



18th NTST

NATIONAL TALENT SEARCH TEST (SAMPLE PAPER CLASS-11th-SCIENCE)



PHYSICS

- Q.1 The units of Planck's constant are:
- (a) Js (b) Js²
(c) J/s (d) Js⁻²
- Q.2 Which of the following systems of units is not based on units of mass, length and time alone?
- (a) FPS (b) CGS
(c) MKS (d) SI
- Q.3 Which of the following pairs of physical quantities does not have same dimensional formula?
- (a) Angular momentum and Planck's constant (b) Work and torque
(c) Tension and surface tension (d) Impulse and linear momentum
- Q.4 The motion of a particle along a straight line is described by the equation: $x = 8 + 12t - t^3$, where x is in metre and t in second. The retardation of the particle when its velocity becomes zero is:
- (a) 24 ms⁻² (b) zero
(c) 6 ms⁻² (d) 12 ms⁻²
- Q.5 Which of the following is constant in a projectile motion?
- (a) Vertical component of the velocity (b) Velocity of projection
(c) Horizontal component of the velocity (d) All of these
- Q.6 A cricket ball is hit at 45° to the horizontal with a kinetic energy E. The kinetic energy at the highest point is
- (a) 0 (b) E
(c) $\frac{E}{2}$ (d) $\frac{E}{\sqrt{2}}$
- Q.7 A particle moves in a plane with a constant acceleration in a direction different from the initial velocity. The path of the particle is a/an:
- (a) ellipse (b) straight line
(c) arc of a circle (d) parabola
- Q.8 Which of the following is vector quantity?
- (a) Charge (b) Temperature
(c) Impulse (d) Coefficient of friction

- Q.9 In equilibrium of particle when net external force of the particle is zero. Then, the particle is
 (a) moving with uniform velocity (b) at rest
 (c) Both at rest and moving with uniform velocity (d) moving with uniform acceleration
- Q.10 The work done by a conservative forces depends
 (a) on both the end points as well as the path (b) depends on the path
 (c) only on the end points (d) on the position of the forces

CHEMISTRY

- Q.1 The electronic configuration for a noble gas is
 (a) $1s^2 2s^2 2p^6$ (b) $1s^2 2s^2$
 (c) $1s^2 2s^2 2p^5$ (d) $1s^2 2s^2 2p^6 3p^6 4s^2$
- Q.2 Ionic bonds will be formed more easily between elements with comparatively
 (a) Low ionisation enthalpy and low electron affinity
 (b) Low ionisation enthalpy and high electron affinity
 (c) High ionisation enthalpy and low electron affinity
 (d) High ionisation enthalpy and high electron affinity
- Q.3 A catalyst will increase the rate of a chemical reaction by:
 (a) increasing the activation energy (b) lowering the activation energy
 (c) shifting the equilibrium to the right (d) shifting the equilibrium to the left
- Q.4 In which of the following compounds, an element exhibits two different oxidation states.
 (a) $NH_4 NO_3$ (b) $N_3 H$
 (c) $N_2 H_4$ (d) $NH_2 OH$
- Q.5 The number of gram molecules of oxygen in 6.02×10^{24} CO molecules is
 (a) 10g molecules (b) 5g molecules
 (c) 1g molecules (d) 0.5g molecules
- Q.6 A mixture of gases contains N_2O and O_2 gases in the ratio of 1: 4 (u/u). What is the molar ratio of two gases in the mixture?
 (a) 16:1 (b) 2:1
 (c) 1:4 (d) 4:1
- Q.7 What will be the longest wave length line in balmer series if spectrum?
 (a) 546 nm (b) 656 nm
 (c) 566 nm (d) 55 nm
- Q.8 One of the characteristic properties of non-metals is that they
 (a) are reducing agents (b) form basic oxides
 (c) form cations by electro gain (d) are electro negative

- Q.9 The species, having bond angles of 120° is
- (a) ClF_3 (b) NCl_3
(c) BCl_3 (d) PH_3

- Q.10 Which of the following is a polar molecule?
- (a) SiF_4 (b) XeF_4
(c) BF_3 (d) Sf_4

MATH

- Q.1 Two finite sets have m and n elements respectively. The total number of subsets of first set is 56 more than the total number of subsets of the second set. The values of m and n respectively are.

- (a) 5, 1 (b) 7, 6
(c) 8, 7 (d) 6, 3

Q.2 $\frac{\cos 8^\circ - \sin 8^\circ}{\cos 8^\circ + \sin 8^\circ} = ?$

- (a) $\tan 52^\circ$ (b) $\tan 37^\circ$
(c) $\tan 8^\circ$ (d) None of these

- Q.3 The value of $\cos 52^\circ + \cos 68^\circ + \cos 172^\circ$ is

- (a) 0 (b) $\frac{3}{2}$
(c) 1 (d) 2

- Q.4 Mark the correct answer for: $i^{91} = ?$

- (a) 1 (b) 1
(c) - 1 (d) - 1

- Q.5 The number of six letter words that can be formed using the letters of the word ASSIST in which S's alternate with other letters is

- (a) 12 (b) 24
(c) 18 (d) None of these

- Q.6 The next term of the sequence $\frac{1}{4}, \frac{1}{36}, \frac{1}{144},$

- (a) $\frac{1}{169}$ (b) $\frac{1}{400}$
(c) $\frac{1}{576}$ (d) $\frac{1}{1296}$

- Q.7 The equation $x^2 + y^2 + 2x - 4y + 5 = 0$ represents.

- (a) A circle of non - zero radius (b) A pair of straight lines
(c) A point (d) None of these

Q.8 If A and B are two mutually exclusive events, then $P(A + B)$ is equal to

(a) $P(A) P(B)$

(b) $P(A) + P(B)$

(c) $P(A) P(B') + P(A') P(B)$

(d) $P(A) P(B') + P(A') P(B)$

Q.9 From a set of 100 cards numbered 1 to 100, one card is drawn at random. The probability that the number obtained on the card is divisible by 6 or 8 but not by 24 is

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

(b) $\frac{6}{25}$

(c) $\frac{1}{6}$

(d) $\frac{2}{5}$

Q.10 For what values of x are the numbers $\frac{-2}{7}, x, \frac{-7}{2}$ in G.P ?

(a) - 1 and 2

(b) - 2 and 1

(c) - 1 and 1

(d) - 2 and 2