

NAT I Engineering Physics

Sr	Questions	Answers Choice
1	Two points charges A and B separated by a distance R attract each other with a force of 12×10^{-3} N. The force between A and B when the charges on them are doubled and distance is halved	A. 1.92 N B. 19.2 N C. 12 N D. 0.192 N
2	Two point charge $+3\mu\text{C}$ and $+8\mu\text{C}$ repel each other with a force of 40 N. if a charge of $-5\mu\text{C}$ is added to each of them then the force between will become	A. -10N B. +10N C. +20N D. -20N
3	When a Na ion and a Cl ion are placed in air a force F acts between them when they are separated by a distance of 1 cm from each other the permittivity of air and the dielectric constant of water are ϵ_0 and K respectively When a piece of salt is placed in water then the force between Na^+ and Cl^- ions separated by a distance of 1 cm will be	A. F B. FK/ϵ C. $F/K\epsilon$ D. F/K
4	A bullet is shot from a rifle. As a result the rifle recoils, The kinetic energy of rifle as compared to that of bullet is	A. Less B. Greater C. Equal D. Cannot be concluded
5	In an L-R circuit time constant is that time in which current grows from zero to the value	A. 0.63 I B. $0.50 I$ C. $0.73 I$ D. I
6	Two forces are acting together on an object. The magnitude of their resultant is minimum when the angle between the force is.	A. 0° B. 60° C. 120° D. 180°
7	Steel is preferred for making springs over copper. Why?	A. Steel is cheaper B. Young's modulus of steel is more than that of copper C. Young's modulus of copper is more than that of steel D. Steel is less likely to be oxidized
8	A charge Q is divided into two parts q and Q - q and separated by a distance R. the force of repulsion between them will be maximum when:	A. $q = Q/4$ B. $q = Q/2$ C. $q = Q$ D. None of these
9	Copper and germanium are cooled to 70 K from room temperature then	A. Resistance of copper increases while that of germanium decreases B. Resistance of copper decreases while that of germanium increases C. Resistance of both decreases D. Resistance of both increases
10	Which of the following is not thermo dynamical function?	A. Enthalpy B. Work done C. Gibb's energy D. Internal energy
11	To make the frequency double of an oscillator we have to	A. Double the mass B. Half the mass C. Quadruple the mass D. Reduce the mass to one-fourth
12	When sound waves travel from air to water which of these remains constant?	A. Velocity B. Frequency C. Wavelength D. All the above
13	For obtaining appreciable extension the wire should be	A. Short and thin B. Long and thin C. Short and thick D. Long and thick

14	There are discrete energy levels in atoms. It was first experimentally demonstrated by	A. Rutherford's experiment B. Frank Hertz experiment C. Marsden's experiment D. Sommerfeld experiment
15	The primary winding of transformer has 500 turns whereas its secondary has 5000 turns The primary is connected to an a.c supply of 20 V, 50 Hz The secondary will have an output of	A. 200 V, 50 Hz B. 2 V, 50 Hz C. 200 V, 500 Hz
16	According to the Hooke's law the force required to change the length of a wire by '1' is proportional to	A. 1^2 B. 1^{-1} C. 1 D. 1^2
17	A couple produces	A. Purely linear motion B. Purely rotational motion C. Linear and rotational motion D. No motion
18	Which of the following lists of physical quantities consists only of vectors:	A. Time, temperature, velocity B. Force, volume, momentum C. Velocity, acceleration, mass D. Force, acceleration, velocity
19	In which of the following states does the incandescent substance give continuous spectrum?	A. Vapours in atomic state B. Vapours in molecular state C. Solid or fluid in bulk state D. Solid or fluid in plasma state
20	A sun rise or sun set, the sun looks reddish because.	A. The sun is coldest at these times B. Of the effects of reflection and refraction C. The sun is hottest at these times D. Of the scattering of light