

NAT I Medical Physics

| Sr | Questions | Answers Choice |
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| 1 | Two points charges A and B separated by a distance R attract each other with a force of 12×10^{-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 |
| 2 | A particle is moving in a uniform magnetic field then | A. Its momentum changes but total energy remains the same B. Both momentum and total energy remains the same C. Both changes D. Total energy change but momentum remains |
| 3 | 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 |
| 4 | A 220 V, 50 Hz, AC 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 |
| 5 | 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 |
| 6 | A ten-ohm electric heater operates on a 110 V line Calculate the rate at which it develops heat in watts: | A. 1310 W B. 670 W C. 810 W D. 1210 W |
| 7 | A couple produces | A. Purely linear motion B. Purely rotational motion C. Linear and rotational motion D. No motion |
| 8 | Quantity that remains unchanged in a transformer is | A. Voltage B. Current C. Frequency D. None of these |
| 9 | Who explained the origin of the Fraunhofer lines? | A. Fraunhofer B. Kirchhoff C. Fresnel D. Snell |
| 10 | When we apply reverse bias to a junction diode it | A. Lowers the potential barrier B. Raises the potential barrier C. Increase the majority carrier current D. Decrease the majority carrier current |
| 11 | The frequency of the incident light falling on a photosensitive metal plate is doubled the kinetic energy of the emitted photoelectrons is | A. Double the earlier value B. Unchanged C. More than doubled D. Less than doubled |
| 12 | The percentage errors in the measurements of mass and speed are 2% and 3% respectively. How much estimate of the kinetic energy obtained by measuring mass and speed | A. 11% B. 8% C. 5% D. 1% |
| 13 | 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 |
| 14 | To make the frequency double of na oscillator we have to | A. Double the mass B. Half the mass C. Quadruple the mass D. Reduce the mass to one-fourth |

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| 15 | In LCR series AC circuit the phase angle between current and voltage is | A. Any angle between 0 and $\pi/2$ B. $\pi/2$ C. π D. Any angle between 0 and $\pi/2$ |
| 16 | Mechanical waves on the surface of a liquid are | A. Transverse B. Longitudinal C. Torsional D. Both transverse and longitudinal |
| 17 | The conductivity of a superconductor is | A. Infinite B. Very large C. Very small D. Zero |
| 18 | Which of the following is equal to: joule x ohm / volt x second ? | A. Ampere B. Volt C. Watt D. Tesla |
| 19 | Which of the following is a scalar quantity | A. Density B. Displacement C. Torque D. Weight |
| 20 | Bernoulli's equation is based upon law of conservation | A. Mass B. Momentum C. Energy D. None of these |