# Physics General Science Test Hard Mode

| Sr | Questions | Answers Choice |
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| 1 | Copper and germanium are cooled to 70 K from room temperature then | A. Resistance of copper increases while that of germanium decreases<br>B. Resistance of copper decreases while that of germanium increases<br>C. Resistance of both decreases<br>D. Resistance of both increases |
| 2 | A p-n junction has a thickness of the order of | A. 1 cm<br>B. 1 mm<br>C. 10<sup>-6</sup> cm<br>D. 10<sup>-12</sup> cm |
| 3 | When a Na ion and a Cl 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 $\varepsilon_0$ and K respectively When a piece of salt is placed in water then the force between $Na^+$ and $Cl^-$ ions separated by a distance of 1 cm will be | A. F<br>B. FK/ε<sub>0</sub><br>C. F/Kε<sub>0</sub><br>D. F/K |
| 4 | If the metal bob is a simple pendulum is replaced by a wooden bob, then its time period will | A. Increase<br>B. Decreases<br>C. Remain the same<br>D. First 'A' then 'B' |
| 5 | If yellow light emitted by sodium lamp in Young's double slit experiment is replaced by monochromatic blue light of the same intensity | A. Fringe width will decrease<br>B. Fringe width will increase<br>C. The fringe width will remain unchanged<br>D. Fringes will become less intense |
| 6 | 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<br>B. 7<br>C. 4<br>D. 1 |
| 7 | The acceleration 'a' in $m/s^2$ of a particle is given by $a = 3t^2 + 2t + 2$,where 't' is the time if the particle starts out with a velocity v = 2 m/s at t = 0, then the velocity at the end of 2 second is | A. 12 m/s<br>B. 24 m/s<br>C. 18 m/s<br>D. 36 m/s |
| 8 | What remains constant when the earth revolves around the sun? | A. Angular momentum<br>B. Linear momentum<br>C. Angular kinetic energy<br>D. Linear kinetic energy |
| 9 | In LCR series AC circuit the phase angle between current and voltage is | A. Any angle between 0 and  ±π/2<br>B. π/2<br>C. π<br>D. Any angle between 0 and π/2 |
| 10 | The velocity v of a particle at time t is given by:<br>$v = at + b / t + c$<br>The dimensional formula of a,b and c care respectively: | A. L<sup>2</sup> ; T and LT<sup>2</sup><br>B. LT<sup>2</sup> ; LT and L<br>C. LT<sup>-2</sup>; L and T<br>D. L;LT and T<sup>-2</sup> |
| 11 | When n-type of semiconductor is heated | A. Number of electrons increases while that of holes decreases<br>B. Number of holes increases while that of electrons decreases<br>C. Number of electrons and holes remains same<br>D. Number of electrons and holes increases equally |
| 12 | 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<br>B. 12.75 eV<br>C. 5 eV |

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| | | D. 8 eV |
| 13 | The structure of solids is investigated by using | A. Cosmic Rays<br>B. X-rays<br>C. Intra red Radiation<br>D. y-rays |
| 14 | A conducting wire is drawn to double its length Final resistivity of the material will be | A. Double of the original one<br>B. Half of the original one<br>C. One-fourth of the original one<br>D. Same as original one |
| 15 | Which of the following sources give discrete emission spectrum? | A. Incandescent electric bulb<br>B. Sun<br>C. Mercury vapour lamp<br>D. Candle |
| 16 | A motorist travels A to B at a speed at 40 km/h and returns at speed of 60 km/h. His average speed will be: | A. 40 km/h<br>B. 48 km/h<br>C. 50 km/h<br>D. 60 km/h |
| 17 | If the earth were to rotate faster than its present speed the weight of an object will | A. Increase at the equator but remain unchanged at the poles<br>B. Decrease at the equator but remain unchanged at the poles<br>C. Remain unchanged at the decrease but decrease at the poles<br>D. Remain unchanged at the equator but increase at the poles |
| 18 | The unit of inductance is equivalent to | A. V x s/A<br>B. V x A/s<br>C. A x s/v<br>D. V/A x s |
| 19 | Two points 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<br>B. 19.2 N<br>C. 12 N<br>D. 0.192 N |
| 20 | A photoelectric cell converts | A. Electrical energy to light energy<br>B. Light energy to light energy<br>C. Light energy to electrical energy<br>D. Light energy to elastic energy |