# MDCAT Physics Online Test

| Sr | Questions | Answers Choice |
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| 1 | Avogadro number is known as number of molecules in: | A. One kg of a substance<br>B. Unit volume of a substance<br>C. One mole of a substance<br>D. None of these |
| 2 | The nature of thermal radiation is smaller to: | A. Ultraviolet rays<br>B. Light rays<br>C. Both of them<br>D. None of these |
| 3 | In which process the change in internal energy of the system is zero: | A. Isochoric process<br>B. Isobaric process<br>C. Adiabatic process<br>D. Isothermal process |
| 4 | Carnot cycle is: | A. Reversible<br>B. Irreversible<br>C. Sometimes A, Sometimes B<br>D. None of these |
| 5 | The efficiency of a particle heat engine: | A. can be 100%<br>B. Cannot be 100%<br>C. Is always zero<br>D. None of these |
| 6 | Number of spark plugs needed in diesel engine is: | A. Four<br>B. Five<br>C. Six<br>D. None of these |
| 7 | No entropy change is associated with: | A. Isothermal<br>B. Adiabatic process<br>C. Isobaric process<br>D. None of them |
| 8 | Only those processes are probable to take place for which entropy os the system: | A. Increases<br>B. Remains constant<br>C. Both A and B are correct<br>D. None of above |
| 9 | When heat is added to the system, the entropy change is: | A. Positive<br>B. Negative<br>C. Zero<br>D. None of these |
| 10 | Hotness and coldness of an object is represented in terms of: | A. Heat<br>B. Temperature<br>C. Chemicial<br>D. None of these |
| 11 | Absolute zero is considered as that temperature at which: | A. All liquids become gases<br>B. All gases become liquids<br>C. Water freezes<br>D. None of these |
| 12 | When two objects come to common temperature, the body is said to be in: | A. Static equilibrium<br>B. Dynamic equilibrium<br>C. Thermal equilibrium<br>D. None of these |
| 13 | A gas which strictly obeys the gas laws under all conditions of temperatures and pressure is called: | A. Ideal gas<br>B. Inert gas<br>C. Real gas<br>D. None of these |
| 14 | Real gases strictly obey gas laws at: | A. High pressures and low temperatures<br>B. Low pressures and high temperatures<br>C. High pressures and & temperatures<br>D. None of these |
| | | A. Double |

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| 15 | At constant temperature, if the volume of a given mass of a gas is doubled, then the density of gas becomes: | B. Remains constant<br>C. Half<br>D. None of these |
| 16 | The only significant motion possessed by the mono-atomic gas molecules is: | A. Translatory<br>B. Rotatory<br>C. Vibratory<br>D. None of these |
| 17 | In the theory of dimensional analysis, heat may be properly represented by: | A. ML<sup>2</sup>T<sup>-2</sup><br>B. MT<sup>-2</sup><br>C. ML<sup>-1</sup>T<sup>-1</sup><br>D. None of these |
| 18 | The temperature scale approved in SI units is: | A. Calslus scale<br>B. Kelvin scale<br>C. Fehrenhelt scale<br>D. None of these |
| 19 | Which of the following does not have the same units: | A. Work<br>B. Heat<br>C. Kinetic energy<br>D. Power |
| 20 | In an ideal gas, the molecules have: | A. Kinetic energy only<br>B. Potential energy only<br>C. Both KE and PE<br>D. None of these |
| 21 | The motion of molecules in gases i: | A. Orderly<br>B. Random<br>C. Circular<br>D. All of these |
| 22 | At constant temperature, if the density of the gas is increased, its pressure will: | A. Decrease<br>B. Increase<br>C. Remain unchanged<br>D. None of these |
| 23 | The relationship between Boltzmann constant K with R and $N_A$is given as: | A. k = RN<sub>A</sub><br>B. k = R/N<sub>A</sub><br>C. k = NR/N<sub>A</sub><br>D. None of these |
| 24 | The nature of thermal radiation is similar to: | A. Ultraviolet rays<br>B. Light rays<br>C. Both of them<br>D. None of them |
| 25 | Electromagnetic waves emitted by hot bodies are called: | A. Photoelectrons<br>B. Alpha rats<br>C. Thermal radiation<br>D. None of these |
| 26 | Truth of kinetic energy theory is confirmed by: | A. Diffusion of gases<br>B. Brownian motion<br>C. Both A and B<br>D. None of these |
| 27 | Pressure may be defined as_____per second per unit area: | A. Change in force<br>B. Change in momentum<br>C. Change in energy<br>D. Work done |
| 28 | If a molecule with momentum mv strikes a wall and rebound then the change in momentum will be: | A. -2 mv<br>B. Zero<br>C. 2 mv<br>D. mv |
| 29 | The rate of change of momentum of a molecule is equal to: | A. Pressure<br>B. Work<br>C. Density<br>D. Force |
| 30 | Change in momentum per second is: | A. Product force and time<br>B. Product of pressure and area<br>C. Ratio of pressure and area<br>D. None of these |
| 31 | The pressure exerted on the walls on the vessel by gas molecules is defined as: | A. Force per unit volume<br>B. Energy per unit area<br>C. mass per unit volume<br>D. None of these |
| 32 | According to boyle's law, volume of a given mass of a gas is | A. Inversely proportional mass at constant pressure<br>B. Directly proportional to pressure at constant temprerature<br>C. Inversely proportional pressure at |

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| | | constant temprature<br>D. None of these |
| 33 | Brownian motion confirms the truth of : | A. Wave theory of light<br>B. Boyle's law<br>C. Kinetic theory of gases<br>D. Adiabatic process |
| 34 | The number of molecules in one mole of gas is equal to: | A. Avogadro number N<sub>A</sub><br>B. Gas constant R<br>C. Boltzmann constant k<br>D. None of these |
| 35 | The temperature at which all the gases become liquid is called: | A. 273 K<br>B. -273 K<br>C. Absolute Zero<br>D. Both (B) and (C) |
| 36 | For a gas obeying Boyle's law, if the pressure is doubled the volume becomes: | A. One half<br>B. Double<br>C. Four times<br>D. None of these |
| 37 | Thermal radiations are a type of: | A. Mechanical waves<br>B. Electromagnetic waves<br>C. Alpha rays<br>D. Electrons |
| 38 | The ideal gas obey gas law at: | A. Low tempratures and high pressures<br>B. High temperatures and low pressures<br>C. All temperatures and pressures<br>D. None of these |
| 39 | When a gas is compressed: | A. Its internal energy decreases<br>B. Its temperature decreases<br>C. Its temperature increases<br>D. None of these |
| 40 | In thermodynamics, the change in internal energy depends upon: | A. The path taken between initial and final states<br>B. The initial state only<br>C. The final state only<br>D. Initial and final states |
| 41 | First law of thermodynamics is merely a statement of law of conversation of: | A. Energy<br>B. Angular momentum<br>C. Change<br>D. Linear momentum |
| 42 | In which process, the change in internal energy of the system of zero: | A. Isochoric process<br>B. isobaric process<br>C. Adiabatic process<br>D. Isothermal process |
| 43 | Tick which of the following is not state variable: | A. Heat energy<br>B. Pressure<br>C. Entropy<br>D. Volume |
| 44 | If P is the pressure and V is the volume, Then PV will represent: | A. Power<br>B. Work<br>C. Force<br>D. None of these |
| 45 | While dealing with the processes i thermodynamics, the working substances is usually: | A. Oxygen gas<br>B. Hydrogen gas<br>C. Ideal gas<br>D. None of these |
| 46 | The value of universal gas constant R is: | A. 8.314 J/K mole K<br>B. 8314 J/ mole K<br>C. 8.314 J/ mole K<br>D. None of these |
| 47 | The equation W = _____ U represents: | A. Thermal process<br>B. adiabatic process<br>C. Isobaric process<br>D. None of these |
| 48 | A process which is carried at constant temperature and Boyle's law can be applied is called: | A. Adiabatic process<br>B. Isothermal process<br>C. Isochoric process<br>D. None of these |
| 49 | The equation PVr = Constant applies to: | A. Isothermal process<br>B. Adiabatic process<br>C. Isobaric process<br>D. None of these |

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| | | D. None of these |
| 50 | A process in which no heat enters or leaves the system is called. | A. Adiabatic process<br>B. Isothermal process<br>C. Isochoric process<br>D. None of these |
| 51 | If $C_v$ denotes molar specific heat at constant volume and $\Delta T$ is the change in temperature, then $C_v \Delta T$ gives: | A. Volume<br>B. Pressure<br>C. Energy<br>D. Entropy |
| 52 | If the temperature difference between hot and cold body is greater the heat engine is: | A. Not efficient<br>B. Less efficient<br>C. More efficient<br>D. NOne of above |
| 53 | Steam engine is: | A. An optical system<br>B. A thermal system<br>C. A thermodynamic system<br>D. None of these |
| 54 | The law of thermodynamics which discusses the condition under which heat energy is converted into and equivalent amount of work is: | A. 1st<br>B. 2nd<br>C. 3rd<br>D. None of these |
| 55 | As the working substance of a heat engine completes a cycle, there is no change in: | A. Internal energy<br>B. Pressure<br>C. Volume<br>D. All of these |
| 56 | The ratio of output work per cycle to input energy per cycle is called: | A. Entropy<br>B. Internal energy<br>C. Efficiency<br>D. None of these |
| 57 | What will be efficiency of carnot engine when it is operated between the temperatures $47^oC$ and $127\ ^oC$: | A. Reversible<br>B. Irreversible<br>C. Sometimes A and B<br>D. None of these |
| 58 | If temperature of the sink is decreased, efficiency of a carnot engine. | A. Remains constant<br>B. Decreases<br>C. Increases<br>D. None of these |
| 59 | Carnot engine is _____ heat engine. | A. A reversible<br>B. An irreversible<br>C. An ideal<br>D. Both A and C |
| 60 | The efficiency of a practical heat engine: | A. Can be 100%<br>B. Can not be 100%<br>C. Is always Zero<br>D. None of these |
| 61 | One degree of thermodynamics scale of temperature is called: | A. Celsius<br>B. Fahrenheit<br>C. Kelvin<br>D. Radian |
| 62 | Petrol engine coverts _____ of available heat energy into work. | A. 20% to 25%<br>B. 25% to 30%<br>C. 30% to 35%<br>D. 35% to 40% |
| 63 | Diesel engine coverts _____ of available heat energy into work. | A. 20% to 25%<br>B. 25% to 30%<br>C. 30% to 35%<br>D. 35% to 40% |
| 64 | A certain engine coverts 20% of available heat energy into work. Then its efficiency will be: | A. 20%<br>B. 80%<br>C. 50%<br>D. None of these |
| 65 | No of spark plugs needed in diesel engine is: | A. Four<br>B. Five<br>C. Six<br>D. None of these |
| 66 | Most motorbikes have _____ cylinder/s engine but cars usually have _____ cylinders on the same crankshaft. | A. Four , Six<br>B. One , four<br>C. two , five<br>D. None of these |
| 67 | The distance covered by a body in time 't' starting from rest is: | A. 1/2 <sup>2</sup><br>B. vt |

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| | | C. □□<sup>2</sup><br>D. □□<sub>2</sub> |
| 68 | A particle executing one dimensional motion, finally comes to rest, what will be the angle between<br>acceleration and displacement during motion: | A. 0<br>B. π<br>C. □/2 <br>D. □/4 |
| 69 | A particle executing one dimensional motion, finally comes to rest, what will be the angle between acceleration and displacement during motion: | A. 0<br>B. π<br>C. □/2 <br>D. □/4 |
| 70 | A machine gun fires 'n' bullets per second and the mass of each bullet is m. If v is the speed of each bullet then the force exerted on the machine gun is: | A. mng<br>B. mnv<br>C. mnvg<br>D. mnv/g |
| 71 | Two projectiles 'A' and 'B' are thrown with same speed but at angle of 40 degree and 50 degree with the horizontal. The horizontal range of 'A' will be: | A. Equal to that of 'B'<br>B. Greater than that of 'B'<br>C. Less than that of 'B'<br>D. 4/5times that of 'B' |
| 72 | In the absence of air resistance, a stone is thrown from P and follows a parabolic path in which the highest point reached is T. The vertical component of acceleration of stone is: | A. Zero at T<br>B. Greatest at T<br>C. ) Greatest at P<br>D. the same at P as at T |
| 73 | A ball takes 't' second to fall from a height □□ and '2t' second to fall from a height □□ then h1/h2 is: | A. 2<br>B. 4<br>C. 0.5<br>D. 0.25 |
| 74 | If the range of a projectile is R, the potential energy will be maximum after the projectile has covered (from start) distance equal to: | A. R/2<br>B. R/4<br>C. R<br>D. R/9 |
| 75 | Vertical component of velocity of the projectile at any instant 't' from the ground is given by: | A. □□□□□□<br>B. □□□□□□ − □t<br>C. □□□□□□ − □t<br>D. □□□□□□ + □t |
| 76 | Newton's third law concerns the forces of interaction between two bodies. Which of the following statement relating to the third law is not correct: | A. The two forces must be the same type<br>B. The two forces must act on different bodies<br>C. The two forces are always opposite in direction<br>D. The two forces are equal and opposite so the bodies are in equilibrium |
| 77 | Two bodies are projected at angle □ □□□ (□□ − □) to the horizontal with the same speed. The ratio of their times of flight is: | A. sin □ : 1<br>B. cos □ : 1<br>C. sin □ : cos□<br>D. cos □ : sin□ |
| 78 | A stone is thrown upwards it returns to ground describing a parabolic path which of the following remains constant: | A. Speed of the ball<br>B. Kinetic energy of the ball<br>C. Vertical component of velocity<br>D. ) Horizontal component of velocity |
| 79 | The time of flight of a projectile is maximum when angle of projection is: | A. 30 Degree<br>B. 45Degree<br>C. 60Degree<br>D. 90Degree |
| 80 | A body of mass m having an initial velocity v, makes head on elastic collision with a stationary body of mass m. After the collision, the body of mass m comes to rest and only the body having mass M moves. This will happen only when: | A. m>>M<br>B. m<<M<br>C. ) m=M<br>D. m=1M |
| 81 | In a one-dimensional elastic collision, the relative velocity of approach before collision is equal to: | A. Sum of the velocities of the bodies<br>B. e times the relative velocity of separation after collision<br>C. 1⁄□ times the relative velocity of separation after collision<br>D. relative velocity of separation after collision |
| 82 | What is the resultant force in the diagram shown? | A. Zero<br>B. 6N to left<br>C. 6N to right<br>D. 11N to right |
| 83 | A rigid uniform bar of length 2.4 m is pivoted horizontally at its mid-point, weights are hung from two points of the bar as shown in diagram. To maintain horizontal equilibrium, a couple | A. 40 N m clockwise<br>B. 40 N m anti-clockwise |

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| | is applied to the bar: What is the torque and the direction of couple? | C. 80 N m clockwise<br>D. 80 N m anti-clockwise |
| 84 | Two 8 N forces act on each end of the beam of length 0.60m. Two forces are parallel and acting opposite to each other, the angle between the force and beam is 60o , what is the torque of the couple exerted on the beam: | A. 2.4 Nm<br>B. 4.2 Nm<br>C. 4.8 Nm<br>D. 9.6 Nm |
| 85 | The rate of change of momentum of a body falling freely under gravity is equal to its | A. Impulse<br>B. Kinetic energy<br>C. Pover<br>D. Weight |
| 86 | Two railway trucks of masses m and 3m move towards each other in opposite directions with speeds 2v and v respectively. These trucks collide and stick together. What is the speed of the trucks after the collision? | A. v/4<br>B. v/2<br>C. v<br>D. 5v/4 |
| 87 | The centre of gravity of a triangular plate is at | A. On end of the plate<br>B. The midpoint of any side of the plate<br>C. The midpoint of any side of the plate<br>D. The midpoint of any side of the plate |
| 88 | A body is in translational equilibrium if | A. □P = 0<br>B. □L = 0<br>C. □F = 0<br>D. □□ = 0 |
| 89 | As in linear motion force determines linear acceleration where as in circular motion torque determines its | A. Angular acceleration<br>B. Linear acceleration<br>C. Vibratory acceleration<br>D. Tangential acceleration |
| 90 | The angular momentum of a body changes from 30 J-S to 50 J-S in 0.5 sec. The torque acting on it is | A. 40 N-m<br>B. 100 N-m<br>C. 50 N-m<br>D. 150 N-m |
| 91 | Two astronauts in a satellite must have | A. Same masses<br>B. Same real weights<br>C. Same apparent weights<br>D. None of these |
| 92 | A monkey is accelerating down a string whose breaking strength is two third of his weight. The minimumacceleration of the monkey should be | A. 1/3g<br>B. g<br>C. 2/3 g<br>D. 0 m/s2 |
| 93 | A man has weight 980 N in a stationary lift. What will be his weight if the lift starts moving up with anacceleration of 4.9 $ms^{-2}$ | A. 980 N<br>B. 1470 N<br>C. 1980 N<br>D. 1460 N |
| 94 | A boy is travelling from Lahore to Karachi with uniform velocity . Its | A. Speed changes<br>B. Acceleration changes<br>C. Direction of motion changes<br>D. Displacement from origin changes |
| 95 | A rider uses Motorcycle safety helmet that extends the time of collision during accident hence decreasing the | A. Change of collisio<br>B. Force acting<br>C. Velocity<br>D. Impulse |
| 96 | select Which one of the following is not performing projectile motion | A. A gas filled balloon<br>B. ) Bullet fired from gun<br>C. A football kicked<br>D. A baseball shot |
| 97 | . Time rate of change of momentum is equal to | A. Force<br>B. Impulse<br>C. Velocity<br>D. Both A and C |
| 98 | The angle of projection, at which the range of projectile would become half of its maximum value. | A. 45Degree<br>B. 30Degree<br>C. 15Degree<br>D. 60 Degree |
| 99 | Swimming is possible on account of | A. 1<sup>st</sup> law of motion<br>B. 2<sup>nd</sup> law of motion<br>C. 3<sup>rd</sup> law of motion<br>D. Newton's law of Gravitation |
| 100 | If a body changes its momentum from 100 N s to 200 N s in 10 s then the unbalanceexternal force responsible to change the momentum is | A. 5 N<br>B. 2.5 N<br>C. 2n |

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| | | D. 10n |
| 101 | Speedometer of an automobile measures | A. Average velocity<br>B. Instantaneous velocity<br>C. Acceleration<br>D. Instantaneous speed |
| 102 | Two bodies are projected at angles □ and (90°–□) with the horizontal at the same speed.The ratio of their maximum heights is | A. 1 : 1<br>B. 1 : tan □<br>C. 1 : tan □<br>D. tan<sup>2</sup> : 1 |
| 103 | At the highest point on the trajectory of a projectile, its | A. Potential energy is minimum<br>B. Kinetic energy is maximum<br>C. Total energy is maximum<br>D. Kinetic energy is minimum |
| 104 | If velocity time graph is a straight line parallel to time axis then body is | A. Moving with zero acceleration<br>B. Moving with constant velocity<br>C. Covering equal displacement in equal intervals of time<br>D. All of these |
| 105 | When the velocity of a body is doubled: | A. Its K.E is doubled<br>B. Its P.E is doubled<br>C. Its momentum is doubled<br>D. Its acceleration is doubled |
| 106 | The momentum of a particle is numerically equal to its K.E. What is the velocity of a particle? | A. 9 ms<sup>-1</sup><br>B. 3 ms<sup>-1</sup><br>C. 2 ms-1<br>D. 1 ms<sup>-1</sup> |
| 107 | Which of the following types of force can do no work on the particle on which it acts? | A. Frictional force<br>B. Gravitational force<br>C. Elastic force<br>D. Centripetal force |
| 108 | A body of mass 3 Kg lies on the surface on the table 2m high. It is moved on the surface by 4m. The change of P.E will be: | A. Zero<br>B. 9.8 J<br>C. 19.6 J<br>D. 329 J |
| 109 | Ratio of dimension of K.E and power is: | A. 1:1<br>B. T:1<br>C. 1:T<br>D. M:J |
| 110 | A person weighing 20 mg walks on a level platform with a speed of 2 ms-1 . The work by the person against the force of gravity is: | A. Zero<br>B. 2J<br>C. 60J<br>D. 600J |
| 111 | The gravity does no work, when the body moves: | A. Horizontally<br>B. Vertically upwards<br>C. Vertically downward<br>D. At an angle of 45o with horizontal |
| 112 | A body is dropped from a height of 20 m and rebounds to a height of 10 m. the loss of energy is: | A. 10%<br>B. 45%<br>C. 50%<br>D. 75% |
| 113 | A man pushes a wall and fails to displace it. He does: | A. Negative work<br>B. Positive but not maximum work<br>C. No work at all<br>D. Maximum work |
| 114 | The same retarding force is applied to stop a train. The train stops after 80 m. If the speed is doubled, then the Stopping distance will be: | A. The same<br>B. Doubled<br>C. Halved<br>D. Four times |
| 115 | A body moves a distance of 10 m along a straight line under the action of a force of 5 N. If the work done is 25 joules, the angle which the force makes with the direction of motion of the body is? | A. 0 Degree<br>B. 30 Degree<br>C. 60 Degree<br>D. 90 Degree |
| 116 | You lift a heavy book from the floor of the room and keep it in the book-shelf having a height 2 m. In this process you take 5 seconds. The work done by you will depend upon: | A. Mass of the book and time taken<br>B. Weight of the book and height of the book-shelf<br>C. Height of the book-shelf and time taken<br>D. Mass of the book, height of the book-shelf and time taken |
| 117 | A body of mass m kg is lifted by a man to a height of one meter in 30 sec. Another man lifts the same mass to the same height in 60 sec. The work done by them are in the ratio | A. 1: 2<br>B. 1: 1<br>C. 2: 1 |

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| | | D. 4: 1 |
| 118 | A force □ = (□□̂+ □□̂) newton is applied over a particle which displaces it from its origin to the point □ = (□□̂− □□̂) meters. The work done on the particle is: | A. – 7 joules<br>B. +13 joules<br>C. + 7 joules<br>D. +11 joules |
| 119 | The energy which an -e acquires when accelerated through a potential difference of 1 volt is called? | A. 1 Joule<br>B. 1 Electron volt<br>C. 1 Erg<br>D. 1 Watt |
| 120 | A 50 kg man with 20 kg load on his head climbs up 20 steps of 0.25 m height each. The work done in climbing is | A. 5 J<br>B. 350 J<br>C. 100 J<br>D. 3430 J |
| 121 | In an explosion a body breaks up into two pieces of unequal masses. In this: | A. Both parts will have numerically equal momentum<br>B. Lighter part will have more momentum<br>C. Heavier part will have more momentum<br>D. Both parts will have equal kinetic energy |
| 122 | Which of the following is a unit of energy? | A. unit<br>B. whatt<br>C. Horse Power<br>D. None of the above |
| 123 | Work done in raising a box depends on: | A. How fast it is raised<br>B. The strength of the man<br>C. The height by which it is raised<br>D. None of the above |
| 124 | A light and a heavy body have equal momenta. Which one has greater K.E? | A. The light body<br>B. The heavy body<br>C. The K.E are equa<br>D. Data is incomplete |
| 125 | The body at rest may have: | A. Energy<br>B. Momentum<br>C. Speed<br>D. Velocity |
| 126 | If the momentum of a body is increased n times, its kinetic energy increases: | A. n times<br>B. 2 n times<br>C. √□ times<br>D. n 2 time |
| 127 | If the K.E. of a body is increased by 300%, its momentum will increase by: | A. 100 %<br>B. 150 %<br>C. √300%<br>D. 175 % |
| 128 | Two bodies moving towards each other collide and move away in opposite directions. There is some rise in temperature of bodies because a part of the kinetic energy is converted into | A. heat energy<br>B. electrical energy<br>C. nuclear energy<br>D. mechanical energy |
| 129 | If the stone is thrown up vertically and return to ground, its potential energy is maximum | A. during the upward journey<br>B. during the upward journey<br>C. at the maximum height<br>D. at the bottom |
| 130 | The energy stored in wound watch spring is | A. K.E.<br>B. P.E.<br>C. heat energy<br>D. chemical energy |
| 131 | A motor boat is travelling with a speed of 3.0 m/sec. If the force on it due to water flow is 500 N, the power of the boat is | A. 150 KW<br>B. 1.5 KW<br>C. heat energy<br>D. chemical energy |
| 132 | An electric motor exerts a force of 40 N on a cable and pulls it by a distance of 30 m in one minute. The power supplied by the motor in watts is | A. 20<br>B. 200<br>C. 2<br>D. 10 |
| 133 | Initially, four identical uniform blocks, each of mass m and thickness h, are spread on a table How much work is done on the blocks in stacking them on top of one another? | A. 2 mgh<br>B. 3 mgh<br>C. 4mgh<br>D. 6mgh |
| 134 | When a person lifts a body from ground work done by lifting force is? | A. Positive<br>B. Negative<br>C. Zero |

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| | | C. Zero<br>D. Half of positive maximum |
| 135 | A force of 6 N act horizontally on a stationary mass of 2kg for 4s. The kineticenergy in joule is | A. 12<br>B. 72<br>C. 56<br>D. 888 |
| 136 | If the velocity of a body becomes half, the kinetic energy of body will become | A. One fourth<br>B. Double<br>C. Four times<br>D. Half |
| 137 | In a gravitational field when work done by gravity is negative then | A. P.E increases<br>B. P.E decrease<br>C. None<br>D. P.E remains same |
| 138 | Which of the following work is greater? | A. + 100J<br>B. 0 J<br>C. - 100J<br>D. Both A and B are equal |
| 139 | The time taken by an engine of power 10 kW to lift a mass of 200 kg to a heightof 40 m is (g + 10ms2) | A. 2 sec<br>B. 4 sec<br>C. 8 sec<br>D. 16sec |
| 140 | Kinetic energy of a body moving with speed of 10 ms-1 is 30 J. If its speed becomes30 ms-1 then its K.E becomes | A. 10J<br>B. 270 J<br>C. 90J<br>D. 180 J |
| 141 | . A force "F1" acts on a body through distance "S1" in the direction of motion and does work "W1". Similarly another force "F2" act on same body through distance "S2" but in opposite to the direction of motion and does work "W2". Now if F1 = F2 and S1 = S2 then which statement is correct. | A. W1 = W2<br>B. W2< W2<br>C. W1 > W2<br>D. W1 = W2= 0 |
| 142 | A body of mass m tied to a string is moved in a vertical circle of radius r. the difference in tensions at the lowest point and the highest point is. | A. 2 mg<br>B. 4 mg<br>C. 6 □g<br>D. 8 mg |
| 143 | If the radius of the circular path of particle going around the circle is doubled without changing its frequency of rotation, then centripetal force on it is. | A. doubled<br>B. halved<br>C. unchanged<br>D. quadrupled |
| 144 | What happens to the centripetal acceleration of a particle, when its speed is doubled and angular velocity is halved? | A. halved<br>B. doubled<br>C. remain unchanged<br>D. becomes four times |
| 145 | Two satellites are going around the earth at a height of 250 km and 450 km respectively. If angular speed for both is same, then centripetal acceleration will be. | A. more for first<br>B. more for second<br>C. same for both<br>D. nothing can be decided |
| 146 | A couple produces | A. linear motion<br>B. rotational motion<br>C. both (A) and (B)<br>D. None |
| 147 | The ratio of the SI unit to the C)G.S unit of torque is. | A. 10<sup>7</sup><br>B. 10<sup>9</sup><br>C. 10<sup>0</sup><br>D. 10<sup>3</sup> |
| 148 | A stone attached to one end of a string is revolved around a stick so that the string winds on the stick and gets shortened) What is conserved) | A. angular momentum<br>B. kinetic energy<br>C. linear momentum<br>D. none of the above |
| 149 | On slightly disturbing a body which is an unstable equilibrium, its center of gravity | A. rises<br>B. falls<br>C. remains constant<br>D. first rises then falls |
| 150 | Angular displacement in rotational motion is expressed in | A. m<br>B. m<sup>2</sup><br>C. Nms-1<br>D. Nm s |
| 151 | Torque is necessary for producing. | A. angular speed<br>B. linear acceleration<br>C. angular acceleration<br>D. none of these |
| | | A. joule second<br>B. joule |

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| 152 | SI unit of kinetic energy of rotation is | B. joule<br>C. joule second<br>D. joule meter |
| 153 | The kinetic energy of a body rotating with an angular speed □ depends on. | A. angular speed<br>B. distribution of mass<br>C. neither (A) nor (B)<br>D. both (A) and (B) |
| 154 | The time period of a geostationary satellite above the surface of the earth is. | A. 24 hours<br>B. 12 hours<br>C. 365 days<br>D. none of these |
| 155 | The work done to keep the satellite in the given orbit is. | A. Zero<br>B. infinity<br>C. unit<br>D. can't be decided |
| 156 | A stone of mass 0.5kg tied with a string of length 1m is moving in a horizontal circle with a speed of 4ms-1 . The tension acting on the string in newton is: | A. 2<br>B. 0.2<br>C. 8<br>D. 0.8 |
| 157 | In uniform circular motion, the factor that remains constant is: | A. Linear velocity<br>B. Acceleration<br>C. Speed<br>D. All of these |
| 158 | A point on the rim of wheel 400 cm in diameter has a velocity of 1600 cms-1 . The angular velocity of the wheel is: | A. 6 rad/s<br>B. 4 rad/s<br>C. 2 rad/s<br>D. 8 rad/s |
| 159 | The radius of orbit of a geostationary satellite depends upon: | A. Mass of satellite and its time period<br>B. Mass of satellite and mass of earth<br>C. Mass of earth, mass of satellite and time period of satellite<br>D. Mass of earth and time period of earth |
| 160 | The geostationary satellite is: | A. Stationary<br>B. Rotating very fastly<br>C. Rotating with the period of earth<br>D. Rotating very slowly |
| 161 | The ratio of angular speeds of minute hand and hour hand of a watch is: | A. 1: 12<br>B. 6: 1<br>C. 12: 1<br>D. 1: 6 |
| 162 | When a particle moves in a uniform circular motion. It has: | A. Radial velocity and radial acceleration<br>B. Tangential velocity and radial acceleration<br>C. Tangential velocity and tangential acceleration<br>D. Radial velocity and tangential acceleration |
| 163 | Which statement about geostationary orbit is false? | A. A geostationary orbit must be directly above the equator<br>B. All satellite in a geostationary orbit must have the same masses<br>C. The period of geostationary orbit must be 24 hours<br>D. There is only one possible radius for a geostationary |
| 164 | Geo stationary satellite remains | A. Stationary<br>B. Both "A" & "B"<br>C. Appear<br>D. None of them |
| 165 | A particle revolves round a circular path with a constant speed. The accelerationof the particle is | A. A. A long the circumference of the circle<br>B. Along the tangent<br>C. Along the radius<br>D. Zero |
| 166 | For a particle moving in uniform circular motion | A. Velocity is transverse and acceleration is radical<br>B. Velocity is radial and acceleration is transverse<br>C. Both velocity and acceleration are radial<br>D. Both velocity and acceleration are transverse |

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| 167 | The force which can do no work on the body on which it acts: | A. Frictional force<br>B. Elastic force<br>C. Gravitational force<br>D. Centripetal force |
| 168 | A body revolved around the sun 27 times faster then the earth what is the ratioof their radii | A. 1/27<br>B. 1/4<br>C. 1/9<br>D. 1/3 |
| 169 | A body crosses the topmost point of a vertical circle with critical speed. Itscentripetal acceleration, when the string is horizontal will be | A. 4g<br>B. 3g<br>C. g<br>D. 6g |
| 170 | For a particle in circular motion the centripetal acceleration | A. may be more or less than its tangential acceleration<br>B. equal to its tangential acceleration a<br>C. more than its tangential acceleration<br>D. less than its tangential acceleration |
| 171 | A longitudinal sinusoidal wave has wavelength of 1cm and a period of 2sec. Its wavevelocity is: | A. 50 cm/ sec<br>B. 0.5 cm/ sec<br>C. 5 m/ s<br>D. 0.005 m/ sec |
| 172 | Wavelength of the wave is the distance between the particles of the medium having adifference of: | A. Zero<br>B. n<br>C. 2n<br>D. □2 |
| 173 | If the tension in a string stretched between two fixed points is made four times, the frequency of the fundamental harmonic will become: | A. Two times<br>B. Three times<br>C. Four times<br>D. Six times |
| 174 | A wave which consists of a single, non-repetitive disturbance is called a | A. Continuous wave<br>B. Longitudinal wave<br>C. Pulse<br>D. Transverse wave |
| 175 | It is a common characteristic of all types of wave motion that | A. Particles move up and down<br>B. Particles move back and forth<br>C. Energy is transferred without the transport of particles<br>D. A material medium transmits the disturbance |
| 176 | With the propagation of longitudinal waves through a material medium, the quantitiestransferred in the direction of propagation are: | A. Energy, momentum and mass<br>B. Energy and momentum<br>C. Energy and mass<br>D. Energy |
| 177 | A 4 m long string fixed at its ends resonate in 4 segments. The wavelength of the waveis: | A. 4m<br>B. 0.5m<br>C. 2m<br>D. 0.25 m |
| 178 | When temperature increases, frequency of organ pipe: | A. Decreases<br>B. Remains the same<br>C. Increases<br>D. Becomes zero |
| 179 | In a closed organ pipe, the fundamental frequency is f. What will be the ratio of thefrequencies of the next three overtones? | A. 2 : 3 : 4<br>B. 3 : 7 : 11<br>C. 3 : 4 : 5<br>D. 3 : 5 : 7 |
| 180 | A closed organ pipe and an open organ pipe have their first overtones of identicalfrequency. Their respective lengths are in the ratio: | A. 1 : 2<br>B. 4 : 3<br>C. 2 : 3<br>D. 3 : 5 |
| 181 | A listener observes the frequency “f” of stationary source. If it move toward with 3 times of velocity of sound. Then the apparent frequency of the sound will be | A. f<br>B. 3f<br>C. f/2<br>D. 4f |
| 182 | If source and observer are moving towards each other with same speed and aftercrossing they are receding each other then frequency observed by observer: | A. Decreases<br>B. Remains constant<br>C. Increases<br>D. First Increases then decreases |
| 183 | In closed end organ pipe, the frequency of first harmonic is 300 Hz. The frequency ofthird overtone is : | A. 900 Hz<br>B. 1500 Hz<br>C. 2100 Hz |

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| | | D. 600 Hz |
| 184 | When an observer moves towards a stationary source with a speed equal to 1/5 timesof speed of sound, the percentage increase in the frequency of sound is: | A. 20%<br>B. 40%<br>C. 5%<br>D. 10% |
| 185 | The maximum wavelength of a transverse wave that can be set up in a string of length Lis | A. L<br>B. 2L<br>C. V<br>D. 4L |
| 186 | Which one is the case when the wavelength is actually changed? | A. When source move relative to observer<br>B. When observer move relative to source<br>C. When observer moves around a stationary source at the center of circle<br>D. When the relative displacement between source and observer is zero |
| 187 | The spectrum of a star's light is measured and the wavelength of one of the lines as thesodium's line is found to be 589 nm. The same line has the wavelength of 497 nm whenobserved in the laboratory. This means the star is | A. Moving away from the earth<br>B. Moving towards the earth<br>C. Stationary<br>D. Revolving around the planet |
| 188 | A church organ consist of open ended pipes ranging from 4m to 4 mm, if the speed ofsound is considered as 400 m/s then the min and max frequency is: | A. 400 Hz and 4 kHz<br>B. 100 Hz and 100 kHz<br>C. 50 Hz and 50kHz<br>D. 400 Hz and 400 kHz |
| 189 | Bats navigate and find food by: | A. Ultrasonic<br>B. Echolocation<br>C. Refraction |
| 190 | In which of the following, Doppler's effect is not applicable? | A. To find speed of satellite<br>B. To find objects under water<br>C. To find speed of star<br>D. To tune a musical instrument |
| 191 | A stationary wave is established in a string which vibrates in four segments at afrequency of 120 Hz. Its fundamental frequency is: | A. 15Hz<br>B. 60Hz<br>C. 30Hz<br>D. 430Hz |
| 192 | A particular wavelength received from a galaxy is measured on earth and isfound to be 5% more than that its wave length on earth. Hence galaxy is | A. Moving towards earth<br>B. Going away from earth<br>C. Stationary with respect to earth<br>D. None |
| 193 | A sonometer wire 100 cm in length has a fundamental frequency of 330 Hz. Thevelocity of propagation of waves along the wire is | A. 115m/sec<br>B. 115m/sec<br>C. 660m/sec<br>D. 990m/sec |
| 194 | The fundamental frequency of a closed organ pope is 50 Hz. The frequency ofsecond over tone is | A. 100hz<br>B. 150hz<br>C. 60hz<br>D. 250hz |
| 195 | An organ pipe open at both ends and another organ pipe, closed at one end willresonate with each other, if their lengths are in ration of | A. 1:1<br>B. 1:4<br>C. 2:1<br>D. 1:2 |
| 196 | The electron is a cathode-ray tube are accelerated from cathode to anode by a potential differenceof 2000 V. If this p.d is increased to 8000 V, the electrons will arrive at the anode with: | A. Twice the kinetic energy and four times the velocity<br>B. Four times the kinetic energy and twice the velocity<br>C. Four times the kinetic energy and sixteen times the velocity<br>D. Sixteen times the kinetic energy and four times the velocity |
| 197 | The distance between the plates of a charged parallel plate capacitor is 4mm and potential difference is 6 volts. If the distance between the plates is increased to 12mm, then : | A. The potential difference of the capacitor will become 18 volts<br>B. The P.D become 20 volts<br>C. The P.D will remain unchanged<br>D. The charge on condenser will reduce to one third |
| 198 | The coulomb's law is valid for the charges which are: | A. Moving and point charges<br>B. Stationary and point charges<br>C. Moving and non-point charges<br>D. Stationary and large size charges |
| | Between the plates of a parallel plate condenser there is 1mm thick paper of dielectric | A. 100 |

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| 199 | constant 4. Itis charged at 100 volt. The electric field in volt/meter between the plates of the capacitor is: | B. 25000<br>C. 100000<br>D. 400000 |
| 200 | The law, governing the force between electric charges is known as: | A. Ampere's law<br>B. Ohm's law<br>C. Coulomb's law<br>D. Faraday's law65y7uhnb |
| 201 | Capacitor stores energy in the form of : | A. Electric field<br>B. Both of these<br>C. Magnetic field<br>D. Gravitational field |
| 202 | If the distance between the plates of a parallel plates capacitor is increased, its potential will: | A. Remain the same<br>B. Increase<br>C. Decrease<br>D. Decrease exponentially |
| 203 | An electric field can deflect: | A. X-rays<br>B. Neutrons<br>C. □ −particles<br>D. □ −rays |
| 204 | Which one of the following statements regarding electrostatics is wrong? | A. Charge is conserved<br>B. Charge is quantized<br>C. There is no field near an isolated charge at rest<br>D. A moving charge produces both electric and magnetic fields |
| 205 | If the magnitude of charge on each of two objects is doubled and the distance between them is also doubled then force between them: | A. Doubled<br>B. Quadrupled<br>C. Halved<br>D. Remains same |
| 206 | Two point charges +2 coulombs and +6 coulombs repel each other with a force of 12 N if a charge -4 coulomb is given to each of these charges the force will be: | A. 4N repulsive<br>B. 8N repulsive<br>C. 4N attractive<br>D. 8N attractive |
| 207 | A soap bubble is give a negative charge, then its radius: | A. Decrease<br>B. Remains same<br>C. Increases<br>D. Bubble will disappear |
| 208 | A charged conductor has charged on its: | A. Outer surface<br>B. Surrounding surface<br>C. Inner surface<br>D. Middle point |
| 209 | A parallel plate air capacitor is charged and then isolated. When a dielectric material is inserted between the plates of the capacitor , then which of the following does not change: | A. Electric field between the plates<br>B. Charge on the plates<br>C. Potential difference across the plate<br>D. Energy stored in the capacitor |
| 210 | A body gets positive charge. It means that: | A. It has lost electrons<br>B. It has gained positions<br>C. It has gained protons<br>D. It has gained □ −particles |
| 211 | An electron is moving towards high potential. Its electrical P.E: | A. Increases<br>B. Remains constant<br>C. Decrease<br>D. May increase may decrease |
| 212 | Charge on a capacitor is 50C. if voltage applied across its plates is 10V then its capacitance: | A. 5F<br>B. 0.02F<br>C. 500F<br>D. 0.2F |
| 213 | Two charges of equal magnitudes and at a distance r exert a force F on each other. If the charges are halved and distance between them is doubled, then the new force acting on each charge is: | A. F/8<br>B. F/4<br>C. F/16<br>D. 4F |
| 214 | When a dielectric is inserted between the plates of a capacitor, Which one is true | A. Energy stored increase<br>B. Energy stored decrease<br>C. Capacitance decrease<br>D. All |
| 215 | Area under Q-V graph for a capacitor represents | A. Charged stored<br>B. Energy stored<br>C. Electric field strength<br>D. Potential difference |
| 216 | The relative permittivity of air is | A. 1<br>B. 3.7 |

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| | | C. 7.8<br>D. 1.0006 |
| 217 | The relative permittivity of air is | A. 1<br>B. 3.7<br>C. 7.8<br>D. 1.0006 |
| 218 | The potential difference between head and tail of an "electric eel" can be upto. | A. 6V<br>B. 60V<br>C. 6000V<br>D. 600V |
| 219 | Two point charges repel each other with a force of 4× □□−□ newton at a distanceof meter. Two charges are | A. Both positive<br>B. Alike<br>C. Both Negative<br>D. Unlike |
| 220 | Capacitance of a capacitor does not depend upon | A. Separation between plates<br>B. Thickness of the plates<br>C. Area of the plates<br>D. Medium between the plates |
| 221 | A charge of 2C experiences a force 2000N in a uniform electric field. In this fieldthe potential difference between two points separated by a distance 1cm is | A. 2V<br>B. 10V<br>C. 5V<br>D. 20V |
| 222 | Two wires of same material have lengths L and 2L and cross-sectional area 4A and A respectively. the ratio of their specific resistance would be: | A. 1: 1<br>B. 1: 8<br>C. 8: 1<br>D. 1: 2 |
| 223 | The product of resistance and conductance of a resistors is equal to: | A. 1<br>B. Conductivity<br>C. Resistivity<br>D. Zero |
| 224 | An electric room radiator, which operates at 50V has resistance of 50 Ω. Power of the radiator is approximately: | A. 100W<br>B. 50W<br>C. 450W<br>D. 1000W |
| 225 | There are two electric bulbs of 40 W and 100 W. They are first connected in series and then in parallel across a source: | A. 40W bulb will be brighter in series and 100W in parallel<br>B. 100W bulb will be brighter in series and 40W in parallel<br>C. 40W bulb will be brighter in both the cares<br>D. 100W bulb will be brighter in both the cares |
| 226 | A total charge of 100C flows through 12W bulb in a time of 50 second. Which is the potential difference across the bulb during this time? | A. 0.12V<br>B. 6.0V<br>C. 2.0V<br>D. 24V |
| 227 | The ‘emf ’ is always even when no current is drawn through the battery of the cell: | A. Zero<br>B. Present<br>C. Absent<br>D. Maximum |
| 228 | The specific resistance of a wire varies with its: | A. Length<br>B. Cross-section<br>C. Mass<br>D. Material |
| 229 | A piece of Aluminium (Al) and a piece of Germanium (Ge) are cooled T1 K to T2 K. The resistance of: | A. Each of them increases<br>B. Each of them decreases<br>C. Al increases and Ge decreases<br>D. Al decreases and that of Ge increases |
| 230 | The rate at which the battery is supplying the electrical energy is the: | A. Power output<br>B. Electrical power<br>C. Power input<br>D. Both A and C |
| 231 | When the length and area of cross-section both are doubled, then its resistance: | A. Will become half<br>B. Will remain the same<br>C. Will be doubled<br>D. Will become four times |
| 232 | Electric current is defined as: | A. Flow of charges through conductor<br>B. Rate of flow of charges through conductor<br>C. Flow of electrons<br>D. Flow of protons |

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| 233 | A charge is 90C passes through a wire in 1 hour and 15 minutes. Wat is the current in the wire? | A. 10mA<br>B. 20mA<br>C. 15mA<br>D. 25mA |
| 234 | If a source of emf is traversed from positive to negative the potential change will be: | A. Positive<br>B. Negative<br>C. Zero<br>D. Constant |
| 235 | Resistance of 60 watt bulbs in 120V line is: | A. 20 ohms<br>B. 240 ohms<br>C. 0.15 ohms<br>D. 180 ohms |
| 236 | A 100W, 220V bulb is operated on a 110V line, the power consumed is: | A. 25W<br>B. 75W<br>C. 50W<br>D. 100W |
| 237 | The emf of a cell of negligible internal resistance is 2V. It is connected to the series combination of □□, □□ □□□ □□ resistance. The potential difference across □□ resistance will be in volt: | A. 0.6<br>B. 2/3<br>C. 3<br>D. 6 |
| 238 | Which of the Following bulb will glow Brightest? | A. 100W<br>B. 200W<br>C. 300W<br>D. 400W |
| 239 | Which combination of 7 identical resistors of 3-ohm will give 12/13 ohm: | A. 3 series, 4 parallel<br>B. 5 series, 2 parallel<br>C. 2 series, 5 parallel<br>D. 4 series, 3 parallel |
| 240 | When resistances are connected in Parallel, the effective resistance will be | A. Product of the reciprocals of the individual resistances<br>B. Product of the individual resistances<br>C. Sum of the reciprocals of the individual resistances<br>D. Sum of the individual resistances |
| 241 | A cell of negligible resistance and e.m.f 2 V is connected across a series combination of 2,3 and 5 ohms. The p.d. across the 3 Ω resistor is | A. 0.6 V<br>B. 1/3 V<br>C. 2/3 V<br>D. 4/3 V |
| 242 | A steady current is flowing in a conductor of non-uniform cross-section. Thecharge passing through any cross-section per unit time is | A. Directly proportional to the area of cross-section<br>B. Inversely proportional to the area of cross-section<br>C. Proportional to square of the area of cross-section<br>D. Independent of the area of cross-section |
| 243 | A source of a magnetic field is: | A. An isolated magnetic<br>B. A static electric charge<br>C. A moving electric charge<br>D. None of these |
| 244 | Magnetic field inside a solenoid is: | A. ) Directly proportional to current<br>B. Inversely proportional to current<br>C. Directly proportional to its length<br>D. Inversely proportional to total no of turns |
| 245 | A long solenoid has 20 turns/ cm. The current necessary to produce a magnetic field of 20 mellites inside the solenoid is approximately: | A. 1A<br>B. 2A<br>C. 4A<br>D. 8A |
| 246 | A straight current carrying conductor experiences maximum forces in a uniform magnetic field when it is placed: | A. Parallel to the field<br>B. Perpendicular o the field<br>C. At an angle of 45 to the field<br>D. None of these |
| 247 | A magnetic field | A. Always exerts a force on a charged particle<br>B. Never exerts a force on a charged particle<br>C. Exerts a force on a charged particle if it is moving across the magnetic lines of force<br>D. Exerts a force on a charged particle if it is moving along the magnetic lines of force. |

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| 248 | Which one of the following particles projected perpendicular to a uniform magnetic field with the same velocity will be deflected least? | A. Electron<br>B. Proton<br>C. Deuton<br>D. None of these |
| 249 | A positively charged particle is moving perpendicular to a uniform magnetic field. The magnetic force makes the particle to move along: | A. An elliptical path<br>B. A circular path<br>C. A parabolic path<br>D. None of these |
| 250 | Charge to mass ratio (e/m) of a charge particle is also called its: | A. Specific charge<br>B. Specific Force<br>C. Gyro-magnetic ratio<br>D. Magneto-mechanical ratio |
| 251 | The direction of force experienced by a moving in a magnetic field will be: | A. Parallel to the field<br>B. Opposite to the field<br>C. Parallel to its direction of motion<br>D. Perpendicular to both the field and the velocity vector |
| 252 | An electron and a proton are projected at right angles to a uniform magnetic field with | A. the electron trajectory will be less curved than proton's trajectory<br>B. the electron trajectory will be more curved than proton's trajectory<br>C. ) both trajectories will be equally curved<br>D. ) both particles continue to move along a straight lins |
| 253 | A tritium and alpha particle enter the magnetic field with same kinetic energy, what will be the ratio of their radii? | A. 3:4<br>B. √3: 1<br>C. √3: 4<br>D. √3:√2 |
| 254 | If an electron vertically downwards, then the horizontal component of the earth's magnetic field will deflect it to wards | A. West<br>B. East<br>C. North<br>D. North |
| 255 | The magnetic field produced due to the current in a straight wire is proportionalto the : | A. Electric current<br>B. Conducting material<br>C. Length of the wire<br>D. Diameter of the wire |
| 256 | The magnetic field of a solenoid is quite similar to that of a: | A. Straight conductor<br>B. A horse shoe magne<br>C. Any magnet<br>D. A bar magnet |
| 257 | The magnetic field due to the electric current in a conducting wire is: | A. Towards the centre of the conducting wire<br>B. Circular around the conducting wire<br>C. In the direction of the electric current<br>D. In the direction opposite to the electric current |
| 258 | In full wave rectification, the output DC voltage across the load is obtained for. | A. The positive half cycle of input AC only<br>B. The negative half cycle of input AC<br>C. The completes cycle of input AC only<br>D. All of the above |
| 259 | A non-conducting semiconductor diode is: | A. Forward biased<br>B. Poorly biased<br>C. Reverse biased<br>D. None of them |
| 260 | A non-inverting amplifier has infinite input resistance then the voltage gain of noninverting amplifier will be: | A. Zero<br>B. Infinite<br>C. One<br>D. 100 |
| 261 | For the same value of resistors the output of non-inverting amplifier compared to the output of inverting amplifier is, (ignoring phase difference) | A. Greater<br>B. Equal<br>C. Smaller<br>D. Undefined |
| 262 | The resistance of operational amplifier between inverting and non-inverting terminal is of the order of: | A. Few Ohms<br>B. Mega Ohms<br>C. Few Kilo Ohms<br>D. Micro Ohms |
| 263 | A certain noninverting amplifier has R1 of 1 kΩ and R2 of 100 kΩ. The closed-loop voltage gain is …… | A. 100,000<br>B. 100<br>C. 1000 |

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| | | D. 101 |
| 264 | A device which convert DC into AC is calleD) | A. Invertor<br>B. Generator<br>C. Rectifier<br>D. Motor |
| 265 | For a normal AC cycle, during T/2 to T the diode act as: | A. Open switch<br>B. full wave rectifier<br>C. Close switch<br>D. All are correct |
| 266 | The efficiency of half wave rectifier is: | A. 25.6%<br>B. 1.2%<br>C. 40.6%<br>D. 66.6% |
| 267 | The efficiency of full wave rectifier is: | A. 25.6%<br>B. 81.2%<br>C. 81.6%<br>D. 71.2% |
| 268 | A circuit that converts Pulsating DC into smooth DC contain : | A. Filter<br>B. Capacitor<br>C. Inductor<br>D. LC circuit |
| 269 | In a full wave rectifier: | A. DC current is twice that of half wave rectifier<br>B. DC pulses are twice per cycle that of half wave rectifier<br>C. DC voltage is twice that of half wave rectifier<br>D. All are correct |
| 270 | The power output of a full wave rectifier is: | A. Equal to H.W.R<br>B. Twice of H.W.R<br>C. Half of H.W.R<br>D. Four times of H.W.R |
| 271 | In a full wave rectifier with input frequency 50Hz. The frequency of pulsating D)C) received as an output across the load is | A. 50 Hz<br>B. 100 Hz<br>C. 500 Hz<br>D. zero |
| 272 | A pulsating DC can be converted into constant voltage by using | A. Filter<br>B. Full wave rectifier<br>C. Half wave rectifie<br>D. Bridge rectifier |
| 273 | The magnitude of potential barrier for Ge is | A. 0.7 v<br>B. 0.3 V<br>C. 7v<br>D. 3 v |
| 274 | The diode charactristics curve is plot between | A. I & t<br>B. V& t<br>C. V& I<br>D. None |
| 275 | When two semiconductors of p- and n-type are brought into contact, they from a p-n junction which act like a: | A. Conductor<br>B. Amplifier<br>C. Oscillator<br>D. Rectifier |
| 276 | A pure semiconductor has: | A. An infinite resistance at 0<sup>o</sup>C)<br>B. A finite resistance which does not depend upon temperature<br>C. A finite resistance which decreases with temperature<br>D. A finite resistance which increase with temperature |
| 277 | For full wave rectification, the minimum number of diodes used is: | A. 1<br>B. 2<br>C. 3<br>D. 4 |
| 278 | A diode as a rectifier converts: | A. A)c into D)c<br>B. D)c into A)c<br>C. Varying D)c current into constant D)c current<br>D. High voltage into low voltage and vice-versa |
| 279 | In a half wave rectifier circuit operating from 50 Hz mains frequency, the fundamental frequency in the ripple would be: | A. 25 Hz<br>B. 70.7 Hz<br>C. 50 Hz |

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| | | D. 100 Hz |
| 280 | A PN junction diode cannot be use: | A. As rectifier<br>B. For converting light energy to electrical energy<br>C. For getting light radiation<br>D. For increasing the amplitude of an ac signal |
| 281 | The junction potential for Germanium is; | A. 3v<br>B. 0.3 v<br>C. 7v<br>D. 0.7 v |
| 282 | Gain of operational amplifier is independent of; | A. Internal structure<br>B. External Structure<br>C. Batteries<br>D. Potential changes |
| 283 | A diode characteristics curve is a graph plotted between; | A. Current and time<br>B. Voltage and time<br>C. Voltage and current<br>D. Forward voltage and reverse current |
| 284 | In a full wave rectifier, the diode conducts during | A. Both halves of the input cycle<br>B. A portion of the positive half cycle of the input<br>C. Positive half cycle of the input<br>D. Positive half cycle of the input<br>E. Both halves of the input cycle |
| 285 | The method by which only one half of A.C cycle is converted into direct current is called | A. half wave amplification<br>B. half wave rectification<br>C. Full wave rectification<br>D. full wave amplification |
| 286 | In full wave rectification, the output D.C. voltage across the load is obtainedfor | A. The positive half cycle of input A.C.<br>(C) The complete cycle of input A.C.<br>B. The negative half cycle of input A.C.<br>C. The complete cycle of<br>D. All of the above |
| 287 | Inverting amplifier circuits have | A. A very high input impendance<br>B. A very low input impendance<br>C. A low output impendance<br>D. Both A and C |
| 288 | The simplest type of rectification known as half wave rectification is obtained by | A. Using a transistor<br>B. Suppressing the harmonics in A.C. voltage<br>C. Suppressing half wave of A.C. supply by using diode<br>D. Using a Coolidge |
| 289 | The unit of gain (G) for non-inverting amplifier is | A. Ampere<br>B. ohm<br>C. Volt<br>D. None of these |
| 290 | The diodes works on | A. A.C<br>B. D.C<br>C. both A and B<br>D. None of these |
| 291 | In full wave rectification by bridge the number of diodes required are | A. 3<br>B. 4<br>C. 2<br>D. 5 |
| 292 | The dimensions of Planck's constant "h" are same as that of: | A. Momentum<br>B. Angular momentum<br>C. Work<br>D. Torque |
| 293 | Joule-second is the unit of: | A. Energy<br>B. Heat<br>C. Planck's constant<br>D. None of these |
| 294 | The energy of photon of wavelength 1240 nm is: | A. 0.5 eV<br>B. 1.0 eV<br>C. 1.5 eV<br>D. 2.0 eV |
| 295 | The energy of photon of energy 1 eV is: | A. 1240 nm<br>B. 1040 nm |

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| 295 | The energy of photon of energy 1 eV is: | C. 1000 nm<br>D. 620 nm |
| 296 | The energy of photon of wavelength 620 nm is: | A. 0.5 eV<br>B. 1.0 eV<br>C. 1.5 eV<br>D. 2.0 eV |
| 297 | A human eye can detect the electromagnetic radiations of the type: | A. Infrared radiations<br>B. For- infrared radiations<br>C. X-rays radiations<br>D. Red radiations |
| 298 | A human eye can detect the electromagnetic radiations of the type: | A. Infrared radiations<br>B. For- infrared radiations<br>C. X-rays radiations<br>D. Red radiations |
| 299 | Moving photons posses: | A. Energy<br>B. Momentum<br>C. Wavelength<br>D. All of these |
| 300 | The maximum energy of the photoelectrons can be determined by making the: | A. Anode positive<br>B. Anode negative<br>C. Cathode positive<br>D. Both (b) & (c) |
| 301 | The maximum energy of the photoelectrons depends upon: | A. Frequency of incident light<br>B. Intensity of incident light<br>C. Nature of metal<br>D. Both (a) & (c) |
| 302 | There is a certain frequency below which no electrons are emitted from the metal surface, this frequency is known as: | A. Critical frequency<br>B. Threshold frequency<br>C. Maximum frequency<br>D. Minimum frequency |
| 303 | The stopping potential for a certain metal is 10 volt, the max. Energy of emitted electron is: | A. 10 J<br>B. 100 J<br>C. 1.6 × 10-18 J<br>D. 1.6 × 10-19 J |
| 304 | The photoelectric effect was explained by: | A. Einstein<br>B. Davison<br>C. Hertz<br>D. Planck |
| 305 | In photoelectric effect, electrons are emitted with: | A. Same energy<br>B. Different energies<br>C. Both (a) & (b)<br>D. Intermittent energies |
| 306 | In photoelectric effect, electrons are emitted: | A. Slowly<br>B. Intermittently<br>C. Both (a) & (b)<br>D. Instantly |
| 307 | The minimum energy required by an electron to eject from metal surface is known as: | A. Photo energy<br>B. Critical energy<br>C. Threshold energy<br>D. Work function |
| 308 | The maximum kinetic energy of emitted photoelectrons depends upon: | A. The intensity of incident light<br>B. Frequency of the incident light<br>C. Temperature of the surface<br>D. All of above |
| 309 | A photo cell is based on: | A. Compton effect<br>B. Pair production<br>C. Photo cell<br>D. All of these |
| 310 | In a photocell, sodium and potassium emit electrons for: | A. Visible light<br>B. Infrared light<br>C. Ultraviolet light<br>D. All of these |
| 311 | In a photocell, cesium coated oxidized silver emits electrons for : | A. Visible light<br>B. Infrared light<br>C. Ultraviolet light<br>D. All of these |
| 312 | In a photocell, certain metal emits electrons for : | A. Visible light<br>B. Infrared light<br>C. Ultraviolet light<br>D. All of these |

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| 313 | Photo cells are used for : | A. Security and counting system<br>B. Automatic door system<br>C. Automatic street lighting<br>D. All of these |
| 314 | Photo cells is a device which convert light into: | A. Wave nature<br>B. Particle nature<br>C. Particle wave nature<br>D. Dual nature |
| 315 | A.H Compton studied the scattering of X-rays by loosely bound electrons from a graph target in: | A. 1905<br>B. 1911<br>C. 19251<br>D. 1923 |
| 316 | In Compton effect, it was considered that X-rays consist of: | A. Electrons<br>B. Positrons<br>C. Photons<br>D. All of these |
| 317 | The unit Compton wavelength is same as: | A. Compton wavelength<br>B. Compton frequency<br>C. Compton shift<br>D. Both (a) & (b) |
| 318 | Compton Effect makes the use of the law of conservation of: | A. Energy<br>B. Momentum<br>C. Charge<br>D. Both (a) & (b) |
| 319 | Photoelectric effect and Compton effect prove the: | A. Wave nature of light<br>B. Particle nature of light<br>C. Dual nature of light<br>D. Dual nature of light |
| 320 | Potassium cathode in photocell emits electrons for a light: | A. Visible<br>B. Infrared<br>C. Ultraviolet<br>D. X-rays |
| 321 | The reverse process of photo-electric effect is called: | A. Pair production<br>B. Compton effect<br>C. Annihilation of matter<br>D. X-rays |
| 322 | In order to increase the K.E of ejected photo electrons, there should be an increase in: | A. Intensity of radiation<br>B. Nonel<br>C. Frequency of radiation<br>D. Both (b) & (c) |
| 323 | The maximum kinetic energy of emitted photoelectrons depends upon: | A. The intensity of incident light<br>B. Frequency of incident light<br>C. Metal surface<br>D. Both frequency of incident light and metal surface |
| 324 | The unit of work function is | A. eV<br>B. Volt<br>C. Farad<br>D. Herdz |
| 325 | In photoelectric effect, if we increase the frequency of the incident light then of the electrons increased | A. Number<br>B. K.E<br>C. P.E<br>D. Frequency |
| 326 | Rest mass energy of electron is: | A. 1.02 MeV<br>B. 0.51 MeV<br>C. 931 MeV<br>D. 200 MeV |
| 327 | The number of electrons emitted depend upon | A. Colour of target surface<br>B. Shape of surface<br>C. Frequency of incident light<br>D. Intensity of incident light |
| 328 | Interference and diffraction confirm: | A. Particle nature<br>B. Wave nature<br>C. Dual nature<br>D. None of these |
| 329 | Which of the particles, electron, proton and neutron moving with same speed has longest wave length? | A. Electron<br>B. Proton<br>C. Neutron<br>D. All have same |
| 330 | Davisson and Germer, in their experiment used: | A. Nickle crystal<br>B. Lead crystal<br>C. Graphite crystal |

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| | | D. Glass |
| 331 | In order to perform experiment, Davisson and Germer used accelerating voltage of: | A. 54V<br>B. 120V<br>C. 220V<br>D. 400V |
| 332 | Diffraction pattern has also been observed for: | A. Proton<br>B. Neutron<br>C. Hydrogen atom<br>D. All of them |
| 333 | De-Broglie received the Nobel prize in | A. 1929<br>B. 1937<br>C. 1928<br>D. 1924 |
| 334 | De-Broglie received the Nobel prize on his work on: | A. Wave nature of particle<br>B. Corpuscular nature of wave<br>C. Dual nature of particle<br>D. All of them |
| 335 | Davisson and Germer received the Nobel prize for their work on: | A. Wave nature of particle<br>B. Corpuscular nature of wave<br>C. Dual nature of particle<br>D. All of them |
| 336 | Interference and diffraction of light confirms its: | A. Particle nature<br>B. Dual nature<br>C. Wave nature<br>D. Electromagnetic nature |
| 337 | G.P Thomson revealed: | A. Particle nature of electron<br>B. Dual nature of electron<br>C. Wave nature of electron<br>D. Electromagnetic nature of electron |
| 338 | J.J Thomson finds: | A. Particle nature of the electron<br>B. Dual nature of electron<br>C. Wave nature of electron<br>D. Electromagnetic nature of electron |
| 339 | Maximum speed of electrons in X-rays tube which is producing X-rays photons of frequency f is | |
| 340 | To find longest wavelength radiation in Ballmer series, the value of n used is: | A. 2<br>B. 3<br>C. 4<br>D. ∞ |
| 341 | As the intensity of incident light increases: | A. Photoelectric current increases<br>B. Photoelectric current decreases<br>C. Kinetic energy of emitted photoelectrons increases<br>D. Kinetic energy of emitted photoelectrons decreases |
| 342 | A proton, accelerated through a p.d V has a certain de Broglie wavelength. In order to have the same de Broglie wavelength, an □ −particles must be accelerated through a potential difference: | A. 4V<br>B. 8V<br>C. V/4<br>D. V/8 |
| 343 | The hydrogen atoms are excited to the stationary state designated by the principal quantum number n=4, the number of maximum spectral lines are observe: | A. 2<br>B. 3<br>C. 4<br>D. 6 |
| 344 | When ultraviolet rays are incident in metal plate, then photoelectric effect does not occur. It occurs by the incidence of: | A. x-rays<br>B. Infrared rays<br>C. Radio wave<br>D. Greenhouse effect |
| 345 | Threshold wavelength for metal having work function □ is □. What is the threshold wavelength for metal having work function 2 □□: | A. /□<br>B. 2<br>C. 4<br>D. □/□ |
| 346 | The de-Broglie wavelength of the particle of mass m and energy E is: | B. *h*<br>C. □ = *h*√2□□<br>D. □ = 1 |
| 347 | A proton and an □ − □□□□□□□□ are accelerated through same voltage, the ratio of their de- Broglie wavelength will be: | A. 1:2<br>B. √2: 1<br>C. 2√2: 1<br>D. 2:1 |
| | In which region of the electromagnetic spectrum does the Lyman series of hydrogen atom | A. Infrared<br>B. Visible |

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| 348 | In which region of the electromagnetic spectrum does the Lyman series of hydrogen atom lie? | B. Visible<br>C. Ultraviolet<br>D. X-rays |
| 349 | According to Bohr's theory, a line in the Ballmer series arises when the electron jumps from any of the higher orbits to the orbit with quantum number: | A. 1<br>B. 2<br>C. 3<br>D. 4 |
| 350 | The ratio of the longest and shortest wavelength of the Lyman series is approximately: | A. 4/3<br>B. 9/4<br>C. 9/5<br>D. 16/7 |
| 351 | Figure represents a graph of kinetic energy (K) of the photoelectrons (in eV) and frequency (v) for a metal used as cathode in photoelectric experiment. The work function of metal is: | A. 1 eV<br>B. 2 eV<br>C. 1.5 eV<br>D. 3 eV |
| 352 | Light of frequency 4f0 is incident on the metal of the threshold frequency f0. The maximum kinetic energy of the emitted photoelectrons is | A. 3h f0<br>B. 3/2h f0<br>C. 2h f0<br>D. 1/2h f0 |
| 353 | The potential difference applied to an X-rays tube is increased. As a result, in the emitted radiation | A. The intensity increases<br>B. The minimum wavelength decrease<br>C. The intensity remains unchanged<br>D. Both B & C |
| 354 | An electron in the n=1 orbit hydrogen atom is bound by 13.6 eV. If a hydrogen atom is in the n=3 state, how much energy is required to ionize it: | A. 13.6 eV<br>B. 4.53 eV<br>C. 3.4 eV<br>D. 1.51eV |
| 355 | If the radioactive substance reduces to □ □□ PHYSICS of its original mass in 40 days then its half-life is: | A. 10days<br>B. 20days<br>C. 40days<br>D. 4days |
| 356 | Which of the following is not true? | A. The Lyman series is a continuous spectrum<br>B. The Ballmer series is a line spectrum in the visible region<br>C. The Paschen series is a line spectrum in the infrared region<br>D. The spectral series formula can be derived from Rutherford's model of the hydrogen atom 18. The photoelectric effect is the ejection of |
| 357 | The half-life of a certain element is 3.5 days at STP. If the temperature is doubled and pressure is reduced to half then half-life of the same element will be: | A. 1.75 days<br>B. 3.5 days<br>C. 7 days<br>D. 14 days |
| 358 | electrons from the surface of a metal when: | A. It is heated to a high temperature<br>B. Radiation of suitable wavelength falls on it<br>C. Electrons of suitable velocity strike it<br>D. It is placed in a strong electric field |
| 359 | The minimum energy required to remove an electron is called: | A. Stopping potential<br>B. Work function<br>C. Kinetic energy<br>D. None of these |
| 360 | The maximum energy of the electrons released in a photo cell is independent of: | A. Frequency of incident light<br>B. Intensity of incident light<br>C. Nature of cathode rays<br>D. None of these |
| 361 | The half-life of a radioactive element which has only 1//32 of its original mass left after a lapse of 60 days is: | A. 12days<br>B. 10days<br>C. 22days<br>D. 36days |
| 362 | Light of frequency 1.5 times the threshold frequency is incident on a photo sensitive material. If the frequency is halved and intensity is doubled the photo electric current becomes | A. Four times<br>B. Half<br>C. Double<br>D. Zero |
| 363 | Which of the following statement is true about soft X-rays? | A. They have large wavelength<br>B. They have high energy<br>C. They have low energy<br>D. Both A and C |
| 364 | Continuous spectrum of X-rays id due to an effect known as | A. Photoelectric effect<br>B. Compton effect<br>C. Heisenberg effect |

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| | | D. Bremsstrahlung |
| 365 | Of electron of 50 keV strike a heavy target. Then radiation emitted by target will be | A. Visible light<br>B. Radio waves<br>C. Ultraviolet<br>D. None of these |
| 366 | Light elements do not emit X-rays because | A. Electrons in it have high binding energy<br>B. These materials are non- material<br>C. There is a small difference in their energy shells<br>D. Electrons in it require very large energy to remove from these materials |
| 367 | Due to emission of □+ − □□□□: | A. Mass of the nucleus increases<br>B. Mass of the nucleus decreases<br>C. Charge on the nucleus increases<br>D. Charge number decreases |
| 368 | Which of the following have maximum ionization power? | A. □ −rays<br>B. □ −rays<br>C. □ −rays<br>D. Same for all |
| 369 | A radioactive nucleus can emit: | A. Electron<br>B. □ particles<br>C. Positron<br>D. Any of these |
| 370 | The uranium Nucleus □□□ □ undergoes successive decays, emitting respectively □ − □□□,□ − □□□ □□□ − □□□□. What is the atomic number and atomic mass of the resulting nucleus: | A. 90, 238<br>B. 91, 234<br>C. 92, 236<br>D. 92, 238 |
| 371 | An electron and a proton are accelerated through the same potential. If their masses are me and mp respectively, then the ratio of their de-Broglie wavelength is: | A. 1<br>B. mp/me<br>C. me/mp |
| 372 | A radioactive isotope □□□ □ decays consecutively to □□□ □ the particles emitted are: | A. One □ and one □<br>B. Two □ and one □<br>C. e □ and two □<br>D. Two □ and two □ |
| 373 | In 420 days, the activity of a sample of polonium (Po) fell to one-eight of its initial value. The half-life of polonium is : | A. 140days<br>B. 45days<br>C. 87days<br>D. 90days |
| 374 | The activity of a radioactive sample is 1.6 curie and half-life is 2.5 days. Its activity after 10 days will be: | A. 0.8 Curie<br>B. 0.1Curie<br>C. 0.4 Curie<br>D. 0.16 Curie |
| 375 | The mother and daughter elements with the emission of □ − □□□□, are called: | A. Isotopes<br>B. Isobars<br>C. Isomers<br>D. Isodiapheres |
| 376 | The phenomenon of radioactivity is associated with: | A. Fission of nucleus<br>B. Disintegration of neutrons<br>C. Emission of spectral lines<br>D. Spontaneous disintegration of the nuclei of atoms |
| 377 | A count rate 240 per minute reduces to 30 counts per min in 1 hour. The half-life of source is: | A. 20min<br>B. 60min<br>C. 80min<br>D. 90min |
| 378 | For atomic nucleus, the binding energy per nucleon with increase in mass number: | A. Increases continuously<br>B. Remains same<br>C. Decrease continuously<br>D. First increases and then decreases with increase in mass number |
| 379 | A radioactive substance has a half-life of 4 months. Three-fourths of the substance will decay in: | A. 5months<br>B. 6months<br>C. 8months<br>D. 7months |
| 380 | □, □ □□□ radiations come out of radioactive substance: | A. Spontaneously<br>B. When it is put in a reactor<br>C. When it is heated<br>D. Under pressure |

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| 381 | The momentum of the moving photon is: | A. Zero<br>B. *h*<br>C. □<br>D. *h*□ |
| 382 | The example of nuclear fusion is: | A. Formation of barium and krypton from uranium<br>B. Formation of plutonium -235 from uranium -235<br>C. Formation of helium from hydrogen<br>D. Formation of water from hydrogen and oxygen |
| 383 | The frequency and work function of an incident photon are n and□□. If f0 is the threshold frequency, then necessary condition for the emission of photo electron is: | A. < □0<br>B. □ ≥ □0<br>C. f = □0/2<br>D. None of these |
| 384 | Nuclear fission experiments show that the neutrons the uranium nuclei into two fragment of about the same size. This process is accompanied by the emission of several: | A. Protons and positrons<br>B. □ −partilces<br>C. neutrons<br>D. Protons and □ −partilces |
| 385 | The threshold frequency depends on the nature on: | A. Natural frequency<br>B. Photosensitive anode<br>C. Photosensitive cathode<br>D. Photon |
| 386 | Ultraviolet radiation of 6.2 eV falls on an aluminium surface having work function ⌀ = □. □ □□.<br>The kinetic energy of the fastest electron emitted is: | A. 4 eV<br>B. 2 eV<br>C. 2.2 eV<br>D. 1.2 eV |
| 387 | Half-life of radon gas is: | A. 1620 years<br>B. 3.8 days<br>C. 7 days<br>D. 11 days |
| 388 | For X-rays which of the following is not correct: | A. Cause of ionization in air when they pass through it<br>B. Can be deflected by electric and magnetic fields<br>C. Can be used to detect flaws in metal casting<br>D. Travel with the speed of light |
| 389 | In an □ −decay: | A. The parent and daughter nuclei have same number of protons<br>B. The daughter nucleus has one proton more than parent nucleus<br>C. The daughter nucleus has two protons less than parent nucleus<br>D. The daughter nucleus has two neutrons more than parent nucleus |
| 390 | The shortest wavelength of X-rays emitted from an X-rays tube depends on the: | A. Current in the tube<br>B. Voltage applied to the tube<br>C. Nature of gas in the tube<br>D. Nature of material of tube |
| 391 | When a radioactive nucleus emits a □ −paritcles, the mass number of the atom: | A. Increases by one<br>B. Decreases by one<br>C. Remains the same<br>D. Decreases by four |
| 392 | When an electron in an atom goes from a lower to higher its: | A. K.E. increases, P.E. decreases<br>B. K.E. increases<br>C. P.E increases<br>D. K.E. decrease, P.E. increases |
| 393 | A thorium nucleus is formed when a uranium nucleus emits an □ −particles. Atomic number of thorium is : | A. 23<br>B. 60<br>C. 90<br>D. 70 |
| 394 | The Balmer series is found in the spectrum of: | A. Hydrogen<br>B. Nitrogen<br>C. Oxygen<br>D. All |
| 395 | The number of electrons in a nucleus X of atomic number Z and mass number A is: | A. A<br>B. W<br>C. Z<br>D. Y |
| 396 | The more readily fissionable isotope of uranium has an atomic mass of: | A. 220<br>B. 230<br>C. 235<br>D. 240 |

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| 397 | The fusion of hydrogen into helium is more likely to take place: | A. At high temperature and high pressure<br>B. At high temperature and low pressure<br>C. At low temperature and low pressure<br>D. At low temperature and high pressure |
| 398 | Which one is the correct express of de-Broglie equation for the length of atoms of mass m at temp? T(k=Boltzmann's constant): | A. <br> |
| 399 | What is the momentum of a photon of light of wavelength 500 nm in kgm/s: | A. 1.32 × 10−21<br>B. 1.32 × 10−23<br>C. 1.32 × 10−25<br>D. 1.32 × 10−27 |
| 400 | Because of large mass when □ −paricle enters the atom or molecule it: | A. Moves in zigzag path<br>B. Moves along straight line<br>C. Moves along circular path<br>D. None of these |
| 401 | In nuclear fission reaction, when the products are 140X and 94Sr, the number of neutrons emitted is | A. 1<br>B. 2<br>C. 5<br>D. 9 |
| 402 | What will be the number of photons emitted per second by 25 W source of monochromatic light of wavelength 600 nm: | A. 7.5 × 1017<br>B. 7.5 × 1019<br>C. 5.5 × 1019<br>D. 5.5 × 1017 |
| 403 | The particles equal in mass or greater than mass of protons are called: | A. Leptons<br>B. Mesons<br>C. Baryons<br>D. Quarks |
| 404 | How many photons per second does a one-watt bulb emit if its efficiency is 10% and the wavelength of light is 500 nm: | A. 2.53 × 1017<br>B. 2.53 × 1019<br>C. 7.5 × 1019<br>D. 7.5 × 1017 |
| 405 | Monochromatic light of wavelength 300 nm is incident normally on a surface of area 4 cm2.<br>If the intensity of light is 150 mW/m2; the rate at which photon strike the surface: | A. 2.53 × 1019<br>B. 7.5 × 1019<br>C. 9.1 × 1013<br>D. 2.53 × 1013 |
| 406 | Three quarks make up a: | A. Leptons<br>B. Mesons<br>C. Baryons<br>D. Quark |
| 407 | The rate of decay radioactive substance: | A. Is constant<br>B. Decrease exponentially with time<br>C. Varies inversely with time<br>D. Decrease linearly with time |
| 408 | The binding energy per nucleon is: | A. Greater for heavy nuclei<br>B. Least for heavy nuclei<br>C. Greatest for light nuclei<br>D. Greatest for medium nuclei |
| 409 | When the radioactive nucleus emits a beta particle, the proton neutron ration: | A. increases by one<br>B. Remains same<br>C. Decreases by one<br>D. Decreases by four |
| 410 | Intensity of light from a point source at the edge of unit sphere will be: | A. □<br>B. □<br>C. P(4π)<br>D. 4□ |
| 411 | When a radioactive nucleus remits a beta particle, the proton neutron ratio: | A. Decreases<br>B. Increases<br>C. Remain same<br>D. None of the above |
| 412 | In photo electric cell, the photo electric current | A. Decreases with increase in frequency of light<br>B. Depends on intensity and frequency of light<br>C. Does not depend upon the frequency of light and but depends upon intensity of light<br>D. Increases with increase in frequency of light |

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| 413 | During a negative β-decayv | A. An atomic electron is ejected<br>B. A neutron in the nucleus decays emitting an electron<br>C. An electron which already present within the nucleus is ejected<br>D. A part of binding energy of nuclei is converted into electron |
| 414 | During a negative β-decay | A. An atomic electron is ejected<br>B. A neutron in the nucleus decays emitting an electron<br>C. An electron which already present within the nucleus is ejected<br>D. A part of binding energy of nuclei is converted into electron |
| 415 | Choose incorrect about properties of photon | A. Rest mass of photon is zero<br>B. A photon is never at rest<br>C. Photon is not deflected by electric field not by magnetic field<br>D. The velocity of photon is different in different media |
| 416 | The most penetrating radiations out of the following is that of | A. □-rays<br>B. β-rays<br>C. α-particles<br>D. X-rays |
| 417 | Work function of all metals varies from 2 eV to 4eV. It is 4.2 eV for Aluminum and2eV for Sodium. If these two metals are illuminated by same light, the thresholdfrequency ofAluminum is | A. Less than Sodium<br>B. Equal to that of Sodium<br>C. Grater than Sodium<br>D. Can't be decided |
| 418 | A photo cell receives light from a source at 50 cm away and produces 40mAcurrent inthe circuit. When the same source at is at distance 1 m from photo cell,current in the circuit will be | A. 20 mA<br>B. 80mA<br>C. 60 mA<br>D. 10 mA |
| 419 | Which row is correct for fission and for fusion? | A. Produces larger nuclei<br>B. Produces larger nuclei<br>C. Produces smaller nuclei<br>D. Produces smaller nuclei |
| 420 | Temperature of black body radiating at 270c is increased to 327oc, then emittedenergywill increase by | A. 2 times<br>B. 12 times<br>C. 16 times<br>D. 4 times |
| 421 | If an electron is accelerated such that its K.E is 4 times of its rest mass energythen thetotal relativistic energy of electrons is about | A. 5 × 10–12 J<br>B. 4 × 10–13 J<br>C. 3 × 10–13 J<br>D. 6 × 10–12 J |
| 422 | Beta particles have penetration of about: | A. 100 times more than that of the gamma particles<br>B. 100 times less than that of an alpha ray<br>C. 100 times more than that of an alpha ray<br>D. 10 times more than that of an alpha particle |
| 423 | de-Broglie wavelength associated with an electron moving at a speed of 1x106 ms-1 is | A. 4x10-10 ms-1<br>B. 5x10-10 m<br>C. 6x10-10 m<br>D. 7x10-10 m |
| 424 | In photoelectric effect experiment, stopping potential depend upon | A. Intensity of light<br>B. Frequency of light<br>C. Photoelectric current<br>D. Both A and B |
| 425 | In electron microscope, we use high speed electrons because them | A. Penetration power is higher<br>B. Wavelength is smaller<br>C. Frequency is smaller<br>D. K.E is smaller |
| 426 | Beta particles have less ionizing power than that of alpha particles because: | A. Their smaller energy<br>B. Their smaller mass<br>C. Their smaller density<br>D. Their smaller charge |
| 427 | Light of frequency 2 times the threshold frequency is incident on the metalsurface. Ifthe frequency is by quartered and intensity is doubled, the photoelectric becomes | A. Quadrupled<br>B. Zero<br>C. Doubled<br>D. Halved |
| | | A. Car X has half the kinetic energy of car Y |

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| 428 | Car X is traveling at half the speed of car Y. Car X has twice mass of car Y. Which statement is correct? | B. Car X has one quarter of the kinetic energy of car Y<br>C. Car X has twice the kinetic energy of car Y<br>D. The tow cars have the same kinetic energy |
| 429 | You lift a suit case from the floor and keep it on a table. The work done by you on the suitcase does not depend on | A. the path taken by the suitcase<br>B. weight of the suitcase<br>C. initial and final position<br>D. None |
| 430 | A stone is thrown up from the surface of earth when it reaches at maximum height. its total energy is equal to | A. mgh<br>B. 1/2 □□<sup>2</sup><br>C. zero<br>D. 2mgh |
| 431 | 3 joules of work is done in 3 seconds, then power is: | A. 6 watt<br>B. 3 watt<br>C. 18 watt<br>D. 1 watt |
| 432 | The power needed to lift amass of 5000g to height of 1min 2 second is | A. 2.45 watt<br>B. 24.5 watt<br>C. 245 watt<br>D. 2.45 k watt |
| 433 | A bomb of mass 30 kg at rest explodes into two pieces of masses 18 kg and 12 kg. The velocity of 18 kg mass is 6 $ms^1$ The KE of other mass is | A. 324 J<br>B. 256 J<br>C. 245 J<br>D. 524 J |
| 434 | An elevator's motor produces 3000 W power. The speed With Which it can lift a 1000 kg load is: | A. 30.6ms<sup>-1</sup><br>B. 0.306ms<sup>-1</sup><br>C. 3.06ms<sup>-1</sup><br>D. 300.3ms<sup>-1</sup> |
| 435 | An engine pumps out 40 kg of water in one second. The water comes out vertically upwards with a velocity of 3ms-1 . What is the power of engine in kilowatt? | A. 1.2kW<br>B. 120kW<br>C. 12kW<br>D. 1200kW |
| 436 | An engine pumps up 100 kg of water through a height of 10m in 5s. Given that the efficiency of the engine is 60%, what is the power of the engine? (Take g = 10$ms^{-2}$) | A. 33 kW<br>B. 3.3kW<br>C. 0.33kW<br>D. 0.033kW |
| 437 | A man $M_1$ of mass 80 kg runs up a staircase in 15s. Another man $M_2$ also of mass 80 kg runs up the same staircase in 20s. The ratio of the power developed by them will be | A. 1<br>B. 4/3<br>C. 16/9<br>D. none of these |
| 438 | A person holds a bucket of weight 60N. He walks 7 m along the horizontal path and then climbs up a vertical distance of 5 m. The work done by the man is: | A. 300 N-m<br>B. 420 N-m<br>C. 720 N-m<br>D. none of these |
| 439 | A man weighing 500 N carries a load of 10 kg to the top of a building in 4 minutes. The work done by the man is 6 × □□$^4$ J. If he carries the same load in 8 minutes, the work done by the man will be: | A. 3 × 10<sup>4</sup> J<br>B. 6 × 10<sup>4</sup>J<br>C. 9 × 10<sup>4</sup>J<br>D. 12× 10<sup>4</sup> J |
| 440 | A ball is thrown vertically upwards. Neglecting air resistance, which statement is correct? | A. The kinetic energy of the ball is greatest at the greatest height attained<br>B. The potential energy of the ball increase uniformly with time during the ascent<br>C. By the principle of conservation of momentum. The momentum of the ball is constant throughout its motion<br>D. By the principle of conservation of energy, the total energy of the ball is constant throughout its motion |
| 441 | A car of 1000kg traveling at 20m/sec rounds a curve of radius 100m. Find the necessary centripetal force | A. 4 x 10<sup>3</sup> kg m/s<sup>2</sup><br>B. 3 x 10<sup>3</sup> kg m/s<sup>2</sup> <br>C. 5 x 10<sup>3</sup>kg m/s<sup>2</sup> <br>D. 4.5 x 10<sup>3</sup>kg m/s<sup>2</sup> |
| 442 | The time period of revolution of geostationary satellite is | A. 1440 minutes<br>B. 24 minutes<br>C. 84 minutes<br>D. none of these |

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| 443 | When a particle moves in a circle the angle between it linear velocity and the angular velocity is always | A. 0°<br>B. 180°<br>C. 90°<br>D. none of them |
| 444 | The angular analogue of linear displacement is called | A. angular velocity<br>B. angular displacement<br>C. angular momentum<br>D. moment of force |
| 445 | Ten second after an electric fan is turned on, the fan rotates at 300rev/min. its average angular acceleration is | A. 30 rad/s<sup>2</sup><br>B. 3.14 rad/s<sup>2</sup><br>C. 30 rev/s<sup>2</sup><br>D. 500 rev/s<sup>2</sup> |
| 446 | In case of planets the necessary acceleration is provided by | A. Gravitational force<br>B. coulomb force<br>C. frictional force<br>D. centripetal force |
| 447 | If a car moves with a uniform speed of 2 ms-1 in a circle of radius 0.4m. Its angular speed is | A. 4 rad. s<sup>-1</sup> <br>B. 1.6 rad. s<sup>-1</sup><br> <br>C. 5 rad. s<sup>-1</sup><br>D. 2.8 ms<sup>-1</sup> |
| 448 | The direction of angular velocity is along | A. Tangent to the circle<br>B. Axis of rotation<br>C. Inward the radius<br>D. Out ward of the radius |
| 449 | The force which provides the necessary centripetal force to keep the mud in circular path is called | A. cohesive force<br>B. adhesive force<br>C. frictional force<br>D. gravitational force |
| 450 | A satellite moving round the earth constitute | A. An inertial frame of reference<br>B. Non inertial frame<br>C. Neither inertial nor non inertial<br>D. Both inertial and non-inertial |
| 451 | If a rotating body is moving counter clockwise, direction of angular velocity will be | A. along linear velocity<br>B. towards the center<br>C. along the axis of rotation<br>D. away from center |
| 452 | A body is moving in a circle with a constant speed. it has | A. a constant velocity<br>B. a constant acceleration<br>C. a velocity of constant magnitude<br>D. an acceleration of constant magnitude |
| 453 | For a body moving with constant speed in a horizontal circle, which of the following remains constant? | A. Velocity<br>B. Centripetal force<br>C. Acceleration<br>D. Kinetic energy |
| 454 | The angular momentum changes form 2 units to 6 units in 4s. the torque is | A. 1 unit<br>B. 3/2unit<br>C. 1/2unit<br>D. 4unit |
| 455 | Two artificial satellites of unequal masses are revolving in a circular orbit around the earth with a constant speed. Their time periods: | A. Will be different<br>B. Will depend on their masses<br>C. Will be same<br>D. Will depend upon the place of their projection |
| 456 | The mud flies off the tyre of a fast moving car in the direction | A. parallel to the moving tyre<br>B. anti parallel to the moving tyre<br>C. tangent to the moving tyre<br>D. none of these |
| 457 | In uniform circular motion, the factor that remains constant is | A. Linear velocity<br>B. Centripetal force<br>C. Acceleration<br>D. speed |
| 458 | A particle is moving with constant speed by keeping itself at constant distance from a fixed point in a given plane. Its motion is | A. Circular motion<br>B. Uniform circular motion<br>C. Uniform circular motion with fixed axis of rotation<br>D. Uniform circular motion with axis of rotation not defined |
| 459 | For a particle in uniform circular motion the relation a = r □ of accelerations hold. The acceleration 'a' | A. is centripetal acceleration<br>B. Is tangential acceleration<br>C. is radical acceleration |

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| | | D. both A and B |
| 460 | A body moving in a circular path with a constant speed has a | A. Constant velocity<br>B. Constant kinetic energy<br>C. Constant acceleration<br>D. Constant displacement |
| 461 | A point on the rim of a wheel 4m in diameter has a velocity of 1600 cm s-1. The angular velocity of the wheel is | A. 2 rad s<sup>-1</sup> <br>B. 4 rad s<sup>-1</sup> <br>C. 6 rad s<sup>-1</sup> <br>D. 8 rad s<sup>-1</sup> |
| 462 | If a transverse wave has a speed of 10 m/ sec and frequency of 10 cycle/ sec itswavelength is: | A. 1 m<br>B. 10<sup>-2</sup> cm<br>C. 10 m<br>D. 10 cm |
| 463 | A progressive sound wave is a means of transferring energy. A progressive sound waveof constant frequency is generated in air. The intensity of energy transfer is directlyproportional to another of the wave parameters. Which of the following is correct? | A. Intensity □ (□□□□□□□□□□)<sup>2</sup> <br>B. Intensity □ (□□□□□□□□ □□□□)<sup>2</sup> <br>C. Intensity □ (□□□□□) <sup>2</sup> <br>D. Intensity □ (□□□□□□□□□*h*)<sup>2</sup>  |
| 464 | A string vibrates in 1 loop has frequency 25 Hz if it moves in 2 loops its frequencywould be: | A. 25 Hz<br>B. 50 Hz<br>C. 12.5 Hz<br>D. 5Hz |
| 465 | A sonar depth finder in a boat uses sound signals to determine the depth of water. Fourseconds after the sound leaves the boat it returns to the boat because of reflection fromthe bottom. Assume the speed of sound in water is 1,460 meters per second. The depth of the water is, in meters, : | A. 2,200<br>B. 4,800<br>C. 4,400<br>D. 2,920 |
| 466 | Where in standing wave, do the vibrations of the medium occur? | A. Only at the nodes<br>B. Only at the antinodes<br>C. At all points between the nodes<br>D. At all points between the antinodes |
| 467 | The frequency of an open pipe is f. if one end is closed then its fundamental frequencywill be: | A. f/2<br>B. 3f/4<br>C. f<br>D. 2f |
| 468 | The fundamental frequency in a stretched string is 10 Hz. To double the frequency, the tension in it must be changed to: | A. T<sub>2</sub> = 2T<sub>1</sub><br>B. T<sub>2</sub> = 4T<sub>1</sub><br>C. T<sub>2</sub> = T<sub>1</sub><br>D. none of these |
| 469 | A whistle is revolved with high speed in a horizontal circle of radius R. to an observer at the centre of the circle the frequency of the whistle will appear to be: | A. Decreasing<br>B. Increasing<br>C. Both<br>D. Constant |
| 470 | When passes from medium to another, deviate from its path is called | A. reflection<br>B. refraction <br>C. diffraction<br>D. transmission |
| 471 | A closed organ pipe and an open organ pipe have their first overtone identical infrequency. Their lengths are in ratio | A. 3:4<br>B. 1:2<br>C. 2:3<br>D. 3:5 |
| 472 | The frequency of the fundamental mode of open at one organ pipe is 400 Hz. Ifone end of pipe is closed the fundamental frequency will be | A. 800 Hz<br>B. 600 Hz<br>C. 400 Hz<br>D. 200 Hz |
| 473 | The wavelength of light observed on the earth, form a moving star is found todecrease by 0.05%. Relative to the earth the star is | A. moving away with a velocity of 1.5 x 10<sup>5</sup>m/s<br>B. moving away with a velocity of 1.5 x 10<sup>4</sup>m/s<br>C. coming closer with a velocity of 1.5 x 10<sup>5</sup>m/s<br>D. coming closer with a velocity of 1.5 x 10<sup>4</sup>m/s |