

## NAT I Engineering Physics

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Sr	Questions	Answers Choice
1	When a Na ion and a CI 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 <sub>0</sub> and K respectively When a piece of salt is placed in water then the force between Na <sup>+</sup> and CΓ ions separated by a distance of 1 cm will be	A. F B. FK/ε <sub>0</sub> C. F/Kε <sub>0</sub> D. F/K
2	Two point charges placed at distance of 20 cm in air repel each other with a certain force. When a dielectric slab of thickness 8 cm and dielectric constant K is introduced between these point charges force of interaction becomes half of its previous value Then K is approximately.	A. 2 B. 4 C. √2 D. 1
3	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	Aq B. +q C2q D. +4q
4	In a Millikan's oil drop experiment the charge on an oil drop is calculated to be $6.35 \times 10$ -19 C. The number of excess electrons on the drop is	A. 3.9 B. 4 C. 4.2 D. 6
5	Two point charge +3 $\mu$ C and +8 $\mu$ C repel each other with a force of 40 N. if a charge of -5 $\mu$ C is added to each of them then the force between will become	A10N B. +10N C. +20N D20N
6	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
7	What is the ratio of r.m.s velocity for O <sub>2</sub> to H <sub>2</sub> ?	A. 1/4 B. 4 C. √4 : 1 D. 1 : √4
8	At 0° K which of the following properties of a gas will be zero?	A. Kinetic energy B. Potential energy C. Vibrational enegy D. Density
9	The product of the pressure and volume of an ideal gas is	A. A constant B. Approximately equal to the universal gas constant C. Directly Proportional to its temperature D. Inversely proportional to its temperature
10	Boyle's law is applicable in	A. Isochoric process B. Isothermal process C. Isobaric process D. Isotonic process