

NAT I Engineering Physics

Sr	Questions	Answers Choice
1	Two masses of 1 g and 4 g are moving with equal kinetic energies The ratio of the magnitudes of their linear moments is:	A. 4:1 B. √2:1 C. 1:2 D. 1:16
2	What is the average energy of N molecules of monoatomic gas?	A. 1/2 NkT B. NkT C. 3/2 NkT D. 5/2 NkT
3	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
4	Two sources of sound are said to be coherent if	A. They produce sounds of equal intensity B. They produce sounds of equal frequency C. They produce sound waves vibrating with the same phase D. They produce sound waves with zero or constant phase difference all instant of time
5	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
6	At a certain instant a stationary transverse wave is found to have maximum kinetic energy the appearance of string of that instant is:	A. Sinusoidal shape with amplitude A/3 B. Sinusoidal shape with amplitude A/2 C. Sinusoidal shape with amplitude A D. Straight line
7	The contrast in the fringes in any interference pattern depends on	A. Fringe width B. Intensity ratio of the sources C. Distance between the slits D. Wavelength
8	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
9	Boyle's law is applicable in	A. Isochoric process B. Isothermal process C. Isobaric process D. Isotonic process
10	Relation between pressure (P) and energy (E) of a gas is	A. P = 2/3 E B. P = 1/3 E C. P = 3/2 E D. P = 3 E
11	Which one of the following phenomena is not explained by Huygen's construction of wavefront?	A. Refraction B. Reflection C. Diffraction D. Origin of spectra
12	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
13	Absolute temperature can be calculated by	A. Mean square velocity B. Motion of the molecule C. Both (A) and (B) D. None of these
14	The number of translation degrees of freedom for a diatomic gas is	A. 2 B. 3 C. 5

		D. 6
5	The temperature at which the speed of sound becomes double as was at 27°C is	A. 273°C B. 0°C C. 927°C D. 1027°C
6	As the electron in Bohr orbit of hydrogen atom passes from stat $n=2$ to $n=1$ the kinetic energy K and potential energy U change as	A. K two-fold,U also two-fold B. K four-fold,U also four-fold C. K four-fold,U two-fold
7	In case of p-n junction diode at high value of reverse bias the current rises sharply The value of reverse bias is known as	A. Cut off voltage B. Zener voltage C. Inverse voltage D. Critical voltage
	The average power dissipation in a pure capacitor in AC circuit is	A. 1/2 CV ² B. CV ² C. 2CV ² D. Zero
9	Quantity that remains unchanged in a transformer is	A. Voltage B. Current C. Frequency D. None of these
)	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