NAT II Physical Science Physics

Sr	Questions	Answers Choice
1	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
2	To get a resultant displacement of 10 m, two displacement vectors of magnitude 6 m and 8 m should be combined	A. Parallel B. Antiparallel C. At angle 60° D. Perpendicular to each other
3	According to the Hooke's law the force required to change the length of a wire by 'l' is proportional to	A. l⁻² B. l⁻¹ C. l D. l²
4	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. 200V, 50 Hz B. 2V, 50 Hz C. 200V, 500 Hz D. 2V, 5 Hz
5	Light appears to travel in straight lines since	A. It is not absorbed by the atmosphere B. It is reflected by the atmosphere C. Its wavelength is very small D. Its velocity is very large
6	When the length of a microscope tube increases, its magnifying power	A. Decreases B. Increases C. May increases or decreases depending on the observer and the place of observation D. Does not change
7	Which of the following is the only vector quantity?	A. Temperature B. Energy C. Power D. Momentum
8	What remains constant when the earth revolves around the sun?	A. Angular momentum B. Linear momentum C. Angular kinetic energy D. Linear kinetic energy
9	If tube length of astronomical telescope is 105 cm and magnifying power is 20 for normal setting. Calculate the focal length of objective	A. 100 cm B. 10 cm C. 20 cm D. 25 cm
10	With the increase of temperature viscosity	A. Increase B. Decrease C. Remains same D. Doubles
11	In a simple harmonic motion (SHM), which of the following does not hold?	A. To force on the particle is maximum at the ends B. The acceleration in minimum at the mean position C. The potential energy is maximum at the mean position D. The kinetic energy is maximum at the mean position
12	The part of a transistor which is heavily doped to produce large number of majority carriers is	A. Emitter B. Base C. Collector D. Any of the above depending on nature of transistor
13	A 2 kg body and a 3 kg body have equal momentum. If the kinetic energy of 3 kg body is 10 J, the KE of 2 kg body will be	A. 6.66 J B. 15 J C. 22.5 J D. 45 J

14	The essential distinction between X-rays andγ-rays is that	A. γ-rays have smaller wavelength than X-rays B. γ-rays emanate from nucleus while X-rays emanate from outer part of the atom C. γ-rays have greater ionizing power than X-rays D. γ-rays are more penetrating than X-rays
15	The mass defect for the nucleus of helium is 0.0303 a.m.u. What is the binding energy per nucleon for helium in MeV?	A. 28 B. 7 C. 4 D. 1
16	A couple produces	A. Purely linear motion B. Purely rotational motion C. Linear and rotational motion D. No motion
17	At 0°K which of the following properties of a gas will be zero?	A. Kinetic energy B. Potential energy C. Vibrational energy D. Density
18	A body moves a distance of 10 m along a straight line under the action of a force of 5 Newton's. If the work done is 25 joules, the angle which the force takes with the direction of motion of the body is:	A. 0° B. 30° C. 60° D. 90°
19	A 220 V, 50 Hz. A.C. source is connected to an inductance of 0.2 H and a resistance of 20 ohm in series. What is the current in the circuit?	A. 10 A B. 5 A C. 33.3 A D. 3.33 A
20	Choose the correct statement	A. Both an ammeter and voltmeter should have small resistance B. Both an ammeter and a voltmeter should have large resistance C. An ammeter should have large resistance and a voltmeter should have small resistance D. An ammeter should have small resistance and a voltmeter should have large resistance