NAT II Physical Science Physics

Sr	Questions	Answers Choice
1	The percentage errors in the measurements of mass and speed are 2% and 3% respectively. How much will be the maximum error in the estimate of the kinetic energy obtained by measuring mass and speed	A. 11% B. 8% C. 5% D. 1%
2	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
3	At constant volume temperature is increased. Then	A. Collision on walls will be less B. Number of collisions per unit time will increase C. Collisions will be in straight lines D. Collisions will not change
4	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
5	The number of translation degrees of freedom for a diatomic gas is	A. 2 B. 3 C. 5 D. 6
6	The dimensional formula of torque is:	A. [ML²T⁻²] B. {MLT⁻²] C. [ML⁻¹T⁻²] D. [ML⁻²T⁻²]
7	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
8	In an A.C. circuit, a resistance of R ohm is connected in series with an inductance L. If phase angle between voltage and current be 45°, the value of inductive reactance will be	A. R/4 B. R/2 C. R D. Cannot be found with the given data
9	The smooth or steady stream-line flow is know as	A. Laminar flow B. Turbulent flow C. Both a and b D. None of the above
10	When n-type of semiconductor is heated	A. Number of electrons increases while that of holes decreases B. Number of holes increases while that of electron decreases C. Number of electrons and holes remains same D. Number of electrons and holes increases equally
11	A photoelectric cell coverts	A. Electrical energy to light energy B. Light energy to light energy C. Light energy to electrical energy D. Light energy to elastic energy
12	A wire is stretched to double of its length. The strain is	A. 2 B. 1 C. zero D. 0.5
13	When light wavelength 300 nm (nanometer) falls on a photoelectric emitter, photoelectrons are liberated. For another emitter, however, light of 600 nm wavelength is sufficient for creating photoemission. What is the ratio of the work functions of the two emitters?	A. 1 : 2 B. 2 : 1 C. 4 : 1 D. 1 : 4
		A. Proton

14	Which of the following particles would experience the largest magnetic force when projected with the same velocity perpendicular to a magnetic field?	B. Electron C. He⁺ D. Li⁺
15	The time period of a simple pendulum is 2 seconds. If its length is increased by 4 times, then its period becomes	A. 16 s B. 12 s C. 8 s D. 4 s
16	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
17	Mechanical waves on the surfaces of a liquid are	A. Transverse B. Longitudinal C. Torsional D. both transverse and longitudinal
18	If the dot product of two non-zero vectors vanishes, the vectors will be	A. In the same direction B. Opposite to each other C. Perpendicular to each other D. Zero
19	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
20	To increase the magnification of a telescope	A. The objective lens should be of large focal length and eyepiece should be of short focal length B. The objective and eyepiece both should be of large focal lengths C. Both the objective and eyepiece should be of smaller lengths D. The objective should be small focal length and eyepiece should be of large focal length