NAT II Physical Science Physics

Sr	Questions	Answers Choice
1	If the period of oscillation of mass (M) suspended from a spring is 2s, then the period of mass 4M will be	A. 1 s B. 2 s C. 3 s D. 4 s
2	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
3	The excess (equal in number) of electrons that must be placed on each of two small spheres spaced 3 cm apart, with force of repulsion between the spheres to be 10^{-19}N, is	A. 25 B. 225 C. 625 D. 1250
4	A point charge Q is placed at the mid-point of a line joining two charges, 4q and q. If the net force on charge q is zero, then Q must be equal to	A. -q B. +q C. -2q D. +4q
5	The direction of induced current is such that it opposes the very cause that has produced it. This is the law of	A. Lenz B. Faraday C. Kirchoff D. Fleming
6	A photocell with a constant p.d. of V volt across it illuminated by a point source from a distance of 25 cm. When the source is moved to a distance of 1m, the electrons emitted by the photocell	A. Carry 1/4th their previous energy B. Are 1/16th as numerous as before C. Are 1/4th as numerous as before D. Carry 1/4th their previous momentum
7	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
8	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
9	In a Millikan's oil drop experiment the charge on an oil drop is calculated to be 6.35 x 10^{-19}C. The number of excess electrons on the drop is	A. 3.9 B. 4 C. 4.2 D. 6
10	A p-n junction has a thickness of the order of:	A. 1 cm B. 1 mm C. 10⁻⁶cm D. 10⁻¹²cm
11	When a hydrogen atom is bombarded, the atom is excited to the n = 4 state of hydrogen atom. The energy released when the atom falls from n = 4 state to the ground state is	A. 1.275 eV B. 12.75 eV C. 5 eV D. 8 eV
		A. 0° B. 60<b style="color: rgb(34, 34, 34);

12	The angle between rectangular components of a vector is	font-family: arial, sans-serif; font-size: 16px;">° C. 90° D. 120°
13	A wire is stretched to double of its length. The strain is	A. 2 B. 1 C. zero D. 0.5
14	To explain his theory Bohr used	A. Conservation of linear momentum B. Conservation of angular momentum C. Conservation of quantum frequency D. Conservation of energy
15	A force of 10N is acting along y-axis. Its component along x-axis is	A. 10N B. 20N C. 100N D. Zero N
16	In a simple harmonic motion the kinetic energy (KE) and the potential energy (PE), are such that throughout the motion	A. KE remains constant B. PE remains constant C. KE/PE is constant D. KE+PE remains constant
17	The half-life of a radio-isotope is 5 years. The fraction of atoms decayed in this substance after 15 years will be	A. 1 B. 3/4 C. 7/8 D. 5/8
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	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	Two point charges A and B separated by a distance R attract each other with a force of 12 x 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