv_F^2 t_F^2 t^2$

b) $W = \frac{1}{2}m\left(\frac{v_F}{t_F}\right)t^2$

c) W = zero

d) $W = \frac{1}{2}m\left(\frac{v_F}{t_F}\right)^2 t^2$

SECTION –B: CHEMISTRY

This section contains **30 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

31) Mass of one mole of protons is

a) 0.20 mg

b) 0.02 mg

c) 0.55 mg

d) 1.00 mg

32) Value of gas constant R is

a) 0.082 litre atm

b) $0.987 \text{ cal mol}^{-1} \text{ K}^{-1}$

c) $8.3 \text{ J mol}^{-1} \text{ k}^{-1}$

d) $83 \text{ erg mol}^{-1} \text{ k}^{-1}$

33) If the r.m.s. speed of a gaseous molecules is *x* m/sec at a pressure p atm, then what will be the r.m.s. speed at 2p atm and constant temperature ?

a) x

b) 2x

c) 4x

d) x/4

34) The rate of diffusion of a gas is directly proportional to :

a) $\frac{P}{\sqrt{d}}$

b) $\sqrt{\frac{P}{d}}$

c) $\frac{P}{d}$

d) $\frac{\sqrt{p}}{d}$

35) Value of universal gas constant 'R' depends upon

a) temperature of the gas

b) volume of the gas

c) number of moles of the gas

d) none of these

36) Which type of crystals contain only one Bravais lattice ?
(I) Hexagonal
(II) Triclinic
(III) Rhombohedral
(IV) Monoclinic

a) I, II

b) I, II, III

c) II, III, IV

d) I, II, IV

37) In a cubic packed structure of mixed oxides, the lattice is made up of oxide, one fifth of tetrahedral voids are occupied by divalent ions (A^{2+}) while one half of the octahedral voids are occupied by trivalent ions (B^{3+}), then the formula of the oxide is

a) A_2BO_4

b) $A_4B_5O_{10}$

c) AB_2O_4

d) $A_5B_4O_{10}$

38) An element (with atomic mass = 250 g) crystallises in a simple cube. If the density of unit cell is $7.2 g\ cm^{-3}$, what is the radius of the element ?

a) 1.93×10^{-6} cm

b) 1.93×10^{-8} cm

c) 1.93×10^{-8} Å

d) 1.93×10^{-8} m

39) In hcp and bcc structure, the packing fractions are respectively :

a) 0.74, 0.74

b) 0.68, 0.68

c) 0.74, 0.68

d) 0.68, 0.74

40) Potassium crystallises in bcc lattice. Hence the co-ordination number of the element in the crystal structure is

a) 0

b) 4

c) 6

d) 8

41) The existence of a substance in more than one solid modifications is know as

a) Allotropy

b) Isomorphism

c) Polymorphism

d) None

42) Three dimensional arrangement of particles shown by regular pattern of points is known as :

a) Space lattice

b) Crystal lattice

c) Unit cell

d) All the three

43) The number of atoms in 100 g of a fcc crystal with density d = 10 g/cm^3 and cell edges as 200 pm is equal to

a) 3×10^{25}

b) 5×10^{24}

c) 1×10^{25}

d) 2×10^{25}

44) Number of atoms in the unit cell of Na (BCC type crystal) and Mg (FCC type crystal) are respectively.

a) 4, 4

b) 4, 2

c) 2, 4

d) 1, 1

45) The edge length of unit cell of a metal having molecular weight 75 g/mol is $5\ \text{Å}$ which crystallizes in cubic lattice. If the density is 2 g/cc then find the radius of metal atom $(N_A = 6\times10^{23})$

a) 212 pm

b) 217 pm

c) 106 pm

d) 108.5 pm

46) Which is incorrect ?

a) Hexagonal close packed arrangement is ABC ABC…..

b) Orthorhombic crystal has $a \neq b \neq c,\ \alpha = \gamma = 90^0$ and $\beta \neq 90^0$

c) In Zn crystallises in HCP structure, the nearest number of atoms is 12

d) Quartz is an example of Rhombo-hedral crystal system

47) If NaCl is doped with 10^{-3} mole% $SrCl_2$, then the concentration of cation vacancies will be :

a) 1×10^{-3} mol%

b) 2×10^{-3} mol%

c) 3×10^{-3} mol%

d) 4×10^{-3} mol%

48) If N_A is the Avogadro number, then the number of valence electrons in 4.2 g of nitride ion (N^{-3}) is

a) 2.4 N_A

b) 4.2 N_A

c) 1.6 N_A

d) 3.2 N_A

49) The ionization energy of He^+ is 19.6×10^{-18} J atom^{-1}. The energy of the first stationary state of Li^2 is

a) 19.6×10^{-18} J atom^{-1}

b) 4.41×10^{-18} J atom^{-1}

c) 19.6×10^{-19} J atom^{-1}

d) 4.41×10^{-17} J atom^{-1}

50) The total number of orbitals in a shell having principal quantum 'n' is

a) 2n

b) n^2

c) $2n^2$

d) (n + 1)

51) The de-Brogile equation treats an electron to be

a) a particle

b) a wave

c) both

d) none

52) Which d-orbital has lobes directed along the axis

a) d_{xy}

b) d_{yz}

c) d_{xx}

d) $d_{x^2-y^2}$

53) An isotone of $^{76}_{32}Ge$ is

a) $^{77}_{32}Ge$

b) $^{77}_{33}As$

c) $^{77}_{34}Se$

d) $^{78}_{36}Sc$

54) The energy of the first electron in helium will be

a) -13.6 eV

b) -54.4 eV

c) -5.44 eV

d) zero

55) Which of the following electronic transitions from one orbit to another corresponds to the third line in the Balmer series of hydrogen spectrum ?

a) $1 \rightarrow 2$

b) $3 \rightarrow 2$

c) $5 \rightarrow 2$

d) $\infty \rightarrow 2$

56) Angular momentum of an electron in the n^{th} orbit of hydrogen atom is given by

a) $\frac{2\pi}{nh}$

b) $\frac{\pi}{2nh}$

c) $\frac{nh}{2\pi}$

d) nh

57) The number of nodal planes for 4d orbital is

a) zero

b) one

c) two

d) three

58) The following quantum numbers are possible for how many orbitals. n = 3, l = 2, m = +2

a) 1

b) 2

c) 3

d) 4

59) Principal, Azimuthal and magnetic quantum numbers are respectively related to :

a) size, shape, orientation

b) shape, size, orientation

c) size, orientation, shape

d) none of these

60) Which is not correctly matched ?

a) XeO_3 ; Trigonal bipyramidal

b) ClF_3 ; T-shape

c) $XeOF_4$; Square pyramidal

d) XeF_2 ; Linear shape

SECTION –C: MATHEMATICS

This section contains **30 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

61) If A and B are two sets having elements in common. If n(A) = 4 and n (B) = 5, then n $\{(A\times B)\cap(B\times A)\}$ is equal to

a) 20

b) 4

c) 16

d) 25

62) If f (x) = $\frac{x-3}{x+1}$, then f (f{f(x)}] equal to:

a) x

b) -x

c) 4x

d) -4x

63) If A = $\{(x,y): x^2+y^2=25\}$ and
B = $(x,y): x^2+9y^2=144\}$; then $A\cap B$ contains:

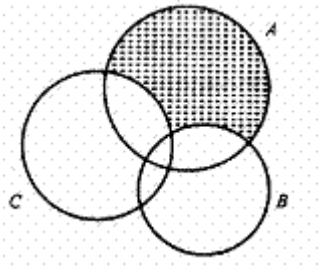
a) One point

b) Three points

c) Two points

d) Four points

64) The shaded region in the figure is :



a) $A \cap (B \cup C)$

b) $A \cup (B \cap C)$

c) $A \cap (B - C)$

d) $A - (B \cup C)$

65) Let A = {1, 2, 3} then domain of two relation R = {(1,1), (1, 2), (2, 3)} defined on A is:

a) {1, 2}

b) {1, 3}

c) {1, 2, 3}

d) none of these

66) Which one of the following is equal to $(A - B) \cup (B - A)$?

a) $(A \cup B) \cup (A - B)$

b) $(A \cup B) \cup (A \cap B)$

c) $(A \cup B) - (A \cap B)$

d) $(A - B) \cap (B - A)$

67) If $i = \sqrt{-1}$ and n is a positive integer, then $i^n + i^{n+1} + i^{n+2} + i^{n+3} =$

a) 1

b) i

c) i^n

d) 0

68) The real value of θ for which the expression $\frac{1+i\cos\theta}{1-2i\cos\theta}$ is a real number is ($n \in I$) :

a) $2n\pi = \frac{\pi}{2}$

b) $2n\pi \pm \frac{\pi}{2}$

c) $2n\pi - \frac{\pi}{2}$

d) none of these

69) $i^{57} + \frac{1}{i^{25}}$, when simplified has the value :

a) 0

b) 2i

c) $-2i$

d) 2

70) $-1+\sqrt{-3} = re^{i\theta}$, then θ equal to :

a) $\frac{2\pi}{3}$

b) $-\frac{2\pi}{3}$

c) $\frac{\pi}{3}$

d) $-\frac{\pi}{3}$

71) The solution set of the equation $\frac{1}{2x-7} > 0$ is :

a) $\left[\frac{7}{2}, \infty\right)$

b) $\left(\frac{7}{2}, \infty\right)$

c) $\left(-\infty, \frac{7}{2}\right)$

d) $\left(-\infty, \frac{7}{2}\right]$

72) The inequality $x + 1 < |x|$ is true for :

a) $x < -\frac{1}{2}$

b) $x > \frac{-1}{2}$

c) $x = \frac{-1}{2}$

d) none of these

73) If $\log_7 2 = m$, then $\log_{49} 28$ is equal to :

a) $2(1 + 2m)$

b) $\frac{1+2m}{2}$

c) $\frac{2}{1+2m}$

d) $1 + m$

74) Out of 10 consonants, four vowels, the number of words that can be formed using six consonants and three vowels is :

a) ${}^{10}P_6 \times {}^{6}P_3$

b) ${}^{10}C_6 \times {}^{6}C_3$

c) ${}^{10}C_6 \times {}^{4}C_3 \times 9!$

d) ${}^{10}P_6 \times {}^{4}P_3$

75) If ${}^{15}C_{3r} = {}^{15}C_{r+3}$, then r is equal to :

a) 5

b) 4

c) 3

d) 2

76) If ${}^{n}P_{r} = 720 \cdot {}^{n}C_{r}$, then r is equal to :

a) 6

b) 5

c) 4

d) 7

77) The ratio of the coefficient of x^{15} to the term independent of x in $\left(x^2 + \frac{2}{x}\right)^{15}$ is:

a) $\frac{1}{4}$

b) $\frac{1}{16}$

c) $\frac{1}{32}$

d) $\frac{1}{64}$

78) $2^{3n} - 7n - 1$ is divisible by:

a) 36

b) 64

c) 49

d) 25

79) Let S_p and S_q be the coefficient of x^p and x^q respectively in $(1+x)^{p+q}$ then:

a) $S_p \neq S_q$

b) $S_p = \frac{q}{p} S_q$

c) $S_p = \frac{p}{q} S_q$

d) $S_p = S_q$

80) If the coefficient of x^5 in the expansion of $\left(x^4+\frac{k}{x}\right)^5$ is 270, then k =

a) 1

b) 2

c) 3

d) 4

81) The middle term in the expansion of $(1+x)^{2n}$ is:

a) ${}^{2n}C_n$

b) ${}^{2n}C_n x^{n+1}$

c) ${}^{2n}C_{n-1}\, x^{n-1}$

d) $\frac{1.3.5.\ldots.(2n-1)}{n!}\, 2^n.\, x^n$

82) The sum to n terms of the A.G. sequence $1, 2x, 3x^2, 4x^3 \ldots; x \neq 1$ is :

a) $\frac{1+x^n}{(1-x)^2}+\frac{nx^n}{1-n}$

b) $\frac{1-x^n}{(1-x)^2}-\frac{nx^n}{1+x}$

c) $\frac{1-x^n}{(1-x)^2}+\frac{nx^n}{1-x}$

d) $\frac{1-x^n}{(1-x)^2}-\frac{nx^n}{1-x}$

83) If $\frac{1}{a}, \frac{a^n+b^n}{a^{n+1}+b^{n+1}}, \frac{1}{b}$ are in A.P., then *n* is equal to :

a) 0

b) -1

c) $\frac{1}{2}$

d) none of these

84) The product $x^{1/2}.x^{1/4}.x^{1/8}.....\infty$ equals :

a) 0

b) 1

c) x

d) ∞

85) If a, b, c are in A.P. as well as in G.P. then :

a) $a=b\neq c$

b) $a\neq b=c$

c) $a\neq b\neq c$

d) $a=b=c$

86) tan $22\frac{1}{2}^{\circ}$ is equal to:

a) $-\sqrt{2}-1$

b) $\sqrt{2}+1$

c) $\sqrt{2}-1$

d) $-\sqrt{2}+1$

87) The value of cot A + tan (180° +A) + tan (90° +A) + tan (360° - A) is:

a) 0

b) 1

c) $\frac{3}{2}$

d) 2

88) If $\sin\theta = \frac{1}{2}$ and $\cos\theta = -\frac{\sqrt{3}}{2}$, then the general value of θ is:

a) $2n\pi + \frac{5\pi}{6}$

b) $2n\pi + \frac{\pi}{6}$

c) $2n\pi + \frac{7\pi}{6}$

d) $2n\pi + \frac{\pi}{4}$

89) The value of $\log_{10}\tan1^\circ + \log_{10}\tan3^\circ + \log\tan5^\circ + \ldots + \log_{10}(\tan89^\circ)$ is given by:

a) $45\log_{10}(\tan1^\circ)$

b) $45\log_{10}(\tan89^\circ)$

c) 1

d) 0

90) If the angles of a triangle are in the ratio 1 : 2 : 3 the corresponding sides are in the ratio:

a) 2 : 3: 1

b) $\sqrt{3}:2:1$

c) $2:\sqrt{3}:1$

d) $1:\sqrt{3}:2$

ANSWER KEYS

Physics

1. D
2. C
3. B
4. D
5. A
6. A
7. A
8. A
9. C
10. C
11. C
12. B
13. B
14. D
15. A
16. A
17. A
18. B
19. D
20. C
21. C
22. A
23. B
24. B
25. D
26. D
27. B
28. A
29. C
30. D

Chemistry

Q31: c Q32: c Q33: a Q34: a Q35: d Q36: b Q37: b Q38: b Q39: c Q40: d

Q41: c Q42: a Q43: b Q44: c Q45: b Q46: b Q47: a Q48: a Q49: d Q50: b

Q51: c Q52: d Q53: b Q54: b Q55: c Q56: c Q57: c Q58: a Q59: a Q60: a

Mathematics

Q61: b Q62: a Q63: d Q64: d Q65: a Q66: c Q67: d Q68: d Q69: a Q70: a

Q71: b Q72: a Q73: b Q74: c Q75: c Q76: a Q77: c Q78: c Q79: d Q80: c

Q81: d Q82: d Q83: b Q84: c Q85: d Q86: c Q87: a Q88: a Q89: d Q90: d