# 11ᵗʰ Physics

## Full Book MCQ's

### Objective Type

**1. Encircle the Correct Option.**

.1 درست جواب کے گرد دائرہ لگائیں۔

1) Human metabolism is the example of

| a) Mass conservation | b) Charge convervation | ✔c) Energy conservation | d) Momentum conservation |

2) As a wheel turns through an angle of one radian , it lays out a tangential distance

| ✔a) s = r | b) s = d | c) $s = \pi$ | d) $s = \theta$ |

3) According to Newton formula for speed of sound , modulus of elasticity of air (E) is equal to.

| ✔a) P | b) $\gamma$P | c) $\sqrt{P}$ | d) None of these |

4) The expression for centripetal force is.

| a) $F_c = \dfrac{ma^2}{r}$ | b) $F_c = \dfrac{mv}{r}$ | ✔c) $F_c = \dfrac{mv^2}{r}$ | d) $F_c = \dfrac{mv}{r^2}$ |

5) A quantity which describe the state and direction of motion of vibrating body is known as

| a) Displacement | b) Amplitude | c) Frequency | ✔d) Phase |

6) The unit of angular velocity is

| a) rad / s | b) rev / s | c) degree / s | ✔d) All of these |

7) The error in Newton's calculated value of speed of sound in air at STP is approximately.

| a) 15 ٪ | b) 17 ٪ | ✔c) 16 ٪ | d) 18 ٪ |

8) The mass of an object is quantitative measure of its.

| a) Momentum | ✔b) Inertia | c) Acceleration | d) Energy |

9) The study of the properties of fluid in motion is called

| a) Fluid statics | ✔b) Fluid dynamics | c) Electro dynamic | d) None of these |

10) Which of them can be expressed in terms of scalar product

| a) work | b) power | ✔c) both a&b | d) none of these |

11) With increase in age, the least distance of distinct vision

| a) Decreases | ✔b) Increases | c) Remains constant | d) Becomes Zero |

12) $1\mu\mu F$ is equal to

| a) 1 pF | b) $10^{-12}$ F | ✔c) Both A & B | d) None of these |

13) Pull of earth on a mass of 10 kg on the surface of earth is

| a) 9.8 N | ✔b) 98 N | c) 980 N | d) 19.8 N |

14) The expression for the time period of low flying satellite put into the orbit is.

| a) $T = \dfrac{2\pi R}{g}$ | b) $T = \dfrac{2\pi R}{G}$ | c) $T = \dfrac{2\pi v}{R}$ | ✔d) $T = \dfrac{2\pi R}{v}$ |

15) The relatives motion of the duck float is used to run

| ✔a) Turbine | b) Motor car | c) Steam engine | d) All of them |

16) The appropriate precision on addition of the following masses 2.189 , 0.089 , 11.8 , 5.32 in kg is

| a) 19.398 kg | b) 19.39 kg | ✔c) 19.4 kg | d) 19.41 kg |

17) When compression of one wave meets rarefaction of other wave the resultant displacement

| a) increase | ✔b) decreases | c) zero | d) all |

18) Real gases obey gas laws only at

| a) Low pressure and high temperature | ✔b) High pressure and low temperature | c) Low pressure and low temperarute | d) High pressure and high temperature |

19) Entropy is measure of.

| a) Internal energy of system | b) Order of system | ✔c) Disorder of system | d) Potential energy of system |

20) The largest satellite system is managed by

| a) 116 countries | ✔b) 126 countries | c) 136 countries | d) 140 countries |

21) INTELSAT VI has a capacity of

| a) 30000 two way telephone circuits | b) Three TV channels | ✔c) Both A & B | d) 142 TV channels |

22) Brilliant and beautiful colours in soap bubbles and oil film on the surface of water are due to

| ✔a) Interference of light | b) Diffraction of light | c) Refraction of light | d) All of these |

23) At maximum height the vertical component of velocity becomes

| a) Maximum | b) Minimum | ✔c) zero | d) all |

24) As we go above the surface of earth , the value of " g "

| ✔a) Increases | b) Decreases | c) Remains constant | d) Reduces to zero |

25) Sunlight also becomes partially polarized due to

| ✔a) Scattering by air molecules | b) Diffraction by air molecules | c) Refraction by air molecules | d) None of these |

26) The length of simple pendulum can be calculated by the expression

| a) $l = \dfrac{g\,T}{2\,\pi^2}$ | b) $l = \dfrac{g^2\,T}{4\,\pi^2}$ | c) $l = \dfrac{4\pi^2}{g\,T^2}$ | ✔d) $l = \dfrac{gT^2}{4\,\pi^2}$ |
|---|---|---|---|

27) _____ theory of gravitation gives us a physical picture of how gravity works.

| a) Newton's | ✔b) Einsten's | c) Galelio | d) Both A & B |
|---|---|---|---|

28) Formation of ethanol from sugar is an example of

| a) Combustion | b) Geyser | ✔c) Fermentation | d) Boiler |
|---|---|---|---|

29) The law of conservation of energy is the basis of:

| a) Equation of continuity | ✔b) Bernoulli's equation | c) Venturimeter | d) Interference |
|---|---|---|---|

30) If $V_t$ and $V_0$ are the velocities of sound in air at temperature T and $T_0$ then.

| ✔a) $\dfrac{v_t}{v_0} = \sqrt{\dfrac{T}{T_0}}$ | b) $\dfrac{v_t}{v_0} = \sqrt{\dfrac{T_0}{T}}$ | c) $\dfrac{v_t}{v_0} = \dfrac{T}{T_0}$ | d) $\dfrac{v_t}{v_0} = \dfrac{T_0}{T}$ |
|---|---|---|---|

31) When the total displacement is divided by the total time taken , we get

| a) Velocity | b) Constant velocity | ✔c) Average velocity | d) Variable velocity |
|---|---|---|---|

32) A typical rocket eject the burnt gases at speeds over

| a) 40 ms$^{-1}$ | b) 400 ms$^{-1}$ | c) 4000 ms$^{-1}$ | ✔d) 40000 ms$^{-1}$ |
|---|---|---|---|

33) Then rotational K.E. of disc is _____ of its translational K.E.

| ✔a) Half | b) Double | c) One fourth | d) Equal |
|---|---|---|---|

34) The restoring force acting on the bob of simple pendulum is.

| a) $F = -mg\cos\theta$ | ✔b) $F = -mg\sin\theta$ | c) $F = -mg\tan\theta$ | d) None of these |
|---|---|---|---|

35) For a body moving in a circle , the linear velocity " V " and angular velocity " $\omega$ " are

| a) Parallel to each other | ✔b) Perpendicular to each other | c) Anti parallel to each other | d) None of these |
|---|---|---|---|

36) For bright fringe the path difference must be on integral multiple of

| a) Half wave length | ✔b) Wave length | c) Quarter wavelength | d) None of these |
|---|---|---|---|

37) The branch of physics which deals with non living things is called

| ✔a) Physical science | b) Chemical Science | c) Biology Science | d) Mathematical science |
|---|---|---|---|

38) High concentration of red blood cells increases the viscosity of blood from

| a) 2-3 time that of water | ✔b) 3-5 time that of water | c) 2-4 time that of water | d) 5-7 time that of water |
|---|---|---|---|

39) Polarization of light shows that light waves are

| a) Longitudinal waves | ✔b) Transverse waves | c) Sound waves | d) All of these |
|---|---|---|---|

40) Velocity time graph can never be

| a) Parallel to time axis | ✔b) Perpendicular to time axis | c) Inclined straight line | d) A curve |
|---|---|---|---|

41) Alexander Graham Bell invented device know as

| a) Photo phone | b) Telephone | ✔c) Both of these | d) None of these |
|---|---|---|---|

42) The ratio of the size of the image to the size of object is called

| a) Resolving power | b) Least distance | c) Near point | ✔d) Magnification |
|---|---|---|---|

43) When an observer moves towards a stationary source of sound with velocity $u_0$, then the modified frequency is given by.

| a) $f' = \left(\dfrac{v}{v + u_0}\right)f$ | ✔b) $f' = \left(\dfrac{v + u_0}{v}\right)f$ | c) $f' = \left(\dfrac{v}{v - u_0}\right)f$ | d) $f' = \left(\dfrac{v - u_0}{v}\right)f$ |
|---|---|---|---|

44) The quantity of matter in a body is called

| ✔a) Mass | b) velocity | c) force | d) none of these |
|---|---|---|---|

45) In one revolution along a circle of radius " r " distance covered is

| a) $\pi$ red. | b) $\dfrac{\pi}{2}$ rad | ✔c) $2\pi$ rad | d) $\dfrac{\pi}{4}$ rad |
|---|---|---|---|

46) If $\theta < 90^0$, work done is said to be

| a) Negative | b) Positive | c) Zero | d) None of them |
|---|---|---|---|

47) Which one of the following is a vector quantity

| a) Speed | b) Temperature | ✔c) Torque | d) Density |
|---|---|---|---|

48) If a simple pendulum is shifted from Karachi to Murree then its time period

| a) Decreases | ✔b) Increases | c) Remains un change | d) Becomes zero |
|---|---|---|---|

49) The force needed to keep the body into circular path is called

| a) Gravitational foce | b) Frictional force | ✔c) Centripetal force | d) Centrifugal force |
|---|---|---|---|

50) When a person holding the pail by a force $\vec{F}$ is moving forward than the work done by upward force will be

| a) Positive | b) Negative | ✔c) Zero | d) None of them |
|---|---|---|---|

51) Sound waves in air

| a) transverse waves | ✔b) longitudinal waves | c) micro waves | d) all |
|---|---|---|---|

52) Echolocation allows dolphins to detect small difference in the

| ✔a) Shape of objects | b) Size of objects | c) Thickness of objects | d) All of these |
|---|---|---|---|

53) The waves produced in a microwave oven have frequency

| a) 2450 Hz | ✔b) 2450 MHz | c) 2450 GHz | d) 2450 KHz |
|---|---|---|---|

54) An object moving through a fluid exprerience a retarding force called

| a) Fluid fraction | b) Impulsive force | ✔c) Drag force | d) Both A & B |
|---|---|---|---|

55) The wavelength of x-rays is of the order of

| a) $10^{-8}$ m | b) $10^{-9}$ m | c) $10^{-7}$ m | ✔d) $10^{-10}$ m |
|---|---|---|---|

56) If $\vec{A} = A\hat{I}$ and $\vec{B} = B\hat{j}$ then

| a) $\vec{A}.\vec{B} = A_x$ | b) $\vec{B} = A_x$ | c) $\vec{A}.\vec{B} = AB$ | ✔d) $\vec{A}.\vec{B} = 0$ |

57) The first condition of equilibrium implies that.

| ✔a) $\sum F = 0$ | b) $\sum F_x = 0$ | c) $\sum F_y = 0$ | d) $\sum F_x = \sum F_y$ |

58) The third of frontiers is the world of

| a) Simple matter | b) Compound matter | ✔c) Complex matter | d) All of these |

59) The dimensions of centripetal force are.

| a) $[MLT^{-1}]$ | b) $[ML^2T^{-2}]$ | c) $[MLT^{-1}]$ | ✔d) $[ML^{-2}T^{-2}]$ | e) $[MLT^{-2}]$ |

60) The value of solar constant is.

| ✔a) $1.4\ kW\ m^{-2}$ | b) $1.0\ kW\ m^{-2}$ | c) $4.1\ kW\ m^{-2}$ | d) $0.1\ kW\ m^{-2}$ |

61) The expression for centripetal acceleration is.

| a) $a_c = \omega^2$ | b) $a_c = \dfrac{v^2}{r}$ | c) $a_c = \dfrac{V}{r^2}$ | ✔d) Both A & B |

62) If the angle between two vectors with magnitude 4 and 5 is $60^0$ then their scalar product is

| a) 5 | b) 9 | ✔c) 10 | d) 15 |

63) The examples of adiabatic processes are

| a) Rapid escape of air from a burst type | b) Rapid expansion and expression of air through which a sound wave is passing | c) Cloud formating | ✔d) All of these |

64) A body , can have constant speed even if its

| a) Velocity is zero | ✔b) Velocity is changing | c) Accelerating is zero | d) Acceleration is changing |

65) The escape velocity for the earth depends upon

| a) The mass of the body | b) The radius of the earth | c) Mass of the earth | ✔d) Both b&c |

66) If a vector is represented in space it has

| a) Two coordinates | ✔b) Three coordinates | c) four coordinates | d) fivecoordinates |

67) The ratio of orbital velocity to the escape velocity is

| a) 2 : 1 | b) 1 : 2 | c) $\sqrt{2} : 1$ | ✔d) $1 : \sqrt{2}$ |

68) Whenever the path difference of two waves is an integral multiple of half the wavelength then this effect is called

| a) Constructive interference | ✔b) Destructive interference | c) Diffraction | d) All |

69) The value of Boltzman constant " k " is

| a) $1.38 \times 10^{-23}\ JK^{-1}$ | b) $1.38 \times 10^{-25}\ JK^{-1}$ | c) $1.38 \times 10^{-27}\ JK^{-1}$ | d) $1.38 \times 10^{-19}\ JK^{-1}$ |

70) The distance covered by a body with uniform acceleration " a " in time " t " starting from rest is.

| a) vt | ✔b) $\frac{1}{2}at^2$ | c) $\frac{1}{2}a^2t$ | d) $\frac{1}{2}vt$ |
|---|---|---|---|

71) The area between the velocity–time graph and the time axis is numerically equal to the

| a) Velocity of the object | b) Acceleration of the object | ✔c) Distance covered | d) None of them |
|---|---|---|---|

72) Which one of the following relations is not correct ?

| a) $S = r\theta$ | ✔b) $\theta = \frac{r}{S}$ | c) $2\pi\ red = 1\ rev$ | d) None of these |
|---|---|---|---|

73) When the reflecting end of the organ pipe is closed it behaves as

| ✔a) node | b) anti nodes | c) either nodes | d) none of these |
|---|---|---|---|

74) Frequency of a simple pendulum is given by

| a) $f = 2\pi\sqrt{\frac{l}{g}}$ | b) $f = \frac{1}{2\pi}\sqrt{\frac{l}{g}}$ | c) $f = 2\pi\sqrt{\frac{g}{l}}$ | ✔d) $f = \frac{1}{2\pi}\sqrt{\frac{g}{l}}$ |
|---|---|---|---|

75) The period of revolution of a geostationary satellite is.

| a) 1 hour | b) 48 min | ✔c) 1 day | d) 1 month |
|---|---|---|---|

76) The product of frequency and wavelength remains constant and is always to

| a) Amplitude of waves | b) Displacement of waves | ✔c) Speed of waves | d) Angle of the waves |
|---|---|---|---|

77) In Michelson's experiment , the equation used to find the speed of light is

| a) c = 16fd | b) c = 16fc | c) $c = \frac{1}{16}fd$ | ✔d) $c = \frac{16}{fd}$ |
|---|---|---|---|

78) Law of conservation of energy in the basis of

| a) Equation of continuity | ✔b) Bernoulli's theorem | c) Stoke's theorem | d) All of these |
|---|---|---|---|

79) Computer chips are made of

| a) Copper | ✔b) Silicon | c) iron | d) rubber |
|---|---|---|---|

80) The image of distant object views through a telescope appears larger because it subtends a

| ✔a) Bigger visual angle | b) Small visual angle | c) Medium visual angle | d) None of these |
|---|---|---|---|

81) When the bob of a simple pendulum is at mean position the value of P.E. is

| a) Maximum | b) Minimum | ✔c) Zero | d) None of these |
|---|---|---|---|

82) If a transverse wave length in a denser medium is incident on a rare medium it is reflected such that it undergoes a phase change of

| ✔a) $0^0$ | b) $90^0$ | c) $120^0$ | d) $180^0$ |
|---|---|---|---|

83) The dimension of power are

| a) $[ML^2\ T^{-2}]$ | ✔b) $[ML^2\ T^{-3}]$ | c) $[ML^{-2}\ T^{-3}]$ | d) None of these |
|---|---|---|---|

84) For the working of heat engine , there must be

| a) A Source | b) A sink | ✔c) Both of these | d) Either of these |

85) The rotational K.E. of a disc is

| a) $\frac{1}{2}mv^2$ | ✔b) $\frac{1}{4}mv^2$ | c) $\frac{1}{8}mv^2$ | d) $\frac{1}{6}mv^2$ |

86) With a step index fibre the over all time difference may be about

| ✔a) 33 ns per km | b) 33 ps per km | c) 33 s per km | d) All of these |

87) In young's double experiment the position of the bright fringes are given by

| ✔a) $y_m = m\frac{\lambda L}{d}$ | b) $y_m = m\frac{\lambda d}{L}$ | c) $y_m = m\frac{dL}{\lambda}$ | d) None of these |

88) The process in which no heat enters or leaves the system is known as

| ✔a) Adiabatic process | b) Isothermal process | c) Isochoric process | d) Isobaric process |

89) The regular array of atoms in a crystal forms a natural diffraction grating with spacing of the order of

| a) $10^{-8}$ m | b) $10^{-9}$ m | ✔c) $10^{-10}$ m | d) $10^{-11}$ m |

90) The variation of P.E. and K.E. with displacement is essential for maintaing

| a) Linear motion | b) Translatory motion | ✔c) Oscillations | d) All of these |

91) SI unit of the energy are the the same as that of

| a) Force | b) Velocity | ✔c) Work | d) Power |

92) Single mode step index fibre has a very thin core having diameter about

| a) 5 cm | b) 5 km | c) 5 mm | ✔d) $5\mu$ |

93) The projection of vector $\vec{A}=2\hat{\imath}-8\hat{\jmath}+\hat{k}$ in the direction of the vector $\vec{B}=3\hat{\imath}-4\hat{\jmath}-12\hat{k}$

| a) 1 | ✔b) 2 | c) 3 | d) 4 |

94) The area between velocity time graph and the time axis is numerically equal to.

| a) Speed of object | b) Distance covered by the object | c) Average velocity of the object | d) Acceleration of the object |

95) The fixed ends of vibrating string are

| ✔a) Nodes | b) Anti nodes | c) crest | d) All of these |

96) The SI unit of angular acceleration is

| ✔a) rads$^{-2}$ | b) revs$^{-2}$ | c) ms$^{-2}$ | d) rads$^{-1}$ |

97) The Laplace formula for velocity of sound in air at S.T.P is.

| a) $v = \sqrt[r]{\frac{P}{\rho}}$ | ✔b) $v = \sqrt{\frac{\gamma P}{\rho}}$ | c) $v = \sqrt{\frac{P}{\gamma\rho}}$ | d) $v = \sqrt{\frac{P}{\rho}}$ |

98) The relation between linear velocity and angular velocity is

| a) $v = S\omega$ | b) $v = \theta\omega$ | c) $v = r^2\omega$ | ✔d) $v = r\omega$ |

99) The dimensions of angular momentum are

| a) $[\,MLT\,]$ | b) $[\,ML^2T^2\,]$ | ✔c) $[\,ML^2T^{-1}\,]$ | d) $[\,ML^{-2}T^{-2}\,]$ |

100) The different streamlines cannot cross each other , this condition is called

| ✔a) Steady flow condition | b) Unsteady flow condition | c) Turbulent flow condition | d) None of these |

101) The waves which propagate by the oscillation of materials particles are known as

| a) electromagnetic waves | b) matter waves | ✔c) mechanical waves | d) micro waves |

102) The resultant of two forces 3N and 4N making an angle $90^0$ with each other is

| a) 1.0N | ✔b) 5N | c) 6N | d) 7N |

103) If $R_x$ is negative and $R_y$ is positive then the resultant lies in

| a) First quadrant | ✔b) 2nd quadrant | c) 3rd quadrant | d) 4th quadrant |

104) In mass spring system , what distance from mean position , K.E. becomes equal to P.E

| ✔a) $x = \dfrac{x_0}{\sqrt{2}}$ | b) $x = \dfrac{x_0}{2}$ | c) $x = \dfrac{x_0}{4}$ | d) None of these |

105) For freely falling elevator , everything in it feels

| a) Greater weight | b) With less weight | ✔c) Weightlessness | d) None of these |

106) Work has the dimension as that of

| a) Momentum | b) Power | ✔c) Torque | d) Force |

107) The expression for pressure exerted by the gas on container on any side is

| a) $P = \dfrac{1}{2}\rho <v^2>$ | b) $P = \dfrac{3}{2}\rho <v^2>$ | ✔c) $P = \dfrac{1}{3}\rho <v^2>$ | d) $P = \dfrac{1}{2}\rho <v>$ |

108) The light energy from a luminous source travel in space by means of wave motion it was proposed by

| a) Einstein | b) Galileo | ✔c) Huygen | d) Newton |

109) The speed of light in vacuum or in air is

| a) $3 \times 10^6\ ms^{-1}$ | b) $3 \times 10^7\ ms^{-1}$ | ✔c) $3 \times 10^8\ ms^{-1}$ | d) $3 \times 10^{10}\ ms^{-1}$ |

110) Under normal circumstances the volume of the blood is sufficient to keep the vessels

| ✔a) Inflated at all time | b) Flatted at all times | c) Either of these | d) None of these |

111) Inertia may expressed in.

| ✔a) Kg | b) Newton | c) Watt | d) Joule |

112) Photo diode converts light in the transmitter can be

| a) Sound signals | ✔b) Electric signals | c) Both of these | d) None of these |

113) The spin angular momentum and orbital angular momentum are usually differentiated in terms of

| ✔a) Radius of the bodies | b) Mass of the bodies | c) Direction of the bodies | d) All of these |

114) The angular momentum of a body about a fixed point is conserved if its velocity.

| a) Increases | b) Decreases | ✔c) Remains the constant | d) None of these |
|---|---|---|---|

115) Absolute temperature of an ideal gas is directly proportional to

| a) < P.E > | ✔b) < K.E. > | c) Both of these | d) None of these |
|---|---|---|---|

116) A diffraction grating is a glass plate having a large number of close parallel equidistant slits ruled on it

| a) By pencil | b) Electronically | ✔c) Mechanically | d) None of these |
|---|---|---|---|

117) Which of them is commutative

| a) Vector addition | b) scalar product of vectors | c) vector product of vectors | ✔d) both a&b |
|---|---|---|---|

118) In Newton's ring the central spot due to reflection of light is

| ✔a) Dark | b) Bright | c) Green | d) Blue |
|---|---|---|---|

119) A Carnot engine has an efficiency of 50% when its sink temperature is $27^o$C. The temperature of source is:

| a) $300^o$C | ✔b) $327^o$C | c) $373^o$C | d) $273^o$C |
|---|---|---|---|

120) The disadvantage of the step index fibre can considerably be reduced by using

| a) Single mode step index fibre | ✔b) Graded index fibre | c) Either of these | d) None of these |
|---|---|---|---|

121) Linear momentum is a

| a) Scalar quantity | ✔b) Vector quantity | c) Fixed quantity | d) Constant quantity |
|---|---|---|---|

122) To send light signal laser source has to be used in

| ✔a) Single mode step index fibre | b) Multi mode step index fibre | c) Both of these | d) None of these |
|---|---|---|---|

123) The equation for Michelson's interfermoeter is

| a) L=2m$\lambda$ | b) L=3m$\lambda$ | c) L=4m$\lambda$ | ✔d) $L = m\lambda/2$ |
|---|---|---|---|

124) It is considered that molecules of ideal gas exert unless they collide

| a) Strong force on each other | b) Week force of each other | ✔c) No force on each other | d) None of these |
|---|---|---|---|

125) In solid what type of waves can be set up

| a) transverse waves | b) longitudinal waves | c) both a&b | ✔d) none of these |
|---|---|---|---|

126) A 10 metre high tank is full of water . A hole appears at its middle . What is the speed of efflux ( g = 10 m$/$s$^2$ )

| a) 100 ms$^{-1}$ | ✔b) 10 ms$^{-1}$ | c) 1 ms$^{-1}$ | d) Zero |
|---|---|---|---|

127) The angle of a vector $2\hat{i} - 2\hat{j}$ with x-axis is:

| a) $45^o$ | b) $135^o$ | c) $225^o$ | ✔d) $315^o$ |
|---|---|---|---|

128) If the orbital radius (r) of a satellite in increased to 4 times , the orbital velocity becomes

| a) 2 times | ✔b) 1/2 times | c) 1/4 times | d) None of these |
|---|---|---|---|

129) For simple pendulum , the value of " $\omega$ " is

| a) $\omega = \dfrac{l}{g}$ | b) $\omega = \dfrac{g}{l}$ | c) $\omega = \sqrt{\dfrac{l}{g}}$ | ✔d) $\omega = \sqrt{\dfrac{g}{l}}$ |
|---|---|---|---|

130) In three dimensional coordinates system the position vector of a point P(a,b,c) can be written as

| a) r= a+b+c | ✔b) r= a î + b ĵ + c k̂ | c) r = a.b.c | d) r=a–b–c |
|---|---|---|---|

131) Solar are used in

| a) Remote control ground based weather stations | b) Remote forest communication system | ✔c) Both a&b | d) none of them |
|---|---|---|---|

132) If velocity and mass of a moving object are doubled then K.E becomes

| a) Double | b) 4 times | c) 6 times | ✔d) 8 times |
|---|---|---|---|

133) The acceleration of a body executing S.H.M. is maximum at.

| a) Mean position | ✔b) Extreme position | c) Between mean and extreme position | d) None of these |
|---|---|---|---|

134) When the angular velocity of a body decreases the direction of angular acceleration becomes _____ to velocity.

| a) Parallel | ✔b) Opposite | c) Arbitrary | d) None of these |
|---|---|---|---|

135) If the body is moving with uniform velocity or rotating with uniform angular velocity it is said to be in

| a) Static equilibrium | ✔b) Dynamic equilibrium | c) Both A & B | d) None of these |
|---|---|---|---|

136) At the present time the number of main frontiers of fundamental science are

| ✔a) 3 | b) 2 | c) 4 | d) 6 |
|---|---|---|---|

137) When the object is place outside the principal focus of the convex lens image formed will be

| a) Virtual and erect | b) Real and erect | ✔c) Real and inverted | d) Virtual and inverted |
|---|---|---|---|

138) Tidal energy and wind energy are used to generate

| a) Steam | b) Charge | ✔c) Electricity | d) All of them |
|---|---|---|---|

139) One communication satellite covers a longitude of

| a) $60^0$ | ✔b) $120^0$ | c) $180^0$ | d) $360^0$ |
|---|---|---|---|

140) An optical instrument used to see the heavenly objects like moon and stars is called

| a) Spectrometer | b) Compound microscope | ✔c) Astronomical telescope | d) All of these |
|---|---|---|---|

141) The earth and some other planets revolves around the sun in nearly

| a) Linear paths | ✔b) Circular paths | c) Both A & B | d) None of these |
|---|---|---|---|

142) Biomass is a potential source of

| a) Renewable energy | b) Fermentation | ✔c) Methane gas | d) All of these |
|---|---|---|---|

143) Kinetic energy and potential energy are

| a) Not inter convertible | b) convertible | ✔c) inter convertible | d) Forms of torque |

**144) In an inelastic collision**

| a) K.E is conserved | ✔b) Momentum is conserved | c) Both K.E and momentum are conserved | d) Both K.E & momentum are not conserved |

**145) The moment of inertia of solid disc or cylinder about an axis passes perpendicular to its plane is**

| a) $mr^2$ | ✔b) $\frac{1}{2}mr^2$ | c) $\frac{1}{4}mr^2$ | d) $\frac{1}{2}m^2r^2$ |

**146) Which of the following waves can travel many kilometers in water**

| a) Sound waves | ✔b) radio waves | c) ultrasonic waves | d) All of these |

**147) As we go below the surface of earth , the value of " g "**

| a) Increases | ✔b) Decreases | c) Remains constant | d) None of these |

**148) A process which can be retracted in exactly reverse order , without producing any change in the surroundings is called**

| a) Irreversible process | ✔b) Reversible process | c) Either of these | d) None of these |

**149) The objective of astronomical telescope is of**

| a) Small focal length | ✔b) Long focal length | c) Very short focal length | d) All of these |

**150) When the lift is falling freely under gravity , then**

| a) a = T | b) a = w | ✔c) a = g | d) a = 0 |

**151) Angular acceleration is a**

| a) Scalar quantity | b) Fixed quantity | ✔c) Vector quantity | d) All of these |

**152) The distance of vibrating body at any instant from its equilibrium position is called**

| a) Amplitude | ✔b) Displacement | c) Velocity | d) All of these |

**153) The complete requirements for a body to be in equilibrium is.**

| a) $\sum F = 0$ | b) $\sum P = 0$ | ✔c) $\sum F = 0 , \sum \tau = 0$ | d) $\sum \tau = 0$ |

**154) The horizontal range and maximum range of a projectile are related as**

| a) $RR_{max} = \sin\theta$ | ✔b) $R = R_{max}\sin^2\theta$ | c) $\frac{R_{max} = V_i^2}{g}$ | d) All of these |

**155) The irregular or unsteady flow of the fluid is called**

| a) Streamline flow | b) Laminar flow | ✔c) Turbulent flow | d) None of these |

**156) Vector are usually denoted by**

| a) Capital alphabets only | ✔b) Bold face characters | c) Small alphabets only | d) All of these |

**157) In vector product, the product of two vectors result into a**

| a) Scalar quantity | ✔b) vector quantity | c) Both a & b | d) None of these |

**158) Newton second law is also called law of**

| a) Energy | ✔b) Acceleration | c) Torque | d) Linear momentum |
|---|---|---|---|

159) The wave which do not require any medium for their propagation are called

| a) compressed waves | b) longitudinal waves | c) mechanical waves | ✔d) electromagnetic waves |
|---|---|---|---|

160) If a mass of a body is doubled , then acceleration becomes.

| a) Double | ✔b) Half | c) One fourth | d) Constant |
|---|---|---|---|

161) The process of confining of light to vibrate in one plane is called

| a) Diffraction | b) Interference | c) Dispersion | ✔d) Polarization |
|---|---|---|---|

162) Laplace calculated the velocity of sound in air at S.T.P equal to.

| a) $280 \, ms^{-1}$ | ✔b) $332 \, ms^{-1}$ | c) $350 \, ms^{-1}$ | d) $340 \, ms^{-1}$ |
|---|---|---|---|

163) Which of them remains constant during the projectile motion

| a) Horizontal motion | b) Horizontal acceleration | c) Vertical acceleration | ✔d) All of these |
|---|---|---|---|

164) The error which can be reduced by comparing the instrument with another which is known to be more accurate is

| a) Random error | ✔b) Systematic error | c) Both of them | d) None of these |
|---|---|---|---|

165) Sounds of frequency lower than 20 hertz are called

| a) ultra sonic | ✔b) infra sonic | c) super sonic | d) all of these |
|---|---|---|---|

166) The distance between two consecutive nodes is

| a) $\dfrac{\lambda}{6}$ | b) $\dfrac{\lambda}{2}$ | c) $\dfrac{\lambda}{4}$ | ✔d) $\dfrac{\lambda}{2}$ |
|---|---|---|---|

167) When the waves comes across the boundary of two media

| a) total wave is reflected back | ✔b) a part of it is reflected back | c) total wave is transmitted | d) none of these |
|---|---|---|---|

168) When a traverse wave travelling in a rare medium encounters a denser medium it bounces back such that incident crest on reflection

| a) becomes a trough | ✔b) remain the crest | c) dies out | d) none of these |
|---|---|---|---|

169) In the study of thermodynamics , the gas which is usually considered as a working substance is

| ✔a) Ideal gas | b) Real gas | c) Either of these | d) None of these |
|---|---|---|---|

170) The cross product of $\hat{i} \times \hat{j}$ is equal to

| a) 1 | b) $\hat{j}$ | ✔c) $\hat{k}$ |
|---|---|---|

171) In case of adiabatic process, first law of thermodynamics can be written as

| ✔a) $W = \Delta U$ | b) $W = -\Delta U$ | c) $W = Q$ | d) $W = Q - \Delta U$ |
|---|---|---|---|

172) The body may cover the distance without having

| a) Velocity | ✔b) Displacement | c) Acceleration | d) None of them |
|---|---|---|---|

173) The motion of a projectile is

| a) one dimensional | ✔b) two dimensional | c) three dimensional | d) four dimensional |

174) The maximum velocity of mass spring system at mean position is

| ✔a) $v_0 = x_0\sqrt{\dfrac{k}{m}}$ | b) $v_0 = x\sqrt{\dfrac{k}{m}}$ | c) $v_0 = x\sqrt{\dfrac{m}{k}}$ | d) $v_0 = x_0\sqrt{\dfrac{m}{k}}$ |

175) The ideal gas law is

| a) PT = NVK | b) P = NKT | ✔c) PV = nRT | d) P = nRT |

176) Salter's duck consists of

| a) Duck float | b) Balance float | c) Un balance float | ✔d) Both a&b |

177) The distance between two adjacent slits on diffraction rating is called

| a) Aperture | b) Focus point | ✔c) Grating element | d) None of these |

178) Which of the following is conservation force

| a) Frictional force | b) Normal force | ✔c) Electric force | d) All of them |

179) In diffraction due to narrow slit the equation for 1st minimum is given as

| a) $dsin\theta = \dfrac{\lambda}{2}$ | ✔b) $d\,sin\theta = \lambda$ | c) $\dfrac{d}{2}sin\theta$ | d) None of these |

180) Radian is defined as the angle subtended at the center of a circle by an arc of length equal to

| ✔a) Radius | b) Double its radius | c) Half of radius | d) Square of radius |

181) The sharpness of the resonance depends on

| a) Loss of P.E. | b) Loss of K.E. | ✔c) Frictional loss of energy | d) All of these |

182) The expression for terminal velocity of a fog droplet is

| a) $v_t = \dfrac{9}{2}\dfrac{gr^2\rho}{\eta}$ | b) $v_t = \dfrac{2}{6}\dfrac{mg}{\pi\eta r}$ | c) $v_t = \dfrac{2}{9}\dfrac{gr^2\eta}{\rho}$ | ✔d) $v_t = \dfrac{2}{9}\dfrac{gr^2\rho}{\eta}$ |

183) If red light is used as compared to blue light then fringe spacing

| ✔a) Increase | b) Decrease | c) Remains same | d) Zero |

184) The speed of light in the materials other than vacuum or air is always

| a) Greater than "c" | ✔b) Less then "c" | c) Equal to "c" | d) None of these |

185) If $\theta$ is the angle between two vectors $\vec{A}$ and $\vec{B}$ then $\theta$ is given by the expression

| ✔a) $cos\theta=\dfrac{\vec{A}.\vec{B}}{AB}$ | b) $sin\theta=\dfrac{\vec{A}.\vec{B}}{AB}$ | c) $tan\theta=\dfrac{\vec{A}.\vec{B}}{AB}$ | d) None of these |

186) The escape velocity can be given by the formula

| a) $\dfrac{2Mg}{\sqrt{2}}$ | ✔b) $\dfrac{\sqrt{2MG}}{R}$ | c) $\dfrac{\sqrt{2fMG}}{R}$ | d) $\sqrt{2GR}$ |

187) In light waves periodic variation of electric field vector and magnetic field vector are

| a) Parallel to each other | ✔b) Perpendicular to each other | c) Anti−parallel to each other | d) None of these |
|---|---|---|---|

188) The first person which attempted to measure the speed of light was

| a) Michelson | ✔b) Galileo | c) Newton | d) Alexander |
|---|---|---|---|

189) The most common method to obtain plane polarized light is

| a) Reflection method | b) Refraction method | c) Selective absorption method | d) Scattering method |
|---|---|---|---|

190) The instantaneous velocity " V " of the horizontal mass spring system is

| a) $v_0 = x_0 \sqrt{\dfrac{x^2}{x^2}}$ | ✔b) $v_0 = x_0 \sqrt{\left(\dfrac{k}{m}\right)\left(1 - \dfrac{x^2}{x_0^2}\right)}$ | c) $v_0 = x_0 \sqrt{\left(\dfrac{m}{k}\right)\left(1 - \dfrac{x^2}{x_0^2}\right)}$ | d) $v_0 = x_0 \sqrt{\left(\dfrac{k}{m}\right)\left(1 - \dfrac{x_0^2}{x^2}\right)}$ |
|---|---|---|---|

191) A device of harnessing wave energy are used to generate

| a) Steam | b) Charge | ✔c) Electric | d) All of them |
|---|---|---|---|

192) A thin film is a transparent medium whose thickness is comparable with the wave length of

| a) Sound | b) Heat | ✔c) Light | d) String |
|---|---|---|---|

193) When a body is moving along a circular path , its acceleration is known.

| a) Linear acceleration | b) Circular acceleration | ✔c) Centripetal acceleration | d) All of these |
|---|---|---|---|

194) In young's double experiment fringe spacing varies directly with

| a) Distance between slits and screen | b) Separation of the slits | c) Wavelength | ✔d) Both a and c |
|---|---|---|---|

195) The second law of thermodynamics is concerned with the circumstances in which

| a) Heat can be converted into work | b) Direction of flow of heat | ✔c) Both of these | d) None of these |
|---|---|---|---|

196) Value of Triple Point of water is given as.

| a) Zero K | ✔b) 273.16 K | c) 100 K | d) 373.16 K |
|---|---|---|---|

197) Monochromatic light is of a single wave length it means that it has

| ✔a) One colour | b) Two colours | c) Three colours | d) Four colours |
|---|---|---|---|

198) According to the first condition of equilibrium , the vector sum of all the fores acting on a body must be

| a) Negative | b) Positive | ✔c) Zero | d) None of these |
|---|---|---|---|

199) In case of unit vector $\hat{i}.\hat{j}=\hat{j}.\hat{k}=\hat{k}.\hat{i}$ is equal to

| a) 1 | b) −1 | c) −2 |
|---|---|---|

200) A physical system under going forced vibrations is known as

| a) Free harmonic oscillator | b) Double harmonic oscillator | c) Simple harmonic oscillator | ✔d) Driven harmonic oscillator |

**201) Work done by the system on its environment it considered as**

| a) Negative | ✔b) Positive | c) Zero | d) Any one of them |

**202) A rocket carries its own fuel in the form of**

| a) Solid only | b) Liquid only | ✔c) Solid and liquid | d) Solid or solid and oxygen |

**203) The speed of the wave in terms of frequency and waved length is**

| ✔a) v = f λ | b) v = xλ | c) v =fx | d) λ = vf |

**204) The SI of Solid angle ( Three dimensional angle ) is**

| a) Radian | ✔b) Steradian | c) Degree | d) Candela |

**205) The relation between torque " $\tau$ " and moment of inertia " I " is**

| a) $\tau = lm$ | b) $\tau = l\omega$ | ✔c) $\tau = l\alpha$ | d) $I = \tau\alpha$ |

**206) According to Einstein , bodies and light rays move along**

| ✔a) Geodesics | b) Force of gravity | c) Ellipse | d) None of these |

**207) The SI unit of moment of inertia is**

| a) kgm | b) $kg^2m$ | ✔c) $kgm^2$ | d) $kg^2m^2$ |

**208) In order to get higher magnification, the focal length of convex lens must be**

| a) Small | ✔b) Large | c) Average | d) Infinite |

**209) The rotational analogy of newton's second law of motion is**

| a) F = ma | ✔b) $\tau = I\alpha$ | c) $v = r\omega$ | d) All of these |

**210) Using a graded index fibre the time difference is reduced to about**

| ✔a) 1 ns per km | b) 1 s per km | c) 1 ps per km | d) All of these |

**211) The moment of linear momentum of a particle of mass " m " and momentum " p " is defined as.**

| a) $\vec{L} = \vec{P} \times \vec{r}$ | b) $\vec{L} = \vec{P} . \vec{r}$ | ✔c) $\vec{L} = \vec{r} \times \vec{P}$ | d) $\vec{r} . \vec{P}$ |

**212) The total energy of the vibrating mass spring system is**

| ✔a) Changing | b) Zero | c) Constant | d) None of these |

**213) A inertial frame of reference is that in which**

| ✔a) a = 0 | b) F = 0 | c) v = 0 | d) None of these |

**214) The supplementary units are.**

| a) Radian | b) Steradian | ✔c) Both A & B | d) None of these |

**215) The direction of angular velocity is**

| a) Away the axis of rotation | b) Normal the axis of rotation | ✔c) Along the axis of rotation | d) None of them |
|---|---|---|---|

216) The slope of velocity–time graph gives

| a) Speed | b) Torque | c) Displacement | ✔d) Acceleration |
|---|---|---|---|

217) When a particle executing simple harmonic motion , is at the mean position , its distance is

| ✔a) Maximum | b) Minimum | c) Zero | d) None of these |
|---|---|---|---|

218) Polarizer are made special substances called

| ✔a) Dichroic substances | b) Chroic substance | c) Organic substances | d) None of these |
|---|---|---|---|

219) Vector product is also called as

| ✔a) Cross product | b) Dot product | c) Scalar product | d) Physical product |
|---|---|---|---|

220) When the source is moving towards the observer with velocity $u_s$ , then the modified frequency is given by .

| a) $f' = \left(\dfrac{v}{v + u_s}\right)f$ | ✔b) $f' = \left(\dfrac{v}{v - u_s}\right)f$ | c) $f' = \left(\dfrac{v + u_s}{v}\right)f$ | d) $f' = \left(\dfrac{v - u_s}{v}\right)f$ |
|---|---|---|---|

221) One revolution is equal to

| a) $90^0$ | b) $180^0$ | c) $270^0$ | ✔d) $360^0$ |
|---|---|---|---|

222) The apparent change in frequency as hared by an observes when there is relative motion between the source and observer is known as.

| a) Compton effect | ✔b) Doppler's effect | c) Physical effect | d) Supersonic effect |
|---|---|---|---|

223) The units of angular acceleration is

| a) $\dfrac{degree}{(second)^2}$ | b) $\dfrac{revolution}{(second)^2}$ | c) $\dfrac{radian}{(second)^2}$ | ✔d) All of these |
|---|---|---|---|

224) A narrow slit produces a series of

| a) Dark regions | b) Bright regions | ✔c) Dark & bright regions | d) None of these |
|---|---|---|---|

225) Shock absorber of a car is a practical example of

| a) Forced osciallaitons | b) Free osciallations | c) Natural oscillations | ✔d) Damped oscillations |
|---|---|---|---|

226) The major types or errors in measurement are

| a) Random errors | b) Systematic error | ✔c) Both of these | d) None of these |
|---|---|---|---|

227) Newton ring are formed as a result of

| a) Refraction of light | b) Dispersion of light | c) Diffraction of light | ✔d) Interference of light |
|---|---|---|---|

228) A heavily damped system has a fairly flat resonance curve in

| a) Velocity time graph | b) Distance time graph | ✔c) Amplitude frequency graph | d) Amplitude time graph |
|---|---|---|---|

229) The dimensions of velocity are

| a) $[\,MLT\,]$ | b) $[\,MLT^{-1}\,]$ | ✔c) $[\,ML^{-1}\,]$ | d) $[\,LT^{-1}\,]$ |
|---|---|---|---|

230) Michelson measured the length of standard meter in terms of the wave length of

| a) Red sodium light | b) Blue sodium light | ✔c) Red cadmium light | d) Yellow sodium light |

231) The equation $F = 6\pi\eta r v$ is called

| a) Newton's law | ✔b) Stoke's law | c) Pascal law | d) Bragg's law |

232) Ballistic missiles are used only for

| ✔a) Short ranges | b) Long ranges | c) Medium ranges | d) All of these |

233) If the slope of a velocity time graph gradually decreases then body is said to be moving with.

| a) Positive acceleration | ✔b) Negative acceleration | c) Uniform velocity | d) None of these |

234) Absolute uncertainity in a measuring instrument is equal to:

| ✔a) Least count | b) Accuracy | c) Fractional uncertainity | d) Percentage uncertainity |

235) Heat required to raise the temperature of one mole of substance through 1K is called

| a) Heat capacity | ✔b) Molar heat capacity | c) Constant heat capacity | d) All of these |

236) Physics is an important and basic part of

| a) Biological science | b) Chemical science | ✔c) Physical science | d) All of these |

237) When a body is whirled in a horizontal circle by means of a string, the centripetal force is supplied by

| a) Mass of the body | b) Velocity of the body | ✔c) Tension in the string | d) Centripetal acceleration |

238) Mathematically torque can be defined as

| a) $\vec{\tau} = \vec{F} \times \vec{r}$ | ✔b) $\vec{\tau} = \vec{r} \times \vec{F}$ | c) $\vec{\tau} = \vec{r} \times \vec{v}$ | d) $\vec{\tau} = \vec{r} \times \vec{p}$ |

239) If a vector A makes an angle $90^o$ with x–axis then its y– components is

| ✔a) A | b) Zero | c) A $\cos\theta$ | d) None of these |

240) Zeros to the right of the significant figures.

| a) Are significant | b) Are not significant | ✔c) May or may not significant | d) None of these |

241) According to Raleigh the resolving power of light of wave length $\lambda$ through a lens of diameter D is given by

| a) $a_{min} = \lambda D$ | ✔b) $a_{min} = 1.22\dfrac{\lambda}{D}$ c) $a_{min} = R$ | d) $a_{min} = 1.22\lambda D$ |

242) If a vector **A** makes an angle $\theta$ with x–axis then its x– component is

| a) A $\sin\theta$ | ✔b) A $\cos\theta$ | c) A $\tan\theta$ | d) zero |

243) The total energy of spring mass system is

| a) $\frac{1}{2} k x^2$ | ✔b) $\frac{1}{2} kx^2\left(1 + \dfrac{x^2}{x_0^2}\right)$ | c) $\frac{1}{2} kx^2\left(1 - \dfrac{x^2}{x_0^2}\right)$ | d) Zero |

244) The final image seen through eye piece in telescope is

| a) Real ,enlarge and inverted | b) Enlarge and inverted | ✔c) Virtual enlarge and inverted | d) Real enlarged and erect |

245) Newton's laws are adequate for speeds that are low compared with the speed of

| a) Sound | ✔b) Light | c) Air | d) All of them |

246) The property of an object tending to maintain the state of rest or state of uniform motion is called

| ✔a) Inertia | b) Mass | c) Force | d) All of these |

247) The system international ( SI ) is built up from.

| a) Base units | b) Supplementary units | c) Derived units | ✔d) All of these |

248) The maximum displacement of a body on either side of its equilibrium position is called

| a) Displacement | b) Frequency | ✔c) Amplitude | d) None of these |

249) $\pi$ radians is equal to

| a) $90^0$ | b) $180^0$ | c) $270^0$ | ✔d) $360^0$ |

250) In a Michelson interference by moving the mirror through a distance of $\dfrac{\lambda}{4}$ the path difference changes by

| a) $\dfrac{\lambda}{4}$ | ✔b) $\dfrac{\lambda}{2}$ | c) $\dfrac{\lambda}{6}$ | d) $\dfrac{\lambda}{8}$ |

251) The actual efficiency of property tuned petrol engine is.

| a) 20% to 30% | b) 40% to 45% | c) 30% to 35% | ✔d) 25% to 30% |

252) The relation between frequency and time period is

| a) $f \times \dfrac{1}{T} = 1$ | b) $f \times T = 1$ | c) $f = \dfrac{1}{T}$ | ✔d) Both B & C |

253) Total amount of energy at any point

| a) Increase | b) Decreases | ✔c) Remains constant | d) Changes |

254) The orbital motion of geo-stationary satellite is synchronized with _____

| a) Orbital motion of earth | ✔b) Spin motion of earth | c) Orbital motion of sun | d) None of these |

255) A layer over the central core of optical fibre is called

| ✔a) Cladding | b) Jacket | c) Plastic | d) Rubber |

256) Two equal and opposite forces acting at different point on a body form

| a) Pair | ✔b) Couple | c) Impluse | d) All of these |

257) The direction of angular acceleration can be found by

| a) Left hand rule | ✔b) Right hand rule | c) Hand to tail rule | d) All of these |

258) When both ends of organ pipe are open then the wave length of stationary waves of harmonic is given by

| a) $\lambda = \dfrac{4\pi}{\lambda}$ | b) $\lambda_n = \dfrac{4\ell}{n}$ | ✔c) $\lambda_n = \dfrac{2\ell}{n}$ | d) $\lambda_n = \dfrac{8\ell}{n}$ |

259) Biomass is converted into fuel by.

| a) Evaporation | b) Reflection | ✔c) Fermentation | d) Scattering |
|---|---|---|---|

260) The distance between any two consecutive compression is called

| a) displacement | b) amplitude | c) frequency | ✔d) wave length |
|---|---|---|---|

261) When light enters glass it suffers a change in

| a) Frequency only | b) Wave length only | c) Velocity only | ✔d) Both velocity and wave length |
|---|---|---|---|

262) The SI unit of angular velocity is

| a) rad $/$ s | b) rev $/$ s | ✔c) degree $/$ s | d) None of these |
|---|---|---|---|

263) The figure 73.560 is rounded off as

| ✔a) 73.6 | b) 73.7 | c) 73.8 | d) 73.65 |
|---|---|---|---|

264) A reversible cycle is the one in which

| a) Some changes are reversible | b) No change is reversible | ✔c) All the changes are reversible | d) None of these |
|---|---|---|---|

265) The two points on a wave pattern are separated by a distance of the phase difference between them is

| a) $0^0$ | b) $90^0$ | ✔c) $180^0$ | d) all |
|---|---|---|---|

266) Which is unimportant in describing the satellite's orbit?

| a) Distance of satellite from earth's center | b) Gravitational constant G | c) Mass of satellite | d) Mass of earth |
|---|---|---|---|

267) When an elevator is at rest , then apparent weight（T）of a body in the elevator will be

| a) T = W + ma | b) T = W − ma | c) T = ma − W | ✔d) T = W |
|---|---|---|---|

268) The velocity of sound at 10 $C^0$ is .

| a) $335 \, ms^{-1}$ | ✔b) $338 \, ms^{-1}$ | c) $340 \, ms^{-1}$ | d) $342 \, ms^{-1}$ |
|---|---|---|---|

269) The percentage of available heat converted into work , by petrol engines is roughly

| ✔a) 25 ٪ | b) 80 ٪ | c) 35 ٪ | d) 35 ٪ to 40 ٪ |
|---|---|---|---|

270) It becomes difficult to recognized the beats when the difference between the frequencies of the two sounds is more than about

| a) 8 Hz | ✔b) 10 Hz | c) 12 Hz | d) 6 Hz |
|---|---|---|---|

271) Moment arm is a

| ✔a) Vector quantity | b) Scalar quantity | c) Tensor quantity | d) Linear quantity |
|---|---|---|---|

272) A usual way to obtain a plane wave fronts is to place point source of light at the focus of a

| a) Concave lens | b) Concave mirror | ✔c) Convex lens | d) Convex mirror |
|---|---|---|---|

273) If the resultant vector lies in 2nd quadrant then its direction is

| a) $\theta = 270^0$ | ✔b) $\theta = 180^0 - \emptyset$ | c) $\theta = 180^0 + \emptyset$ | d) $\theta = 90^0 + \emptyset$ |
|---|---|---|---|

274) The rate of change of displacement with respect to time is called

| ✔a) Velocity | b) Speed | c) Acceleration | d) None of them |
|---|---|---|---|

275) The frictional effect between different layers of a flowing fluid is described in terms of

| ✔a) Viscosity of fliud | b) Velocity of fluid | c) Accelerations of fluid | d) All of these |
|---|---|---|---|

276) It is possible to distinguish between transverse and longitudinal waves from the property of

| a) diffraction | b) interference | c) refraction | ✔d) polarization |
|---|---|---|---|

277) The vector addition holds

| a) Commutative law | b) Law of vector addition | ✔c) both a&b | d) None of these |
|---|---|---|---|

278) The self scalar product of vector is equal to the

| a) Product of square its magnitude | ✔b) Square of its magnitude | c) Magnitude | d) None of these |
|---|---|---|---|

279) The property of bending of light around obstacles is called

| a) Interference | ✔b) Diffraction | c) Reflection | d) All of these |
|---|---|---|---|

280) If the slope of the velocity−time graph is decreasing with time , the body is said to have

| ✔a) Negative acceleration | b) Positive acceleration | c) Average acceleration | d) Uniform acceleration |
|---|---|---|---|

281) A body covers a distance of 10 m in 1 sec with a constant velocity of 10 ms−1. Acceleration produced by the body is.

| ✔a) $0 \text{ ms}^{-2}$ | b) $2 \text{ ms}^{-2}$ | c) $5 \text{ ms}^{-2}$ | d) $10 \text{ ms}^{-2}$ |
|---|---|---|---|

282) According to Einstein mass energy equation one Kg mass actually has energy

| a) $9 \times 10^{15}$J | ✔b) $9 \times 10^{16}$J | c) $9 \times 10^{14}$J | d) $9 \times 10^{13}$J |
|---|---|---|---|

283) Magnification of a simple microscope is

| a) $M = 1 + \frac{f}{d}$ | ✔b) $M = 1 + \frac{d}{f}$ | c) $M = 1 + \frac{1}{f}$ | d) $M = \frac{d}{f}$ |
|---|---|---|---|

284) The stationary waves have a discrete set of frequencies $f_1, 2f_1, \ldots n f_1$ known as

| a) Simple series | ✔b) Harmonic series | c) Fundamental series | d) Geometric series |
|---|---|---|---|

285) Substances that do not flow easily have

| a) Small coefficient of viscosities | ✔b) Large coefficient of viscosities | c) Zero coefficient of viscosities | d) None of these |
|---|---|---|---|

286) The diver spins faster when moment of inertia becomes

| ✔a) Smaller | b) Greater | c) Constant | d) None of these |
|---|---|---|---|

287) When the object is placed at focus F of convex lens the image formed will be

| a) At the focus F | ✔b) At infinity | c) at 2F | d) None of these |
|---|---|---|---|

288) Sir lsaac Newton published his laws of motion in his famous book Principia in

| a) 1587 | ✔b) 1687 | c) 1787 | d) 1887 |

289) Such oscillations in which the amplitude decreases steadily with time are called

| a) Free oscillations | b) Natural oscillations | ✔c) Damped oscillations | d) Both A & C |

290) In multi mode graded index fibre refractive index from middle to outer surface

| ✔a) Gradually decrease | b) Gradually increase | c) Remains constant | d) None of these |

291) The ratio of the angles subtended by the image as seen through the optical device to that subtended by the object at the

unaided eye is called

| a) Magnifying power | b) Angular magnification | ✔c) Both of these | d) None of these |

292) The maximum velocity " $V_0$ " of the mass attached to an elastic spring and executing SHM is.

| a) $v_0 = x_0 \sqrt{\dfrac{m}{k}}$ | b) $v_0 = x \sqrt{\dfrac{m}{k}}$ | ✔c) $v_0 = x_0 \sqrt{\dfrac{k}{m}}$ | d) $v_0 = x \sqrt{\dfrac{k}{m}}$ |

293) Work can be related to pressure by the relation:

| ✔a) W = P $\Delta$ V | b) W = P$/\Delta$ V | c) W = P $\Delta$ U | d) W= V$/\Delta$P |

294) The scalar product of two vectors is negative when

| a) They are parallel vector | ✔b) They are anti parallel vector | c) They are parallel with same magnitude | d) They are of negative magnitude |

295) If " $\theta$ " radian is the angle subtended by an arc of length " S " at the center of a circle of radius " r " then

| a) r = s$\theta$ | ✔b) s = r$\theta$ | c) $\theta$ = sr | d) s = r$^2\theta$ |

296) Energy stored in the spring is called

| a) Gravitational energy | b) Kinetic energy | c) Electric energy | ✔d) Elastic potential energy |

297) The angular magnification of a compound microscope is

| ✔a) M=$\dfrac{q}{p}\left[1+\dfrac{d}{fe}\right]$ | b) M=$\dfrac{q}{p}\left[1-\dfrac{d}{fe}\right]$ | c) M=$\dfrac{q}{p}2\left[1+\dfrac{d}{fe}\right]$ | d) None of these |

298) Transverse waves consist of

| a) crest | b) trough | ✔c) both of these | d) none of these |

299) If a squash ball comes back to its starting paint after bouncing off the wall several times , then its total displacement is

| a) Maximum | b) Negative | ✔c) Zero | d) None of them |

300) The voltage produced by a single voltaic cell is

| a) high | b) low | ✔c) very low | d) zero |

301) If a transverse wave length in a rare medium is incident on a denser medium it is reflected such that it undergoes a phase

change of

| a) $90^0$ | b) $120^0$ | c) $80^0$ | ✔d) $180^0$ |

302) The number of the satellites which form the Global positioning system are

| a) 22 | ✔b) 24 | c) 26 | d) 28 |

303) The relation between linear velocity and angular velocity can be written as

| a) $\vec{\omega} = \vec{r} \times \vec{v}$ | b) $\vec{\omega} = \vec{v} \times \vec{r}$ | c) $\vec{v} = \vec{r} \times \vec{\omega}$ | ✔d) $\vec{v} = \vec{\omega} \times \vec{r}$ |

304) The instantaneous velocity of projection on the diameter for a particle moving in a circle is v =

| a) $\omega\sqrt{x^2 - x_0^2}$ | b) $\omega^2\sqrt{x_0^2 - x^2}$ | ✔c) $\omega\sqrt{x_0^2 - x^2}$ | d) $\omega\sqrt{x_0 - x}$ |

305) When first condition is satisfied then there is

| a) Linear acceleration | b) No linear acceleration | ✔c) Angular acceleration | d) Linear velocity |

306) The speed of sound in hydrogen is .

| a) Two time its speed in oxygen | ✔b) Four times its speed in oxygen | c) Three times its speed in oxygen | d) Sixteen times its speed oxygen |

307) The ratio between orbital and escape velocities is

| a) $\dfrac{1}{\sqrt{2}g}$ | b) $\dfrac{2}{\sqrt{2}g}$ | ✔c) $\dfrac{1}{\sqrt{2}}$ | d) $\dfrac{1}{\sqrt{2}}g$ |

308) The direction of the streamline is the same as the direction of

| a) Force | ✔b) Velocity | c) Weight | d) All of these |

309) When the source of sound is moving away from the stationary observer with velocity $u_s$, then the modified frequency is given by.

| ✔a) $f' = \left(\dfrac{v}{v + u_s}\right)f$ | b) $f' = \left(\dfrac{v}{v - u_s}\right)f$ | c) $f' = \left(\dfrac{v + u_s}{v}\right)f$ | d) $f' = \left(\dfrac{v - u_s}{v}\right)f$ |

310) One light year is equal to

| a) $9.46 \times 10^{15}$ cm | ✔b) $9.46 \times 10^{15}$ m | c) $9.46 \times 10^{45}$ cm | d) $9.46 \times 10^{35}$ cm |

311) The scientist who correctly measured the speed of light was

| a) Galileo | b) Newton | c) Laplace | ✔d) Michelson |

312) Speed of the sound waves depends upon the.

| a) Compressibility of the medium | b) Intertia of the medium | ✔c) Both of them | d) None of them |

313) Diffraction is a special type of

| ✔a) Interference | b) Polarization | c) Reflection | d) None of these |

314) If one mole of an ideal gas is heated at constant volume then

| a) $Q_P = C_v\Delta T$ | b) $W = C_v\Delta T$ | c) $Q = C_v\Delta T$ | ✔d) $\Delta U = C_v\Delta T$ |

315) Whenever path difference of two waves is an integral multiple of wavelength displacement then this effect is called

| ✔a) constructive interference | b) destructive interference | c) diffraction | d) none of these |

316) In case of a vibrating mass spring system , work done in displacing the mass " m " through " $x_0$ " is

| a) $W = k x_0{}^2$ | b) $W = \frac{1}{2} k x_0$ | c) $W = \frac{1}{2} k^2 x_0$ | ✔d) $W = \frac{1}{2} k x_0{}^2$ |

317) Such a surface on which all he points have the same phase of vibration known as

| ✔a) Wave front | b) Wave nature | c) Amplitude | d) None of these |

318) K.E and P.E are two basic forms of

| a) Nuclear energy | b) Electric energy | c) Magnetic energy | ✔d) Mechanical energy |

319) In order to observe the effects of diffraction , the grating spacing must be of the order of the

| ✔a) Wave length of radiation used | b) Frequency of radiation used | c) Speed of radiation used | d) All of these |

320) Geo-stationary satellite remains always

| ✔a) Stationary over the same point on equator | b) Stationary on earth | c) Stationary in space | d) None of these |

321) Sun is the original source of generating

| a) Fossil fuels | b) Waves | c) Wind | ✔d) All of these |

322) Michelson devised Michelson's instrument in

| a) 1681 | b) 1781 | ✔c) 1881 | d) 1981 |

323) The scalar product of two vector $\vec{A}$ and $\vec{B}$ is written as

| ✔a) $\vec{A}.\vec{B}$ =ABcosθ | b) $\vec{A}.\vec{B}$ =ABsinθ | c) $\vec{A}.\vec{B}$ =ABtanθ | d) $\vec{A}.\vec{B}$ =A+Bcosθ |

324) The value of " g " is maximum

| a) At the equator | ✔b) At the poles | c) At the center of the earth | d) Between poles and equator |

325) The time period of a simple pendulum is independent of its

| a) Length | ✔b) Mass | c) Acceleration due to gravity | d) None of these |

326) If r= −2 î + 3 $\hat{k}$, then vector is in

| a) xy-plane | ✔b) xz-plane | c) yz- plane | d) All of these |

327) According to Einstein's theory , space time is

| a) Circular | b) Straight | ✔c) Curved | d) All of these |

328) In the case of grating spectrometer the resolving power of the grating is defined as

| a) $R = \lambda$ b) $R = \frac{\lambda}{\Delta\lambda}$ | c) $R = \frac{1}{\lambda\Delta\lambda}$ | d) None of these |

329) Time taken by light to reach from moon to earth is

| a) 1 min 10 sec | ✔b) 1 min 20 sec | c) 1 min 230 sec | d) 1 min 30 sec |

330) Distance covered by a freely falling body in 2 seconds will be

| a) 19.0 m | b) 19.2 m | c) 19.4 m | ✔d) 19.6 m |

**331) Blood is an**

| a) Compressible fluid | ✔b) Incompressible fluid | c) Non-viscous fluid | d) Both B & C |

**332) The minimum distance from the eye at which an object appears to be distinct is called**

| a) Least distance | ✔b) Near point | c) Magnification | d) Resolving power |

**333) " No body beings to move or comes to rest of its own self " was stated by**

| a) Einstein | b) Galileo | c) Newton | ✔d) Abu Ali Sena |

**334) The time period of a second pendulum is**

| a) 1 second | ✔b) 2 second | c) 3 second | d) 4 second |

**335) The dimension of force are**

| a) $[MLT^1]$ | b) $[MLT^{-1}]$ | c) $[MLT^5]$ | ✔d) $[MLT^{-2}]$ |

**336) The expansion of universe started off probably**

| a) 20 millions years ago | b) 30 millions years ago | c) 40 millions years ago | ✔d) 20 billion years ago |

**337) The unit of solar light inversely is.**

| a) Watt | ✔b) $kW\ m^{-2}$ | c) $Watt\ m^{-2}$ | d) $j.m^2$ |

**338) In the molar heat capacities $C_P\ and\ C_v$**

| a) $C_P = C_v$ | ✔b) $Q_P > C_v$ | c) $C_P < C_v$ | d) $C_P C_v = 1$ |

**339) Vector , acceleration , force , work , power are all**

| a) Vector quantitites | b) Scalar quantitites | ✔c) Derived quantities | d) Base quantities |

**340) In vibratory motion ( S.H.M )**

| a) P.E remains constant | b) K.E. remains constant | ✔c) Total energy remain constant | d) None of these |

**341) The dimensions and SI unit of linear acceleration and acceleration due to gravity are**

| a) Different | ✔b) Same | c) Zero | d) None of them |

**342) Acceleration of bodies of different masses allow to fall freely is**

| a) Variable | ✔b) The same | c) Zero | d) Different for different heights |

**343) Radar is a device , which**

| a) Transmits radio waves | b) Receives radio waves | ✔c) Both A & B | d) None of these |

**344) Which of the following are the cases of superposition**

| a) interference | b) beats | c) stationary waves | ✔d) all of these |

345) In orbital angular momentum, if orbital radius is large as compared to the size of the body, the body may be considered as

| ✔a) Point object | b) Static object | c) Both A & B | d) None of these |
|---|---|---|---|

346) When the body moves with constant acceleration, the velocity time graph is.

| a) Parabola | ✔b) Straight line | c) Hyperbola | d) Curve |
|---|---|---|---|

347) The direction of a vector in space specified by

| a) One angle | b) Two angles | ✔c) Three angles | d) Four angles |
|---|---|---|---|

348) Which one of the following organ pipe is richer in harmonics?

| ✔a) open at both ends | b) close of one end | c) both of these | d) None of these |
|---|---|---|---|

349) The average translational K.E. of molecules in a gas at temperature 27 $C^0$ is

| ✔a) $6.21 \times 10^{-21}$ J | b) $6.21 \times 10^{-9}$ J | c) $6.21 \times 10^{-6}$ J | d) $6.21 \times 10^{-15}$ J |
|---|---|---|---|

350) Two forces act together on an object then magnitude of their resultant is maximum when the angle between the forces is

| ✔a) $0^0$ | b) $45^0$ | c) $90^0$ | d) $180^0$ |
|---|---|---|---|

351) Ultimately all energy transfers result in heating of the

| a) System | ✔b) Environment | c) Water | d) Air |
|---|---|---|---|

352) The value of critical velocity to put the satellite into a orbit to earth is

| a) $6.9 \text{ kms}^{-1}$ | ✔b) $7.9 \text{ kms}^{-1}$ | c) $8.9 \text{ kms}^{-1}$ | d) $9.9 \text{ kms}^{-1}$ |
|---|---|---|---|

353) The wave nature of light was proposed by

| a) Thomas young | b) Galileo | ✔c) Huygen | d) Newton |
|---|---|---|---|

354) The Velocity of sound in air increase by every 1 C rise in temperature up to.

| a) $61.1 \text{ ms}^{-1}$ | b) $61. \text{ ms}^{-1}$ | ✔c) $0.61 \text{ ms}^{-1}$ | d) $0.061 \text{ ms}^{-1}$ |
|---|---|---|---|

355) If a body oscillates with its natural frequency without the interference of an external force, it is said to be executing

| a) Forced vibrations | b) Damped vibrations | ✔c) Free oscillations | d) Both A & B |
|---|---|---|---|

356) Doppler's effect applies to

| a) Sound wave only | b) Light wave only | ✔c) Both sound & light waves | d) Neither sound nor light waves |
|---|---|---|---|

357) A good example of first law of thermodynamics is

| a) Simple Pendulum | b) Centripetal force | ✔c) Bicycle pump | d) Doppler effect |
|---|---|---|---|

358) The portion of the wave above the mean level is called

| ✔a) crest | b) trough | c) node | d) odes |
|---|---|---|---|

359) The number of lines per centimeter on typical diffraction grating is about

| a) 400 to 500 | b) 400 to 800 | c) 400 to 4000 | ✔d) 400 to 5000 |
|---|---|---|---|

360) To and fro motion of body about mean position is called

| a) Oscillatory motion | b) Vibratory motion | ✔c) Both A & B | d) None of these |

361) The wave in which particles of the medium have displacement along the direction of propagation of waves are called

| ✔a) transverse waves | b) longitudinal waves | c) micro waves | d) all |

362) When the bob of a simple pendulum is at extreme position, the value of K.E. is

| a) Maximum | b) Minimum | ✔c) Zero | d) None of these |

363) The transparent spacing between the scratches on the glass plate act as

| a) Wave | b) Dark | ✔c) Slit | d) None of these |

364) When an observer moves away from stationary source of sound with velocity $u_0$, then the modified frequency is given by.

| a) $f' = \left(\dfrac{v}{v + u_0}\right)f$ | b) $f' = \left(\dfrac{v + u_0}{v}\right)f$ | c) $f' = \left(\dfrac{v}{v - u_0}\right)f$ | ✔d) $f' = \left(\dfrac{v - u_0}{v}\right)f$ |

365) The branches of physics which deals with living things is called

| a) Chemical science | b) Physical science | ✔c) Biological science | d) Mathematical science |

366) A frame of reference stationed on earth is approximately

| ✔a) Inertial frame of reference | b) Non-Inertial frame of reference | c) Force | d) All of these |

367) In the projectile motion the vertical component of velocity

| a) zero | b) constant | c) increase with time | ✔d) varies point to point with me |

368) The dimension of co-efficient of viscosity are

| a) $[MLT^{-1}]$ | ✔b) $[ML^{-1}T^{-1}]$ | c) $[ML^2T^{-1}]$ | d) $[ML^{-2}T^{-1}]$ |

369) According to equation of continuity fluid speed is inversely proportional to ( A = area of cross section )

| ✔a) $A^2$ | b) A | c) $\dfrac{1}{2}$ | d) $\sqrt{A}$ |

370) The slope of velocity time graph shows.

| a) Total distance covered | ✔b) Average acceleration | c) Instantaneous acceleration | d) Force exerted on the body |

371) The scale of spring balance, in accelerating lift shows

| a) Real weight | ✔b) Apparent weight | c) Both A & B | d) None of these |

372) The magnitude of resultant magnitude of two forces 6N and 8N acting at right angle to each other

| ✔a) 10N | b) 2N | c) 5N | d) 14N |

373) Bragg found that a monochromatic beam of x-rays was deflected from a crystal plane like a

| a) Lens | ✔b) Mirror | c) Glass | d) All of these |

374) Acceleration for a mass spring system , at any instant is given by

| a) $\vec{a} = \dfrac{k}{m}\,\vec{x}$ | b) $\overrightarrow{2a\dfrac{k}{m}}\,\vec{x}$ | ✔c) $\vec{a} - = \dfrac{k}{m}\,\vec{x}$ | d) All of these |
|---|---|---|---|

375) If the resultant vector lies in 4th quadrant then its direction is

| a) $\theta = 180^0 + \varnothing$ | b) $\theta = 360^0 + \varnothing$ | c) $\theta = 270^0 + \varnothing$ | ✔d) $\theta = 360^0 - \varnothing$ |
|---|---|---|---|

376) A system on which no external agency exerts any force is called

| a) Non-isolated system | ✔b) Isolated system | c) Non-inertial system | d) Inertial system |
|---|---|---|---|

377) The change in internal energy is independent of paths , similar to

| a) K.E. | b) Wave energy | ✔c) Gravitational P.E. | d) Solar energy |
|---|---|---|---|

378) The 2nd frontiers in fundamental science is

| a) World of extremely large things | b) World of middle size things | ✔c) World of extremely small things | d) All of these |
|---|---|---|---|

379) The expression for the time period of a satellite to put in into the orbit is

| a) $\dfrac{2\pi}{vr}$ | b) $\dfrac{2\pi v}{r}$ | ✔c) $\dfrac{2\pi r}{v}$ | d) $2\pi vr$ |
|---|---|---|---|

380) If there is super position of two waves of same frequency which are exactly in phase than resultant replacement

| a) decrease | ✔b) increases | c) remains constant | d) zero |
|---|---|---|---|

381) An oil film floating on water surface exhibits colour pattern due to

| a) Diffraction of light | ✔b) Interference of light | c) both of these | d) None of these |
|---|---|---|---|

382) In reversible process the entropy of system .

| ✔a) Remain constant | b) Increases | c) Decrease | d) Becomes Zero |
|---|---|---|---|

383) Newton's second law of motion is also called

| a) Law of gravitation | b) Law of inertia | ✔c) Law of acceleration | d) None of these |
|---|---|---|---|

384) When an elevator is moving downward with an acceleration " a " the apparent weight of the body in the elevator will be

| a) T = W + ma | ✔b) T = W - ma | c) T = W | d) None of these |
|---|---|---|---|

385) Two vector having same magnitude and directions are called

| a) Rectangular component | ✔b) Equal vectors | c) Additions of vector | d) All of these |
|---|---|---|---|

386) The value of escape velocity for earth is approximately equal to

| ✔a) 11 km/s | b) 12 km/s | c) 11 m/s | d) 11 km/h |
|---|---|---|---|

387) Associated with the motion of a driven harmonic oscillator , there is a very striking phenomenon , known as

| a) SHM | b) Free oscillations | ✔c) Resonance | d) All of these |
|---|---|---|---|

388) A heat engine is a device which converts

| a) K.E. into P.E. | b) Thermal energy to electric energy | ✔c) Thermal energy to mechanical work | d) P.E. into K.E. |

389) If the body is at rest or moving with uniform angular velocity in this case torque acting on the body will be

| a) Maximum | b) Minimum | ✔c) Zero | d) Infinite |

390) In $\vec{A}\vec{B}$ =AB sinθ $\hat{n}.\hat{n}$ is a unit vector

| ✔a) Perpendicular to the plane containing $\vec{A}$ and $\vec{B}$ b) Parallel to the plane containing $\vec{A}$ and $\vec{B}$ | c) Anti Parallel to the plane containing $\vec{A}$ and $\vec{B}$ d) All of these |

391) The acceleration of the body having SHM depends upon its

| a) Mass | b) Velocity | ✔c) Displacement from mean position | d) All of these |

392) If one mole of an ideal gas is heated at constant pressure , then

| ✔a) $Q_P = C_p \Delta T$ | b) $\Delta U = C_p \Delta T$ | c) $\Delta U = C_v \Delta T$ | d) $Q_P = C_v \Delta T$ |

393) A wave which transfers energy in moving away from the source of disturbance is called

| a) Progressive wave | b) travelling wave | ✔c) both a&b | d) none of them |

394) The SI unit of Plane angle ( two dimensional angle ) is

| ✔a) Radian | b) Steradian | c) Candela | d) Degree |

395) In compound microscope the focal length of objective lens is

| ✔a) Small | b) Large | c) Small or large | d) None of these |

396) When one end of organ pipe is closed then the frequency of stationary waves of any harmonic in it is given by

| a) $f_n = \dfrac{nv}{2\ell}$ | b) $f_n = \dfrac{2nv}{2\ell}$ | c) $f_n = \dfrac{3nv}{4\ell}$ | ✔d) $f_n = \dfrac{nv}{4\ell}$ |

397) The pressure will be low where the speed of the fluid is

| a) Zero | ✔b) High | c) Low | d) Constant |

398) Longitudinal waves are also known as

| a) stationary waves | b) transverse waves | ✔c) compressional waves | d) all |

399) The direction associated with angular displacement is.

| a) Away from the axis of rotation | ✔b) Along the axis of rotation | c) Perpendicular the axis of rotation | d) None of them |

400) Unit of acceleration is.

| a) ms$^{-1}$ | b) ms | ✔c) ms$^{-2}$ | d) m$^2$s |

401) If a rigid body is moving in a circular path about a fixed axis , then all the points on a rigid body have the same

| a) Angular displacement | b) Angular speed | c) Angular acceleration | ✔d) All of these |

402) Multi mode graded index fibre is useful for

| a) Short distance | ✔b) Long distance | c) Both of these | d) None of these |

403) The process which is carried out at constant temperature is known as

| a) Adiabatic process | ✔b) Isothermal process | c) Isochoric process | d) Isobaric process |

404) For total internal reflection the angle of incidence should be

| ✔a) Greater than critical angle | b) Smaller than critical angle | c) Equal to the critical angle | d) None of these |

405) Moment of inertia of a particle is I = _____

| a) $m^2r^2$ | b) $m^2r$ | c) $mr^{-2}$ | ✔d) $mr^2$ |

406) The density of blood is nearly equal to that of

| a) Milk | b) Honey | c) Thick tar | ✔d) Water |

407) Which formula is true?

| a) $m = \dfrac{a}{F}$ | ✔b) $F = \dfrac{m}{a}$ | c) $a = \dfrac{F}{m}$ | d) $a = \dfrac{m}{F}$ |

408) The value of " g " can be calculated by the expression.

| a) $g = \dfrac{4\pi^2 T^2}{l}$ | b) $g = \dfrac{2\pi^2 l}{T^2}$ | ✔c) $g = \dfrac{4\pi^2 l}{T^2}$ | d) $g = \dfrac{2\pi^2 l^2}{T^2}$ |

409) The information received at at the other end of a fibre optic can be in accurate due to

| a) Dispersion of light signals | b) Spreading of the light signals | ✔c) Both of these | d) None of these |

410) In spectrometer prism or a grating is placed on a

| ✔a) Turn table | b) Collimator | c) Telescope | d) None of these |

411) The change in entropy of a system is given by.

| ✔a) $\Delta S = \dfrac{\Delta Q}{T}$ | b) $\Delta Q = \dfrac{T}{\Delta S}$ | c) $\Delta Q = \dfrac{\Delta S}{T}$ | d) $\Delta S = \Delta Q \times T$ |

412) The value of Avogadro's number " $N_A$ " is

| a) $6.022 \times 10^{21}$ | ✔b) $6.022 \times 10^{23}$ | c) $6.022 \times 10^{25}$ | d) $6.022 \times 10^{27}$ |

413) Solar energy at normal incidence outside the earth's atmosphere is about

| a) $0.4\ KWm^{-2}$ | ✔b) $1.4\ KWm^{-2}$ | c) $2.4\ KWm^{-2}$ | d) $4.4\ KWm^{-2}$ |

414) A vector having zero magnitude and arbitrary directions is called

| a) Equal vector | ✔b) Null vector | c) Unit vector | d) Resultant vector |

415) The phenomena of polarization is done by

| a) Selective absorption | b) Scattering through crystals | c) Refraction through crystals | ✔d) All of these |

416) The number of 0.0023 should be expressed in scientific notation as .

| ✔a) $2.3 \times 10^{-3}$ | b) $2.3 \times 10^{-2}$ | c) $2.3 \times 10^{-4}$ | d) $2.3 \times 10^{3}$ |

417) Linear momentum can be defined as

| a) $\vec{p} = m\,\vec{a}$ | b) $\vec{p} = m\,v^{i}$ | ✔c) $\vec{p} = m\,\vec{v}$ | d) $\vec{p} = m^{2}\,\vec{v}$ |

418) The _____ effect between different layers of a fluid is described in terms of viscosity.

| ✔a) Frictional | b) Gravitational | c) Chemical | d) Both A & B |

419) The value of universal gas constant " ( R ) " is

| a) $6.314\ \text{J mol}^{-1}\ \text{k}^{-1}$ | b) $7.314\ \text{J mol}^{-1}\ \text{k}^{-1}$ | ✔c) $8.314\ \text{J mol}^{-1}\ \text{k}^{-1}$ | d) $9.314\ \text{J mol}^{-1}\ \text{k}^{-1}$ |

420) In astronomical telescope the rays after refraction through the eye piece will become parallel and the final image

appeared to be formed at

| a) Focus point | b) With in focus point | ✔c) Infinity | d) None of these |

421) Wave propagates in space by the motion of the

| a) Source | ✔b) Wave fronts | c) Wave length | d) None of these |

422) In this film the path difference between two reflected rays depends upon

| a) Thickness of the film | b) Nature of the film | c) Angle of incident | ✔d) All of these |

423) Michelson interferometer is an instrument that is capable of measuring distance with

| a) Extremely low precision | ✔b) Extremely high precision | c) Either of these | d) None of these |

424) A measurement taken by vernier caliper with least count of 0.01 cm is recorded as 0.45 cm, it has fractional uncertainity:

| a) 0.01 | ✔b) 0.02 | c) 0.03 | d) 0.045 |

425) The total energy of the atmosphere is reduced due to

| a) Reflection | b) Scattering | c) Absorption | ✔d) All of them |

426) Whenever the path difference of two waves is an odd integral multiple of half the wavelength then two waves

| a) are added up | ✔b) cancel each other | c) will not change | d) none of them |

427) The examples of reversible process are

| a) Slowly liquification of a substance | b) Slowly evaporation of a substance | c) Slow compression of a gas | ✔d) All of these |

428) The time period of a simple pendulum is inversely proportional to

| a) $\sqrt{g}$ | ✔b) $\dfrac{1}{\sqrt{g}}$ | c) $\sqrt{l}$ | d) $\dfrac{1}{\sqrt{gl}}$ |

429) The number of spark plug needed in diesel engine.

| a) 4 | b) 5 | c) 3 | ✔d) 0 |

430) The force and torque are analogous

| a) To velocity | b) To mass and weight | c) To moment of inertia | ✔d) To each other |

431) The dimensions of work are

| a) [ MLT ] | b) [ ML$^2$T$^2$ ] | ✔c) [ ML$^2$T$^{-2}$ ] | d) [ ML$^{-2}$T$^{-2}$ ] |

432) One giga is equal to

| a) $10^{-6}$ | b) $10^{-9}$ | c) $10^6$ | ✔d) $10^9$ |

433) One exa is equal to

| a) $10^{15}$ | ✔b) $10^{18}$ | c) $10^9$ | d) $10^6$ |

434) The increase in thermal pollution of environment means.

| ✔a) Increase in the entropy | b) Decrease in the entropy | c) Entropy remains constant | d) Entropy becomes zero |

435) The distance traveled by a light between a primary and secondary wave front is given by

| a) $\dfrac{c}{\Delta t}$ | ✔b) $c\Delta t$ | c) $\dfrac{ct}{\Delta t}$ | d) $v\Delta t$ |

436) The dimensions of energy are

| a) $[ML^{-2}\,T^{-3}]$ | b) $[ML^{-2}\,T^3]$ | c) $[ML^{-2}\,T^{-2}]$ | ✔d) $[ML^2\,T^{-2}]$ |

437) If the body is in equilibrium , then downward forces are taken as

| a) Positive | ✔b) Negative | c) Maximum | d) Minimum |

438) Dimension of moment arm is

| a) [M] | ✔b) [L] | c) [LT] | d) [T] |

439) While moving down on an inclined plane at the same time , then at the bottom , the velocity of

| ✔a) Disc will be more than hoop | b) Disc will be less than hoop | c) Both will be same | d) None of these |

440) For isothermal process , first law of thermodynamics can be written as

| a) Q = Δ U | b) Q = − W | ✔c) Q = W | d) Q = ΔU + W |

441) When the bob of a simple pendulum is at the mean position , its K.E. is

| ✔a) Maximum | b) Minimum | c) Zero | d) None of these |

442) The slope of velocity time graph shows the.

| a) Total distance covered by the body | ✔b) Average acceleration of the body | c) Average force acting on the body | d) Total work down on the body |

443) If the string is made to vibrate in n loops the frequency of stationary waves set up on string will be

| a) $f_n = 2f_1$ | b) $f_n = 3f_1$ | ✔c) $f_n = nf_1$ | d) $f_n = nf_2$ |

444) An international committee agreed on a set of definitions and standard to describe the physical quantities in.

| a) 1950 | b) 1955 | ✔c) 1960 | d) 1970 |

445) Working of optical instruments is based on the principles of

| a) Reflection | b) Refraction | c) Diffraction | ✔d) Both a and b |
|---|---|---|---|

446) A vector has components that are equal in magnitude if the angle of the vector with x−axis is

| a) $90^0$ | ✔b) $45^0$ | c) $70^0$ | d) $180^0$ |
|---|---|---|---|

447) If the position of a vector given by the point $A(2,-3,9)$ then its position vector is given by

| a) $r= 2\hat{\imath} + 2\hat{\jmath}+ 2\hat{k}$ | b) $r= 3\hat{\imath} + 2\hat{\jmath}+2\hat{k}$ | c) $r= 3\hat{\imath} + 2\hat{\jmath}+3\hat{k}$ | ✔d) $r= 2\hat{\imath} -3\hat{\jmath}+9\hat{k}$ |
|---|---|---|---|

448) The expression for pressure exerted by " N " molecules is

| ✔a) $P = \dfrac{2}{3}\dfrac{N}{V} < \dfrac{1}{2} mv^2 >$ | b) $P = \dfrac{2}{3}\dfrac{N}{V} < \dfrac{1}{2} mv^2 >$ | c) $P = \dfrac{2}{3}\dfrac{N}{V} < \dfrac{1}{2} mv^2 >$ | d) $P = \dfrac{2}{3}\dfrac{N}{V} < \dfrac{1}{2} mv^2 >$ |
|---|---|---|---|

449) Two waves of slightly different frequencies and travelling in the same same direction when superpose produce

| a) electrical waves | b) electromagnetic waves | ✔c) stationary waves | d) all |
|---|---|---|---|

450) In constructive interference the displacement of the resultant wave

| ✔a) Increases | b) Decreases | c) Remains | d) become zero |
|---|---|---|---|

451) The value of a time period of a low flying satellite is.

| a) 1 year | ✔b) 84 minutes | c) 28 hours | d) 1 day |
|---|---|---|---|

452) Speed of earth around the earth is.

| a) 1200 m/s | b) 1100 m/s | ✔c) 1000 m/s | d) 900 m/s |
|---|---|---|---|

453)      The dimensions of velocity are

| a) $[MLT^0]$ | b) $[M^0L^{-1}T]$ | ✔c) $[M^0LT^{-1}]$ | d) $[M^{-1}LT]$ |
|---|---|---|---|

454) According to principle of super position if $Y_1, Y_2$........ be the displacement due to individual waves then the resultant displacement y will be

| a) $y= (y_1-y_2)$ | b) $y= (y_2-y_3)$ | ✔c) $y=y_1+y_2+y_3+........+y_n$ | d) all |
|---|---|---|---|

455) The instrument which detects the instant at which the external pressure becomes equal to systolic pressure is

| a) Venturi meter | b) Hydrometer | ✔c) Stethoscope | d) None of these |
|---|---|---|---|

456) Young double experiment show the

| a) Particle nature of light | b) Dual nature of light | ✔c) Wave nature of light | d) All of these |
|---|---|---|---|

457) The value of "g" at the centre of the earth is.

| a) Infinite | b) 2g | c) 3g | ✔d) Zero |
|---|---|---|---|

458) The escape velocity on the surface of earth is given by the formula

| a) $\sqrt{2gr}$ | ✔b) $\sqrt{2gR}$ | c) $\sqrt{2GR}$ | d) None of these |
|---|---|---|---|

459) If a freely oscillation system is subjected to an external force , then

| ✔a) Forced oscillations | b) Free oscillations | c) Natural oscillations | d) None of these |

460) The resolving power in the mth order diffraction from the grating of N/S ruling is

| ✔a) R=N✕m | b) $R = \frac{1}{N \times m}$ | c) $R = \frac{N}{m}$ | d) $R = \frac{m}{N}$ |

461) As $\vec{A} \times \vec{B} = -\vec{B} \times \vec{A}$ hence the vector product is

| a) commutative | b) Associative | c) Distributative | ✔d) Not commutative |

462) The diffraction phenomenon is found to be prominent when compared with the size of the obstacle, the wave length of light is

| ✔a) Large | b) Small | c) Constant | d) Zero |

463) A optical device used to study spectra from different sources of light is called

| a) Microscope | b) Telescope | ✔c) Spectrometer | d) All of these |

464) Stoke's law holds for bodies when they have

| a) Linear shape | b) Oblong shape | ✔c) Spherical shape | d) Curved shape |

465) Physical quantities are often divided into.

| ✔a) Two Categories | b) Three Categories | c) Four Categories | d) Seven Categories |

466) By increasing the orbital speed of spaceship, curvature of its path

| a) Increases | ✔b) Decreases | c) Remains constant | d) None of these |

467) The optical fibre for protection is covered by

| a) Metal jacket | ✔b) Plastic jacket | c) Cloth jacket | d) Rubber jacket |

468) A light that travel much faster through optical fibre is

| ✔a) Infra red | b) Visible | c) x-ray | d) All of these |

469) Drag force does not depend upon

| a) Speed of sphere | b) Viscosity of medium | c) Size of sphere | ✔d) None of these |

470) The cross product of $\hat{k} \times \hat{\imath}$ is equal to

| a) $\hat{\imath}$ | b) $-\hat{\imath}$ | ✔c) $\hat{\jmath}$ | d) $-\hat{\jmath}$ |

471) Work done by the gravitational force in displacing the object from a point to infinity where the force of gravity becomes zero is called

| a) Elastic P.E | b) Electric P.E | ✔c) Absolute P.E | d) Gravitational P.E |

472) For long ranges the path of ballistic missile of

| a) Parabolic | ✔b) Elliptical | c) Circular | d) all |

473) According to 2nd condition, the vector sum of all the torque acting an a body about an arbitrary axis should be

| a) Maximum | b) Minimum | ✔c) Zero | d) Negative |

474) A ray of light travelling from rarer to denser medium suffers a phase change of

| a) $45^0$ | b) $95^0$ | ✔c) $180^0$ | d) $80^0$ |
|---|---|---|---|

475)        The dimensions of acceleration are

| ✔a) $[M^0LT^{-2}]$ | b) $[M^0L^{-1}T]$ | c) $[MLT^2]$ | d) $[M^{-2}L^2T]$ |
|---|---|---|---|

476) The total momentum of all fragments is _____ the initial momentum of the shell.

| a) Nearly equal | ✔b) Equal | c) Less than | d) More than |
|---|---|---|---|

477) The focal length of concave lens is taken as

| a) Positive | ✔b) Negative | c) Zero | d) Virtual |
|---|---|---|---|

478) Angular velocity is a

| a) Vector quantity | b) Scalar quantity | c) Constant quantity | ✔d) All of these |
|---|---|---|---|

479) When a bullet is fired from gun rifle , momentum of rifle is _____ to that of the bullet.

| ✔a) Equal and opposite | b) Less but opposite | c) More but opposite | d) Equal in same direction |
|---|---|---|---|

480) The direction of velocity is along the direction of

| ✔a) Displacement | b) Distance | c) Acceleration | d) None of them |
|---|---|---|---|

481) Sped of sound is.

| ✔a) Higher in solids than is gases | b) equal in solids and in gases | c) Higher in gases than in gases | d) Zero in solids and gases |
|---|---|---|---|

482) Time period " T " of the satellite moving with critical velocity is approximately

| a) 64 min | ✔b) 84 min | c) 36 min | d) 34 min |
|---|---|---|---|

483) A negative sign is assigned to quantity where direction is opposite to that of

| ✔a) Initial velocity | b) Final velocity | c) Uniform velocity | d) Instantaneous velocity |
|---|---|---|---|

484) A single vector which have the same affects as all the original vectors taken together is called

| a) Unit vector | b) Equal vector | ✔c) Resultant vector | d) Null vector |
|---|---|---|---|

485) The magnitude of a vector is always

| ✔a) Positive | b) Negative | c) zero | d) Infinite |
|---|---|---|---|

486) According to Bernoulli's equation

| a) $P + \frac{1}{2}mv^2 + mgh = constant$ | b) $P + \frac{1}{2}mv^2 + \rho gh = constant$ | c) $P + \frac{1}{2}\rho v^2 + mgh = constant$ | ✔d) $P + \frac{1}{2}\rho v^2 + \rho gh = constant$ |
|---|---|---|---|

487) Percentage uncertainties are added in the following operations.

| a) Addition | b) Multiplication | c) Division | ✔d) Only B & C |
|---|---|---|---|

488) The temperature at which the velocity of sound in air is two times its velocity at 10 $C^0$ is.

| a) 759 C$^0$ | ✔b) 859 C$^0$ | c) 959 C$^0$ | d) 1132 C$^0$ |

489) Human blood flow through major arteries can be monitored by using

| a) Compton effect | ✔b) Doppler's effect | c) Photo electric effect | d) None of these |

490) The cross product of two vectors is negative when the angle between the vector is

| a) 0$^0$ | b) 45$^0$ | ✔c) 270$^0$ | d) 180$^0$ |

491) The different between two molar heat capacities is equal to

| a) Temperature | b) Pressure | c) Volume | ✔d) Universal gas constant |

492) One mole of any substance contain

| a) Different number of molecules | ✔b) Same number of molecules | c) Either of these | d) None of these |

493) The direction of a vector A can be found by the relation

| a) $\sin \theta = \dfrac{A_y}{A_x}$ | b) $\tan \theta = A$ | c) $\cos \theta = \dfrac{A_y}{A_x}$ | ✔d) $\tan \theta = \dfrac{A_y}{A_x}$ |

494) Stationary waves are also known as

| a) micro waves | b) chemical waves | c) sound waves | ✔d) standing waves |

495) Unit of thermodynamics scale of temperature is.

| a) Centigrade | b) Fahrenheit | ✔c) Kelvin | d) Celcius |

496) A layer of rock holding water that allows water to percolate through it with pressure is called.

| a) Geyser | ✔b) Aquifer | c) Steamvent | d) Hot spring |

497) The errors in a measurement can occur due to

| a) Negligence or inexperience of person | b) In appropriate method or technique | c) The faulty apparatus | ✔d) All of these |

498) When repeated measurements of quantity give different values under the same conditions , the error in said to be.

| a) Systematic error | ✔b) Random error | c) Physical error | d) All of these |

499) Water can flow easily , so it has

| ✔a) Small co-efficient of viscosity | b) Large co-efficient of viscosity | c) Zero co-efficient of viscosity | d) None of these |

500) Sonar is the name of a technique for detecting the presence of objects

| ✔a) Under water by acoustical echo | b) Above water by acoustical echo | c) Both of these | d) None of these |

501) INTELSAL VI Satellite operates at Microwave Frequencies of.

| a) 2,4,6,10 GHz | ✔b) 4,6,11 and 14 GHz | c) 4,6,11 and 14 GHz | d) 2,4,6 and 14 GHz |

502) The branch of science which deals with the properties of matter and energy is called

| a) Chemistry | ✔b) Physics | c) Biology | d) Mathematics |

503) Waves are particularly useful for under sea communication

| a) micro | b) heat | ✔c) ultra violet | d) all |

504) The efficiency of Carnot engine is independent of:

| a) Source temperature | b) Sink temperature | ✔c) Working substance | d) All of these |

505) The cross product of vector $\vec{A}$ with itself is

| a) 1 | ✔b) Null vector | c) A | d) $A^2$ |

506) According to law of conservation of energy

| a) Energy can be destroyed | ✔b) Energy cannot be destroyed | c) May or may not be destroyed | d) None of these |

507) A stone is whirled in a vertical circle at the end of a string , when the stone is at the highest position , the tension is the string is

| a) Maximum | ✔b) Minimum | c) Zero | d) None of these |

508) The refractive index is defined by the ratio

| a) N= $\frac{c}{v}$ | ✔b) n= $\frac{c}{v}$ | c) n= $\frac{v}{c}$ | d) N=cv |

509) If a vector of 10 N makes an angle of $30^0$ with x-axis its x-component is given by

| a) 0.866N | b) 0.0866N | ✔c) 8.66N | d) 8.69N |

510) The direction of torque is

| a) In the direction of $\vec{r}$ | ✔b) Normal to the plane containing $\vec{r}$ and $\vec{F}$ | c) In the direction of $\vec{F}$ | d) Perpendicular to $\vec{r}$ only |

511) Where the streamlines are very close to each other , the pressure will be

| a) Zero | b) High | ✔c) Low | d) None of them |

512) The magnitude of resultant of $\hat{i}$ and $\hat{j}$ is

| ✔a) $\sqrt{2}$ | b) 3 | c) 4 | d) 5 |

513) International Telecommunication Satellite Organization operates at microwave frequencies of.

| a) 4,6,8 and 10 Hz | b) 4,6,8 and 12 Hz | ✔c) 4,6,11 and 14 GHz | d) 4,8,11 and 16 GHz |

514) The internal pressure of the blood is

| ✔a) Greater then external atmospheric pressure | b) Less than external atmospheric pressure | c) Equal to the external atmospheric pressure | d) None of these |

515) Zeros to the left of significant figures.

| a) Are significant | ✔b) Are not significant | c) May or may not significant | d) None of these |

516) At any instant, P.E. is given by the expression

| a) $P.E. = \frac{1}{2}kx_0$ | b) $P.E. = \frac{1}{2}k^2x_0$ | ✔c) $P.E. = \frac{1}{2}kx^2$ | d) $P.E. = \frac{1}{2}k^2x_0^2$ |
|---|---|---|---|

517) The eye piece of astronomical telescope is of

| ✔a) Short focal length | b) Long focal length | c) Very long focal length | d) None of these |
|---|---|---|---|

518) $\vec{A} = 2\hat{\imath} - 3\hat{\jmath} + \hat{k}$ and $\vec{B} = 6\hat{\imath} - \hat{k}$ then $\vec{A}.\vec{B}$ is equal to

| a) 9 | b) 8 | ✔c) 11 | d) 12 |
|---|---|---|---|

519) The major component of fibre optic communication system are

| a) Transmitter | b) Optical fibre | c) Receiver | ✔d) All of these |
|---|---|---|---|

520) In Michelson's method, the time taken by the mirror to rotate through an angle $\frac{2\pi}{8}$ is (if "f" is the frequency of rotation)

| a) $\frac{1}{4f}$ | ✔b) $\frac{1}{8f}$ | c) $\frac{1}{2f}$ | d) $\frac{1}{6f}$ |
|---|---|---|---|

521) In rotational motion the analogue of force is

| a) Rotational motion | b) Linear inertia | c) force | ✔d) Torque |
|---|---|---|---|

522) The distance between the objective and eye piece of a telescope in normal adjustment is

| ✔a) $f_o + f_e$ | b) $f_o - f_e$ | c) $f_o \times f_e$ | d) All of these |
|---|---|---|---|

523) Doppler's effect is also applicable to

| a) Heat waves | b) Matter waves | ✔c) Electromagnetic waves | d) Stationary waves |
|---|---|---|---|

524) Photo diode converts the light signals into

| ✔a) Electric signals | b) Sound signals | c) Both of these | d) None of these |
|---|---|---|---|

525) The motion and rest are

| ✔a) Relative | b) Absolute | c) Random | d) Discrete |
|---|---|---|---|

526) A simple pendulum consists of a

| ✔a) Small heavy mass | b) Small light mass | c) Both A & B | d) None of these |
|---|---|---|---|

527) The Centripetal force performs .

| a) Maximum work | b) Minimum work | c) Negative work | ✔d) No work |
|---|---|---|---|

528) The cross product $\hat{\jmath} \times \hat{\imath}$ is equal to

| a) $-\hat{\imath}$ | b) $+\hat{\imath}$ | ✔c) $-\hat{k}$ | d) $+\hat{k}$ |
|---|---|---|---|

529) The work doe will be zero when the angle between force and displacement is

| a) $0^0$ | b) $30^0$ | c) $60^0$ | ✔d) $90^0$ |
|---|---|---|---|

530) The entropy of the universe with passage of time is.

| ✔a) Increases | b) Remains constant | c) Decreases | d) Increases & Decreases |
|---|---|---|---|

531) The relation between the speed of disc and hoop can be written as.

| ✔a) $v_{disc} = \sqrt{\frac{4}{3}} V_{hoop}$ | b) $v_{disc} = \frac{1}{2} V_{hoop}$ | c) $v_{disc} = V_{hoop}$ | d) $v_{disc} = \sqrt{\frac{3}{4}} V_{hoop}$ |
|---|---|---|---|

532) Inpulse can be defined as

| a) $\vec{I} = \vec{F} \times \vec{a}$ | b) $\vec{I} = \vec{F} \times \vec{V}$ | ✔c) $\vec{I} = \vec{F} \times \vec{t}$ | d) $\vec{I} = \frac{\vec{F}}{t}$ |
|---|---|---|---|

533) The molecules of a gas enclosed in a glass vessel at constant temperature is an example of

| a) Inertial system | b) Non – inertial system | ✔c) Isolated system | d) Non-isolated system |
|---|---|---|---|

534) Impulse has the same unit as that of

| a) Force | b) Energy | c) Mass | ✔d) Linear momentum |
|---|---|---|---|

535) Light year is the unit of

| ✔a) Distance | b) Time | c) Velocity | d) all |
|---|---|---|---|

536) The dimensions $[M^0 L^0 T]$ represent quantity:

| a) Length | ✔b) Time | c) Mass | d) Velocity |
|---|---|---|---|

537) The value of constant "$\gamma$" for diatomic gas is.

| a) 1.67 | ✔b) 1.40 | c) 1.29 | d) 1.45 |
|---|---|---|---|

538) In case of unit vectors $\hat{i} \times \hat{i} = \hat{j} \times \hat{j} = \hat{k} \times \hat{k}$ is equal to

| a) 1 | ✔b) Null vector | c) A | d) $A^2$ |
|---|---|---|---|

539) According to Huygen's principle every point of a wave front may be considered as a source of

| a) Primary wave lets | ✔b) Secondary wave lets | c) Basic wave lets | d) Compound wave lets |
|---|---|---|---|

540) In case of couple , following condition of equilibrium is satisfied

| a) First condition | ✔b) Second condition | c) Both A & B | d) None of these |
|---|---|---|---|

541) What is the K.E of a 50 gm bullet moving at a speed of 500 ms$^{-1}$

| a) 100 J | b) 200 J | c) 300 J | ✔d) None of them |
|---|---|---|---|

542) A body is moving with uniform angular velocity the torque produced in it is

| a) $\tau = lm$ | ✔b) Zero | c) $\tau = l\alpha$ | d) $\tau = l\alpha$ |
|---|---|---|---|

543) If a particle is moving with constant speed in a circle , then its

| a) Velocity is uniform | b) Acceleration is decreasing | ✔c) Velocity is changing | d) Acceleration is increasing |
|---|---|---|---|

544) Torque acting on a body determines its

| ✔a) Angular acceleration | b) Force | c) Power | d) Energy |
|---|---|---|---|

545) At the extreme position , the acceleration of a particle executing SHM is

| ✔a) Maximum | b) Minimum | c) Zero | d) None of these |
|---|---|---|---|

**546)** An accurate measurement is the one which has _____ fractional error.

| a) Negative | ✔b) Less | c) More | d) Positive |

**547)** The moment of linear momentum is called

| a) Impulse | b) Torque | c) Couple | ✔d) Angular momentum |

**548)** Mathematically work can be defined as

| a) $W = Fd \sin\theta$ | b) $W = Fv \sin\theta$ | c) $W = \vec{F}.\vec{v}$ | ✔d) $W = \vec{F}.\vec{d}$ |

**549)** When an aeroplane approaches away from the radar , then the wavelength of the reflected wave from aerophane would be

| ✔a) Larger | b) Shorter | c) Same | d) None of these |

**550)** The tidal energy is due to the gravitational pull of

| a) Sun | ✔b) Moon | c) Earth | d) Mars |

**551)** According to Snell's law

| a) $n_1 \cos\theta_1 = n_2 \cos\theta_2$ | ✔b) $n_1 \sin\theta_1 = n_2 \sin\theta_2$ | c) $n_1 \tan\theta_1 = n_2 \tan\theta_2$ | d) $n_1 \sin\theta_1 = n_2 \cos\theta_2$ |

**552)** The number of spark plugs used in the diesel engine is equal to.

| ✔a) 0 | b) 1 | c) 2 | d) 3 |

**553)** The center of gravity is also called

| ✔a) Center of mass | b) Center of body | c) Moment of inertia | d) None of these |

**554)** Certain organic substances , such as sugar and tartaric acid , show optical rotation when they are in

| a) Gases | ✔b) Solution | c) Solids | d) None of these |

**555)** When the falling object strikes the ground K.E changes into

| a) Sound energy | b) Heat energy | c) Electric energy | ✔d) Both a and b |

**556)** In young's double slit experiment the condition for constructive interference is

| ✔a) $d\sin\theta = m\lambda$ | b) $d\sin\theta = (m + \frac{1}{2})$ | c) $d\sin\theta = (m + \frac{1}{4})$ | d) $d\sin\theta = (m + 2)$ |

**557)** At what temperature the velocity of sound in air is doubled of its value at $0C^0$ ?

| a) $719C^0$ | ✔b) $819C^0$ | c) $919C^0$ | d) $1019C^0$ |

**558)** When two notes of frequencies $f_1$ and $f_2$ are sounded together beats are formed If $f_1 > f_2$, then the frequency of beats will be

| a) $f_1 + f_2$ | ✔b) $f_1 - f_2$ | c) $2f_1 - 2f_2$ | d) $f_1 + 2f_2$ |

**559)** A light wave produced by oscillating charge consists of a periodic variation of electric field vector accompanied by the

| a) Electric field | ✔b) Magnetic field vector | c) Both A & B | d) None of these |

**560)** Bernoulli's equation is the fundamental equation in fluid dynamics that relates pressure to fluid

| a) Speed | b) Height | ✔c) Both of them | d) None of these |

561) Magnify power of telescope in normal adjustment is

| a) $M = \frac{f_o}{f_o}$ | b) $M = \frac{f_e}{f_o}$ | ✔c) $M = \frac{f_o}{f_e}$ | d) $M = f_o f_e$ |
|---|---|---|---|

562) When an aeroplane approaches towards the radar , then the wavelength of the reflected wave from aeroplane would be

| a) Larger | ✔b) Shorter | c) Same | d) None of these |
|---|---|---|---|

563) Newton's first law is also known as

| a) Law of force | ✔b) Law of inertia | c) Law of momentum | d) All of these |
|---|---|---|---|

564) " Pressure everywhere inside the vessel will be the same provided the gas is of uniform density " is the statement of

| a) Newton | b) Boyle | c) Charles | ✔d) Pascal |
|---|---|---|---|

565) If the body is in equilibrium , then upward forces are taken as

| ✔a) Positive | b) Negative | c) Maximum | d) Minimum |
|---|---|---|---|

566) Efficiency of steam locomotive is.

| a) 10% | ✔b) 8% | c) 9% | d) 7% |
|---|---|---|---|

567) The 3rd frontiers in fundamental science is

| a) World of extra large things | ✔b) World of middle size things | c) World of extra small things | d) All of these |
|---|---|---|---|

568) The expression for rotational K.E. is.

| a) $K.E._{rot} = l\omega^2$ | b) $K.E._{rot} = \omega l^2$ | ✔c) $K.E._{rot} = \frac{1}{2}l\omega^2$ | d) $K.E._{rot} = \frac{1}{2}\omega l^2$ |
|---|---|---|---|

569) The frequency of string on a musical instrument can be changed by changing the

| a) length of the string | b) tension in the string | ✔c) both of these | d) none of these |
|---|---|---|---|

570) In gravitational field if displacement is in the direction of gravitational force , then work done will be

| ✔a) Positive | b) Negative | c) Zero | d) None of them |
|---|---|---|---|

571) If the velocity of a body changes by equal amount in equal interval of time , the body is said to have

| ✔a) Uniform acceleratio | b) Variable acceleration | c) Average acceleration | d) Retardation |
|---|---|---|---|

572) Sounding wooden boards of string instruments are example of

| ✔a) Force vibrations | b) Free vibrations | c) Natural vibrations | d) All of these |
|---|---|---|---|

573) Young's double slit experiment was specially designed for studying

| ✔a) Interference of light | b) Diffraction of light | c) Reflection of light | d) All of these |
|---|---|---|---|

574) The most fundamental of all sciences which provides other branches of science basic principal and fundamental laws is

| a) Biology | ✔b) Physics | c) Chemistry | d) All of these |
|---|---|---|---|

575) From velocity time graph , the average acceleration of an object can be determined by finding

| ✔a) Slope of the graph | b) Tangent of the graph | c) Area of the graph | d) Both A & B |
|---|---|---|---|

576) Dimensional analysis helps in

| a) Checking the homogeneity of physical equation | b) Deriving a possible formula | ✔c) Both a and b | d) None of these |
|---|---|---|---|

577) If the string is made to vibrate in n loops the wavelength of stationary waves will be

| ✔a) $\lambda_n = \dfrac{2l}{n}$ | b) $\lambda_n = \dfrac{nl}{2}$ | c) $\lambda_n = 2nl$ | d) All of these |
|---|---|---|---|

578) In destructive interference the displacement of t he resultant wave

| a) Increase | ✔b) Decrease | c) Become zero | d) Remains constant |
|---|---|---|---|

579) The branch of science which deals with the properties of matter and energy is called

| a) Chemistry | ✔b) Physics | c) Biology | d) Mathematics |
|---|---|---|---|

580) The function of collimator in a spectrometer is to

| a) Reflect the light | b) Disperse the light | ✔c) Make the light parallel | d) Scatter the light |
|---|---|---|---|

581) The speed of the waves in the string in given by the expression

| a) $V = \sqrt{\dfrac{m}{f}}$ | ✔b) $V = \sqrt{\dfrac{F}{m}}$ | c) $2v = \sqrt{\dfrac{F}{m}}$ | d) $2v = \sqrt{Fm}$ |
|---|---|---|---|

582) When a body moves along a circular path , its speed

| a) Becomes zero | b) Changes continuously | ✔c) Remains the same | d) None of these |
|---|---|---|---|

583) The expression for time period of simple pendulum is true only if.

| a) Amplitude is kept small | b) $Sin\theta \approx 0$ | ✔c) Both A & B | d) Amplitude is large |
|---|---|---|---|

584) The principle of rocket propulsion is

| a) Newton is third law | b) Law of conservation of momentum | ✔c) Both A & B | d) None of these |
|---|---|---|---|

585) The minimum velocity necessary to put a satellite into an orbit close to the earth is called

| ✔a) Critical velocity | b) Constant velocity | c) Angular velocity | d) All of these |
|---|---|---|---|

586) One complete round trip of the body in motion is called a

| a) Frequency | b) Amplitude | ✔c) Vibration | d) Time period |
|---|---|---|---|

587) When a body is in state of weightlessness then

| a) a = 0 | b) Its acceleration is maximum | c) Its acceleration is zero | ✔d) a = g |
|---|---|---|---|

588) Stokes law holds for bodies moving

| ✔a) Slowly | b) Moving with velocity of light | c) At rest | d) None of these |
|---|---|---|---|

589) One femto is equal to

| a) $10^{-12}$ | b) $10^{-13}$ | c) $10^{-14}$ | ✔d) $10^{-15}$ |

590) When a body is whirled in a vertical circle at the end of the string , tension in the string is maximum.

| ✔a) At the bottom | b) At the top | c) At the horizontal | d) None of these |

591) When droplet of water attains terminal velocity the acceleration is

| a) Maximum | b) Negative | c) Constant | ✔d) Zero |

592) An optical fibre with its protective case in diameter may be typically

| ✔a) 6.0 mm | b) 0.6 mm | c) 7.62 mm | d) 6.0 cm |

593) A body has zero acceleration when body is

| a) At rest | b) Moving with uniform velocity | ✔c) Both A & B | d) None of these |

594) The expression for velocity of sound with change in temperature can be calculated by the formula.

| a) $V_t = V_0 + 61.0\,t$ | ✔b) $V_t = V_0 + 0.61$ | c) $V_t = V_0 - 0.61\,t$ | d) $V_t = V_0 - 6.1\,t$ |

595) If the velocity of the body is increasing , its acceleration is

| a) Negative | ✔b) Positive | c) Zero | d) None of them |

596) In S.H.M. the velocity of a particle is maximum at

| a) Mean position | b) Extreme position | ✔c) Between mean and extreme position | d) All of these |

597) Compound microscope consist of

| a) Two concave lens | ✔b) Two convex lens | c) Two convex Mirror | d) Two concave Mirror |

598) Unit vector is used to describe

| ✔a) Direction of a vector | b) Angle of a vector | c) Position of a vector | d) Magnitude of a vector |

599) Repeaters are placed in the new system at a distance of

| a) 30 km | b) 40 km | ✔c) 100 km | d) 150 km |

600) The SI unit of work is

| a) Watt | b) Newton | c) Newton second | ✔d) Joule |

601) Soap film in sunlight appears coloured due to

| a) Scattering of light | ✔b) Interference of light | c) Refraction of light | d) Dispersion of light |

602) The frequency of a simple pendulum whose period is 1.0 second is

| a) 0.5 Hz | ✔b) 1.0 Hz | c) 1.5 Hz | d) 2.0 Hz |

603) Suppose the water flows out from a pipe at 3 $kg^{-1}$ and its velocity changes from 5 $ms^{-1}$ to zero on striking the wall , then force exerted by water on wall will be

| a) 5 N | b) 10 N | ✔c) 15 N | d) 20 N |
|---|---|---|---|

604) The distance between two consecutive wave fronts is

| a) Half wave length | ✔b) One wave length | c) Two wave length | d) Three wave length |
|---|---|---|---|

605) Boyle's law is case of adiabatic process can be written as

| a) PV = constant | b) $P^\gamma V$ = constant | ✔c) $PV^\gamma$ = constant | d) $V^\gamma P^\gamma$ = constant |
|---|---|---|---|

606) Expression for fundamental frequency of stationary waves in stretched string is

| a) $f_1 = \dfrac{v}{4\ell}$ | b) $f_1 = \dfrac{1}{2\ell}\sqrt{\dfrac{F}{m}}$ | c) $f_1 = \dfrac{v}{4\ell}$ | ✔d) a and b |
|---|---|---|---|

607) The perpendicular distance between the line of action of force and pivot point is called

| ✔a) Moment arm | b) Linear distance | c) Angular distance | d) Position vector |
|---|---|---|---|

608) The rotational K.E. of a hoop is _____ that of its translational K.E.

| ✔a) Equal to | b) Less then | c) Greater than | d) Half |
|---|---|---|---|

609) Time period of geo-stationary satellite is

| ✔a) 24 h | b) 365 days | c) 84 min | d) None of these |
|---|---|---|---|

610) When the values of average and instantaneous velocities are equal, the body is said to be moving with

| a) Average velocity | b) Variable velocity | ✔c) Uniform velocity | d) Instantaneous velocity |
|---|---|---|---|

611) The restoring force acting on the bob of vibrating simple pendulum is.

| a) $F = mg\sin\theta$ | ✔b) $F = -mg\sin\theta$ | c) $F = mg\cos\theta$ | d) $F = -mg\cos\theta$ |
|---|---|---|---|

612) Moment of force depends upon

| a) Moment arm | b) Magnitude of force | ✔c) both a and b | d) None of these |
|---|---|---|---|

613) Which of them does not obey commutative property

| a) Vectors addition | ✔b) Vectors subtraction | c) Scalar product | d) All of these |
|---|---|---|---|

614) On dividing the length of the grating L by total number N of the lines ruled on it we get

| ✔a) Distance between slits | b) Number of slits | c) Height of slits | d) Quality of slits |
|---|---|---|---|

615) The point of the medium at which the resultant amplitude of the wave is maximum are called

| a) nodes | ✔b) anti nodes | c) cests | d) none of them |
|---|---|---|---|

616) Angular momentum is conserved under

| a) Variable force | b) Constant force | c) Uniform force | ✔d) Central force |
|---|---|---|---|

617) The relation between instantaneous velocity and maximum velocity for a

| ✔a) $v = v_0\sqrt{1 - \dfrac{x^2}{x_0^2}}$ | b) $v = v_0\sqrt{\dfrac{x^2}{x_0^2} - 1}$ | c) $v = v_0\sqrt{\dfrac{x_0^2}{x^2} - 1}$ | d) $v = v_0\sqrt{1 - \dfrac{x_0^2}{x^2}}$ |
|---|---|---|---|

618) If the instantaneous velocity of a body does not change , then it is said to be moving with

| a) Average velocity | ✔b) Uniform velocity | c) Variable velocity | d) None of them |

619) In liquid what type of waves can be set up

| a) transverse waves | ✔b) longitudinal waves | c) both a&b | d) micro waves |

620) The SI unit of angular displacement is

| ✔a) Radian | b) Degree | c) Revolution | d) Meter |

621) The slope of velocity time graph at any instant represents.

| a) Force | b) Acceleration | ✔c) Instantaneous acceleration | d) Power |

622) The focal length of convex lens is taken as

| ✔a) Positive | b) Negative | c) Both a and b | d) Virtual |

623) Velocity of sound is independent of

| a) Temperature | b) Density | ✔c) Pressure | d) Medium |

624) Area under the force time graph represents

| a) Distance covered | ✔b) Impulse | c) Work | d) None of them |

625) The dark fringes are termed as

| a) Maxima | ✔b) Minima | c) Darka | d) Brighta |

626) When an elevator is moving upward or downward with uniform velocity , the apparent weight of the body will be

| ✔a) Equal to real weight | b) Less than real weight | c) Greater than real weight | d) None of these |

627) When second condition is satisfied , then there is

| ✔a) No angular acceleration | b) Angular acceleration | c) Translational acceleration | d) Rotational acceleration |

628) " $\gamma$ " is the ratio defined as

| a) $\gamma = \dfrac{C_v}{C_p}$ | ✔b) $\gamma = \dfrac{C_p}{C_v}$ | c) $\gamma = C_p C_v$ | d) $\gamma = C_p - C_v$ |

629) Michelson used the polished mirror , having

| a) Two sides | b) Six sides | ✔c) Eight sides | d) Ten sides |

630)      The dimensions of work are

| a) $[MLT^{-2}]$ | ✔b) $[ML^2 T^{-2}]$ | c) $[ML^2 T^{-1}]$ | d) $[MLT^{-2}]$ |

631) If 5000 lines per cm are ruled on a diffraction grating the grating element will be

| a) $2 \times 10^{-2}$ | ✔b) $2 \times 10^{-4}$ | c) $2 \times 10^{-6}$ | d) $2 \times 10^{-8}$ |

632) When a light signals travels along fibres then power losses are due to

| a) Absorption | b) Scattering | ✔c) Both of these | d) None of these |

633) The amount of heat required to raise the temperature of one mole of the gas through 1K at constant pressure is called

| a) Heat capacity | ✔b) Heat capacity at constant pressure | c) Heat capacity at constant volume | d) None of these |
|---|---|---|---|

634) Kilowatt hour is the unit of

| ✔a) Work | b) Force | c) Power | d) Momentum |
|---|---|---|---|

635) Everything in the vastness of space is in a state of

| a) Linear motion | ✔b) Perpetual motion | c) Rotatory motion | d) Translatory motion |
|---|---|---|---|

636) Time period of simple pendulum depends on

| a) Length of the pendulum | b) Acceleration due to gravity | ✔c) Both A & B | d) None of these |
|---|---|---|---|

637) When a vector is multiplied by a positive number its direction

| ✔a) Dose not change | b) Change by 270° | c) Change by 180° | d) Change by 90° |
|---|---|---|---|

638) In the formula of $v = \sqrt{\dfrac{F \times l}{m}}$ the dimensions of R.H.S. are

| a) $[LT^2]$ | ✔b) $[LT^{-1}]$ | c) $[LT^{-2}]$ | d) $[LT^{-4}]$ |
|---|---|---|---|

639) The velocity of a disc moving down an incline plane is.

| a) $\sqrt{\dfrac{3}{4}gh}$ | ✔b) $\sqrt{\dfrac{4}{3}gh}$ | c) $\sqrt{\dfrac{2}{3}gh}$ | d) $\sqrt{gh}$ |
|---|---|---|---|

640) The magnitude of the displacement is a line from initial position to final position which is always

| a) Curve | ✔b) Straight | c) Either straight or carve | d) None of them |
|---|---|---|---|

641) Michelson's interferometer can be used to find

| a) Velocity of light | ✔b) Wave length of light | c) Velocity of sound | d) Wave length of sound |
|---|---|---|---|

642) Beats can be used to

| a) tune a string instrument | b) find unknown frequency | c) produce variety in music | ✔d) all of these |
|---|---|---|---|

643) The time of flight of a projectile is

| a) $H = \dfrac{V_I \sin 2\theta}{g}$ | b) $t = \dfrac{2V_I \sin 2\theta}{g}$ | ✔c) $t = \dfrac{2V_I \sin \theta}{g}$ | d) None of these |
|---|---|---|---|

644) A vector which describes the location of a particle with respect to fixed origin is called

| a) Resultant vector | ✔b) Position vector | c) Null vector | d) Unit vector |
|---|---|---|---|

645) The drag force increases as the speed of the object

| a) Decreases | ✔b) Increases | c) Remains constant | d) None of these |
|---|---|---|---|

646) Optical fibre has the tremendous information carrying capacity called the

| a) Frequency | ✔b) Bandwidth | c) Amplitude | d) All of these |
|---|---|---|---|

647) The relation between $Nm^{-2}$ and torr is

| a) 1 torr = 13.33 $Nm^{-2}$ | ✔b) 1 torr = 133.3 $Nm^{-2}$ | c) 1 torr = 1333.0 $Nm^{-2}$ | d) 1 torr = 1.333 $Nm^{-2}$ |
|---|---|---|---|

648) The angle of projection of a projectile for which its maximum height is equal to its horizontal range is

| a) $66^0$ | ✔b) $76^0$ | c) $86^0$ | d) $78^0$ |
|---|---|---|---|

649) Satellites are the objects that orbit around the.

| a) Moon | b) Sun | c) Earth | d) Star |
|---|---|---|---|

650) If $\theta > 90^0$ , work done is said to be

| a) Negative | ✔b) Positive | c) Zero | d) None of them |
|---|---|---|---|

651) The objective of astronomical telescope forms

| a) Virtual inverted and diminished image | b) real erect and diminished image | c) real inverted and magnified image | ✔d) real , inverted and diminished image |
|---|---|---|---|

652) If a body is moving with constant speed then it

| a) cannot be accelerated | b) Must be accelerated | ✔c) Might be accelerated | d) None of them |
|---|---|---|---|

653) If the slope of the velocity−time graph is zero for all points on the curve , velocity is said to be

| a) Average | ✔b) Uniform | c) Variable | d) Non−uniform |
|---|---|---|---|

654) For cloudy days or nights electrical energy can be stored during the sunlight in

| a) Nickel silicon batteries | b) Nickel baron batteries | ✔c) Nickel cadmium batteries | d) None of them |
|---|---|---|---|

655) When a fluid is in motion , its flow can be

| a) Streamline | b) Turbulent | ✔c) Steady | d) All of these |
|---|---|---|---|

656) According to Charles law

| a) PT = Constant | b) $P \alpha \dfrac{1}{T}$ | c) $V \alpha n$ | ✔d) $V \alpha T$ |
|---|---|---|---|

657) The mass of earth is equal to.

| ✔a) $6 \times 10^{24}$ kg | b) $5 \times 10^{24}$ kg | c) $6 \times 10^{20}$ kg | d) $5 \times 10^{20}$ kg |
|---|---|---|---|

658) If the mass of a body is doubled then acceleration becomes

| a) Doubled | ✔b) Half | c) Constant | d) All |
|---|---|---|---|

659) Absorption of energy at resonance is

| a) Zero | ✔b) Maximum | c) Minimum | d) None of these |
|---|---|---|---|

660) The moment of inertia plays the same role in angular motion as the mass in

| a) Angular motion | ✔b) Linear motion | c) Rotational motion | d) All of these |
|---|---|---|---|

661) When a force of 100 N is acting on an object along x−axis then its vertical component will be.

| a) 50 N | b) 25 N | c) 10 N | ✔d) 0 N |

662) The product of cross−sectional area of the pipe and the fluid speed at any point along the pipe is

| ✔a) Constant | b) Variable | c) Zero | d) None of these |

663) While describing the motion of a simple pendulum , the frictional effects are

| ✔a) Ignored | b) Taken into consideration | c) Very large | d) None of these |

664) Gravitational pull of the earth on the object is called its

| a) Apparent weight | ✔b) Real weight | c) Mass | d) None of these |

665) The points on wave pattern which are separated by distance of wavelength are

| ✔a) in phase | b) out of phase | c) out of phase $90^0$ | d) out of phase $80^0$ |

666) If mass " m " of the water strikes the wall in time " t " then force " F " exected on the water is

| ✔a) $F = -\dfrac{m}{t}v$ | b) $F = -\dfrac{t}{m}v$ | c) $F = -\dfrac{t}{t}v$ | d) $F = -mvt$ |

667) One goe stationary satellite covers longitudinal angle.

| a) $270^o$ | ✔b) $120^o$ | c) $90^o$ | d) $60^o$ |

668) If we go above the surface of the gravitational force

| a) Remains constant | b) Becomes zero | ✔c) Various inversely to the square of the distance | d) Various directly to the square of the distance |

669) The waves in which particles of the medium have displacement along the direction of propagation of waves are called

| a) transverse waves | ✔b) longitudinal waves | c) electromagnetic waves | d) micro waves |

670) During the projectile motion the horizontal component of velocity

| ✔a) Remains constant | b) increase with time | c) decrease with time | d) none of these |

671) Work done in displacing the mass " m" through distance " $x_0$ ", appears as elastic P.E. given by

| a) $P.E. = k\,x_0{}^2$ | b) $P.E. = \dfrac{1}{2}k\,x_0{}^2$ | ✔c) $P.E. = \dfrac{1}{2}k^2\,x_0$ | d) $P.E. = \dfrac{1}{2}k^2\,x_0{}^2$ |

672) The efficiency of diesel engine is about.

| a) 25% to 30% | b) 40% to 50% | ✔c) 35% to 40% | d) 50% to 60% |

673) Force per unit extension is called

| a) Pressure | ✔b) Spring cosntant | c) Density | d) None of these |

674) The energy sources which are not very common use are called

| a) Conventional energy sources | ✔b) Non−Conventional energy sources | c) General sources of energy | d) None of them |

675) When velocity time graph is a straight line parallel to time axis then.

| a) Velocity to zero | ✔b) Acceleration is zero | c) Acceleration is constant | d) Velocity is variable |

676) The center of gravity of a body is

| ✔a) The point at which the whole weight of a body acts | b) The point at which the mass of the body acts | c) Both A & B | d) None of these |

677) 1 kWh is equal to

| a) $3.6 \times 10^5$ j | b) $3.6 \times 10^5$ kg | ✔c) $3.6 \times 10^6$ J | d) $3.6 \times 10^6$ kg |

678) The centripetal force is always directed

| a) Away from the centre | b) Opposite to the direction of motion | ✔c) Towards the centre | d) Along the direction of motion |

679) For a vibrating body , damping phenomena helps in

| a) Increasing the amplitude | ✔b) Decreasing the amplitude | c) Both A & B | d) None of these |

680) The dimensions of angular acceleration are

| a) $[T^{-1}]$ | ✔b) $[T^{-2}]$ | c) $[T^{-3}]$ | d) $[T^{-4}]$ |

681) For mass spring system , the value of angular frequency " $\omega$ " is

| ✔a) $\omega = \sqrt{\dfrac{k}{m}}$ | b) $\omega = -\sqrt{\dfrac{k}{m}}$ | c) $\omega = \sqrt{\dfrac{m}{k}}$ | d) $\omega = -\sqrt{\dfrac{m}{k}}$ |

682) The percentage uncertainity in radius of a sphere is 2%. The total percentage uncertainity in the volume of sphere will be:

| a) 2% | b) 4% | ✔c) 6% | d) 8% |

683) The number of earth station which transmit and receive signals from satellites is

| ✔a) 200 | b) 250 | c) 300 | d) 400 |

684) The time period of simple pendulum is

| a) $T = \dfrac{1}{2T}\sqrt{\dfrac{l}{g}}$ | b) $T = \dfrac{1}{2T}\sqrt{\dfrac{g}{l}}$ | ✔c) $T = 2\pi\sqrt{\dfrac{l}{g}}$ | d) $T = 2\pi\sqrt{\dfrac{l}{g}}$ |

685) When the stretched string is plucked from one quarters of length then the stretched string will vibrate in

| a) one loop | ✔b) two loops | c) three loops | d) four loops |

686) Multi mode step index fibre is useful for

| ✔a) Short distance | b) Long distance | c) None of these | d) Both of these |

687) One atto is equal to

| a) $10^{-17}$ | ✔b) $10^{-18}$ | c) $10^{-19}$ | d) $10^{-20}$ |

688) When a shell explodes in mid air , its fragment fly off in

| a) Same direction | b) Different directions | c) Circle | d) Uni-direction |

689) The path of the projectile for short ranges is

| a) Straight line | b) Elliptic | c) Hyperbolic | ✔d) Parabolic |

690) In the calculating of the volume of a sphere , $V = \frac{4}{3}\pi r^3$ the total percentage uncertainty in the final result can be determined by the expression.

| a) V = 2 x % age uncertainty in the radius r | b) V = 4 x % age uncertainty in the radius r | ✔c) V = 3 x % age uncertainty in the radius r | d) None of these |
|---|---|---|---|

691) 1 light year is the distance traveled by light in

| ✔a) 1 year | b) 4 year | c) 5 year | d) all |
|---|---|---|---|

692) Cold water passes over the surface of a collector and is heated up to about

| a) $50^0$ C | b) $60^0$ C | ✔c) $70^0$ C | d) $80^0$ C |
|---|---|---|---|

693) The instantaneous acceleration of a body executing S.H.M is given by

| a) $\vec{a} = -\omega \overrightarrow{x^2}$ | ✔b) $\vec{a} = -\omega^2 \vec{x}$ | c) $\vec{a} = \omega^2 \vec{x}$ | d) $\vec{a} = -\omega \vec{x}$ |
|---|---|---|---|

694) The maximum constant velocity attained by a spherical droplet when the drag force and the weight of drop become equal is called

| a) Critical velocity | b) Variable velocity | ✔c) Terminal velocity | d) Average velocity |
|---|---|---|---|

695) When the source is moving toward the observer with velocity $u_s$ then the Doppler's shift is given by.

| ✔a) $\Delta\lambda = \left(\frac{u_s}{f}\right)$ | b) $\Delta\lambda = \left(\frac{f}{u_s}\right)$ | c) $\Delta\lambda = (fu_s)$ | d) None of these |
|---|---|---|---|

696) In case of a point source the wave front in shape is

| a) Plane | ✔b) Spherical | c) Circular | d) Curve |
|---|---|---|---|

697) In optical fibre the light signals eventually become dim and must be regenerated by devices is called

| a) Receivers | ✔b) Repeaters | c) Amplifier | d) None of these |
|---|---|---|---|

698) A communication satellite is used to reflect the signal of.

| ✔a) Microwaves | b) Radio waves | c) x-rays | d) $\gamma$_rays |
|---|---|---|---|

699) In the gravitational field if displacement is against the gravitational force , then work done will be

| a) Positive | ✔b) Negative | c) Zero | d) None of them |
|---|---|---|---|

700) If a vector of 10N is acting along x-axis its y component is given by

| ✔a) Zero | b) 5N | c) 10N | d) 15N |
|---|---|---|---|

701) It the radius of earth is doubled then the value of critical velocity becomes.

| a) $\frac{1}{2}V_0$ | b) $\frac{1}{\sqrt{2}}V_0$ | ✔c) $\sqrt{2}V_0$ | d) $\frac{1}{4}V_0$ |
|---|---|---|---|

702) When the source of sound moves towards stationary observes then observed frequency

| ✔a) Increase | b) Decrease | c) Remains constant | d) None of these |
|---|---|---|---|

703) Angular momentum is a

| a) Scalar quantity | ✔b) Vector quantity | c) Number with no dimensions | d) None of these |
|---|---|---|---|

**704)** The dimensions of power are

| a) $[ML^2 T^{-1}]$ | b) $[ML^1 T^{-2}]$ | ✔c) $[ML^2 T^{-3}]$ | d) $[MLT^{-2}]$ |
|---|---|---|---|

**705)** On striking the ground , the K.E. of the object changes into

| a) Sound energy | b) Heat energy | ✔c) Sound and Heat energy | d) P.E. |
|---|---|---|---|

**706)** Artificial gravity is produced by rotating the space-ship

| a) Around earth | ✔b) About its own axis | c) About sun | d) None of these |
|---|---|---|---|

**707)** Reverse process of vector addition is called

| a) Negative of a vector | b) Subtraction of a vector | ✔c) Resolution of a vector | d) All of these |
|---|---|---|---|

**708)** The largest satellite system is managed by.

| a) 116 countries | b) 136 countries | ✔c) 126 countries | d) 140 countries |
|---|---|---|---|

**709)** According to Newton's second law in terms of momentum

| a) $\vec{F} = \dfrac{m\overrightarrow{V_i} - m\overrightarrow{V_f}}{t}$ | ✔b) $\vec{F} = \dfrac{m\overrightarrow{V_f} - m\overrightarrow{V_i}}{t}$ | c) $\vec{F} = \dfrac{m\overrightarrow{V_i}^2 - m\overrightarrow{V_f}^2}{t}$ | d) $\vec{F} = \dfrac{m\overrightarrow{V_f}^2 - m\overrightarrow{V_i}^2}{t}$ |
|---|---|---|---|

**710)** Gravity is due to curvature of space and time this was the theory of

| a) Newton | ✔b) Einstein | c) Plank | d) Maxwell |
|---|---|---|---|

**711)** If both $R_x$ and $R_y$ components are positive then resultant lies in

| ✔a) 1st quadrant | b) 2nd quadrant | c) 3rd quadrant | d) 4th quadrant |
|---|---|---|---|

**712)** The world of middle sized things range from

| a) Molecules to atoms | b) Molecules to star | c) Molecules to nucleus | ✔d) Molecules to earth |
|---|---|---|---|

**713)** Frequency of satellite about its own axis that produces artificial gravity is

| a) $f = \dfrac{1}{2\pi}\sqrt{\dfrac{R}{g}}$ | ✔b) $f = \dfrac{1}{2\pi}\sqrt{\dfrac{g}{R}}$ | c) $f = 2\pi\sqrt{\dfrac{R}{g}}$ | d) $f = \dfrac{1}{2\pi}\sqrt{Rg}$ |
|---|---|---|---|

**714)** Work done in the earth's gravitational field is

| a) Dependent of the path followed | ✔b) Independent of the path followed | c) Either of them | d) None of them |
|---|---|---|---|

**715)** The maximum range of the projectile is

| a) $R = \dfrac{V_i^2 \sin 2\theta}{2f}$ | b) $R = \dfrac{V_i^2 \sin 2\theta}{2f}$ | ✔c) $\dfrac{R_{max} = V_i^2}{g}$ | d) All of them |
|---|---|---|---|

**716)** The units of angular displacement are

| a) Radian | b) Degree | c) Revolution | ✔d) All of these |
|---|---|---|---|

**717)** Geo-stationary satellites are used for

| a) Weather observation | b) World communication | c) Navigation | ✔d) All of these |
|---|---|---|---|

718) When the amplitude of a wave becomes double it energy becomes

| a) one half | b) double | ✔c) four times | d) six times |

719) Product of frequency and time period

| a) Equal to zero | ✔b) Equal to one | c) Less than one | d) Less or equal to one |

720) An object of mass 1 kg moving with acceleration of 1 ms$^{-2}$ will experience a force of.

| a) $10^{-2}$ N | b) $10^{-3}$ N | ✔c) 1 N | d) 1 dyne |

721) When the magnitude of the drag force becomes equal to weight , the net force acting on the droplet is

| a) Maximum | b) 9.8 N | ✔c) Zero | d) None of these |

722) A paratrooper moves downward with.

| a) Zero acceleration | b) Positive acceleration | ✔c) Constant acceleration | d) Negative acceleration |

723) Equation of continuity gives the conservation of

| ✔a) Mass | b) Energy | c) Speed | d) Volume |

724) If velocity of a moving object is doubled then K.E becomes

| a) constant | b) 2 times | c) 3 times | ✔d) 4 times |

725) The diameter of multi mode step index fibre core is
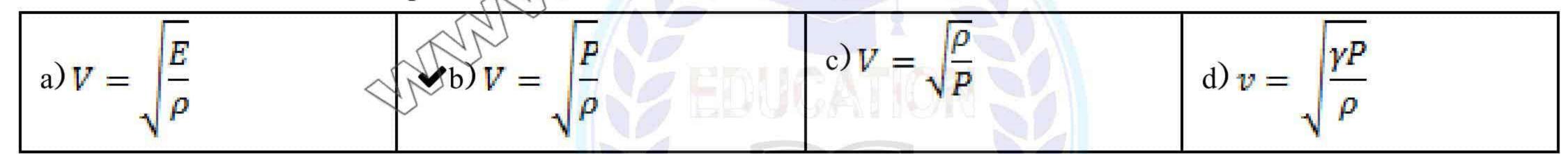
| a) 50 mm | b) 50 cm | c) 50 nm | ✔d) 50 $\mu$m |

726) When a particle is moving along a circular path , its projection along the diameter executes

| a) Elliptic motion | b) Parabolic motion | c) Irregular motion | ✔d) SHM |

727) Newton's formula for the speed of sound in air is.

| a) $V = \sqrt{\dfrac{E}{\rho}}$ | ✔b) $V = \sqrt{\dfrac{P}{\rho}}$ | c) $V = \sqrt{\dfrac{\rho}{P}}$ | d) $v = \sqrt{\dfrac{\gamma P}{\rho}}$ |

728) Solar cells are thin wafers made from

| a) Silver | b) Gold | c) Copper | ✔d) Silicon |

729) The limit to which a microscope can be used to resolve detail depends upon the

| a) Length of the objective | ✔b) Width of the objective | c) Position of the objective | d) All of these |

730) The expression for first law of thermodynamics is

| a) W = Q + $\Delta$ U | ✔b) Q = $\Delta$ U + W | c) $\Delta$ U = Q + W | d) Q = $U_1 - U_1$ |

731) The reflected wave from the boundary of two media has the same

| a) wave length | ✔b) frequency | c) velocity | d) none of these |

732) Three equations of motion are useful only for linear motion with.

| ✔a) Uniform acceleration | b) Variable acceleration | c) Zero acceleration | d) Positive acceleration |

733) For freely falling body , the apparent weight of the object will be

| a) Maximum | b) Minimum | ✔c) Zero | d) None of these |
|---|---|---|---|

734) A good telescope must have

| a) An objective of long focal length | b) An objective of larger aperture | ✔c) Both of these | d) None of these |
|---|---|---|---|

735) When sound source and observer move with same velocity along the same direction , then

| a) Relative velocity will be zero | b) There will be no change in frequency | ✔c) Both A & B | d) Apparent frequency increases |
|---|---|---|---|

736) Torque has maximum value if angle between $\vec{r}$ and $\vec{F}$ is

| a) $0^0$ | b) $45^0$ | ✔c) $90^0$ | d) $180^0$ |
|---|---|---|---|

737) The velocity−time graph of a body is an inclined straight line which rises the same height for equal intervals of time , if it moves with

| a) Variable velocity | b) Constant velocity | c) Zero velocity | ✔d) Constant acceleration |
|---|---|---|---|

738) Which one of the following is a scalar quantity

| a) Force | ✔b) Power | c) Velocity | d) Acceleration |
|---|---|---|---|

739) If the resultant vector lies in first quadrant then its direction is

| ✔a) $\theta = \emptyset$ | b) $\theta = 180^0 - \emptyset$ | c) $\theta = 180^0 + \emptyset$ | d) $\theta = 360^0 + \emptyset$ |
|---|---|---|---|

740) The displacement coincides with the path of the motion, when a body moves in

| ✔a) Straight line | b) Curve line | c) Both straight and curve line | d) None of them |
|---|---|---|---|

741) A physical quantity which is completely described by both its magnitude and direction is called

| ✔a) Vector | b) Scalar | c) Constant | d) Variable |
|---|---|---|---|

742) If there is air friction then for free falling body

| a) Loss in P.E > loss in K.E | b) Loss in P.E = gain in K.E | c) Loss in P.E < gain in K.E | ✔d) Loss in P.E ≠ gain in K.E |
|---|---|---|---|

743) No spark plug is needed in the .

| a) Petrol engine | b) Gas Engine | ✔c) Diesel engine | d) Water engine |
|---|---|---|---|

744) The moment of inertia of thin ring or hoop about an axis passes perpendicular to its plane is

| ✔a) $mr^2$ | b) $m^2r$ | c) $m^2r^2$ | d) $mr^{-2}$ |
|---|---|---|---|

745) By work energy principle work done by the body is equal to change in its

| a) K.E | b) P.E | ✔c) Both a & b | d) None of these |
|---|---|---|---|

746) The speeds of stars and galaxies can be calculated by the use of

| ✔a) Doppler's effect | b) Compton effect | c) Chemical effect | d) All of these |
|---|---|---|---|

747) The dimensions of co−efficient of viscosity are

| a) $[ MLT^{-1} ]$ | b) $[ MLT^{-2} ]$ | ✔c) $[ ML^{-1}T^{-1} ]$ | d) $[ ML^2T^{-1} ]$ |
|---|---|---|---|

748) A 1000 kg car is turning round a corners at 10 m / s , as it travels along an arc of a circle , if radius of the circular path is 10 m , then the centripetal force will be.

| ✔a) $1.0 \times 10^4$ N | b) $1.0 \times 10^3$ N | c) $1.0 \times 10^2$ N | d) $0.1 \times 10^2$ N |
|---|---|---|---|

749) The effect of decrease in pressure with increase in velocity of fluid in a horizontal pipe is called

| ✔a) Venturi effect | b) Torricelli's theorem | c) Viscosity | d) None of these |
|---|---|---|---|

750) When the string vibrates in more and more loop then

| ✔a) the frequency increases and wavelength decrease | b) the frequency decrease and wavelength increases | c) both frequency and wavelength decrease | d) both frequency and wavelength increases |
|---|---|---|---|

751) A 5 kg mass is falling freely , the force acting on it will be

| a) Zero | ✔b) 49 N | c) 4.9 N | d) 490 N |
|---|---|---|---|

752) The motion of a body about a fixed point , in which its distance from fixed pint remains same is called

| ✔a) Circular motion | b) Linear motion | c) Vibratory motion | d) Angular motion |
|---|---|---|---|

753) Wave transport

| a) Matter | ✔b) energy | c) both of these | d) none of these |
|---|---|---|---|

754) If a body is moving with constant acceleration , the velocity–time graph is

| ✔a) Inclined straight line | b) Curve | c) Zig–zag | d) None of them |
|---|---|---|---|

755) The law of conservation of angular momentum has been verified from the

| a) Cosmological level | b) Submicroscopic level | ✔c) Both A & B | d) None of these |
|---|---|---|---|

756) SI unit of linear momentum is

| ✔a) $kgms^{-1}$ | b) $kgm^2s^{-1}$ | c) $kgm^2s^{-2}$ | d) $kgm^{-1}s^{-1}$ |
|---|---|---|---|

757) For a vector the length of the line according to scale gives its

| a) Directions | ✔b) Magnitude | c) Units | d) Origin |
|---|---|---|---|

758) The expression for the orbital radius of geo–stationary satellites is

| a) $r = \left[\frac{GM^2T^2}{4\pi^2}\right]^{\frac{1}{3}}$ | b) $r = \left[\frac{GM^2T}{4\pi^2}\right]^{\frac{1}{3}}$ | c) $r = \left[\frac{GMT^3}{4\pi^2}\right]^{\frac{1}{3}}$ | ✔d) $r = \left[\frac{GMT^2}{4\pi^2}\right]^{\frac{1}{3}}$ |
|---|---|---|---|

759) In Blue shift , the spectrum is shifted towards.

| a) Larger wavelength | b) Medium wavelength | ✔c) Shorter wavelength | d) None of these |
|---|---|---|---|

760) projectile motion is due to

| a) gravitational force | b) inertia | ✔c) both a and b | d) none of them |
|---|---|---|---|

761) The low flying earth satellites , towards the center of earth have acceleration

| a) 9.6 m / $s^2$ | ✔b) 9.8 m / $s^2$ | c) 10 m / $s^2$ | d) 10.2 m / $s^2$ |
|---|---|---|---|

762) When average acceleration = instaneous acceleration , the body is said to be moving with

| a) Positive acceleration | b) Negative acceleration | ✔c) Uniform acceleration | d) Average acceleration |
|---|---|---|---|

763) Linear velocity of a body moving along a circular path is known as

| a) Angular velocity | ✔b) Tangential velocity | c) Rotational velocity | d) All of these |
|---|---|---|---|

764) The study of fluid in motion is simplified by using

| a) Law of conservation of mass | b) Law of conservation energy | ✔c) Both of these | d) Law of conservation of mass |
|---|---|---|---|

765) Rotational analogy of mass is

| a) Angular Velocity | ✔b) Moment of inertia | c) Angular momentum | d) None of these |
|---|---|---|---|

766) Intensity of light depends upon

| a) Wavelength | ✔b) Amplitude | c) Velocity | d) Frequency |
|---|---|---|---|

767) The projection of vector $\vec{A}$ in the direction of $\vec{B}$ is

| a) B cosθ | ✔b) A cosθ | c) B sinθ | d) A sinθ |
|---|---|---|---|

768) Which of the following is nearly monochromatic light ?

| a) Light from fluorescent tube | b) Light from sun | ✔c) Light from sodium lamp | d) Light from simple lamp |
|---|---|---|---|

769) With the help of Global positioning system , the position of an object on the earth can be found within the accuracy of

| a) 50 m | b) 30 m | ✔c) 10 m | d) 100 m |
|---|---|---|---|

770) With the increasing number of loops in stretched string the frequency

| ✔a) also increase | b) decreases | c) remains constant | d) none of these |
|---|---|---|---|

771) Microwaves are used in communication satellites because they

| a) Travel in narrow beam | b) Can pass easily through atmosphere | c) Travel in straight lines | ✔d) All of these |
|---|---|---|---|

772) According to stoke's law the viscous or drag force on a sphere of radius " r " moving with slowly speed is give by

| a) $F = \dfrac{2r^2\rho}{9\eta}$ | b) $F = 6\pi mg$ | ✔c) $F = 6\pi\eta rv$ | d) $F = 6\pi\eta r^2 v$ |
|---|---|---|---|

773) The dimensions of rotational inertia are

| a) $[\,ML^{-2}\,]$ | b) $[\,M^2L\,]$ | c) $[\,M^2L^2\,]$ | ✔d) $[\,ML^2\,]$ |
|---|---|---|---|

774) In mass spring system , at what positions the P.E. will be half of total energy

| a) $x = \dfrac{x_0}{2}$ | b) $x = \dfrac{x_0}{4}$ | ✔c) $x = \dfrac{x_0}{\sqrt{2}}$ | d) None of these |
|---|---|---|---|

775) A line normal to the wave front including the direction of motion is called a

| a) Vertical ray of light | b) Horizontal ray of light | ✔c) Ray of light | d) All of these |
|---|---|---|---|

776) The relation between linear acceleration and angular acceleration is

| a) $\vec{a} = \vec{r} \times \vec{a}$ | ✔b) $\vec{a} = \vec{a} \times \vec{r}$ | c) $\vec{a} = \vec{a} \times \vec{r}$ | d) $\vec{a} = \vec{r} \times \vec{a}$ |

777) If a shell explodes in mid−air , its fragments fly off in different directions . The total momentum of the fragments.

| a) Decreases | b) Increases | ✔c) Remains the same | d) Becomes zero |

778) Internal energy of ideal gas system is generally the

| a) Translational P.E. | ✔b) Translational K.E. | c) Rotational P.E. | d) Rotational K.E. |

779) The torque is also called

| ✔a) Moment of force | b) Moment arm | c) Couple | d) Moment of inertia |

780) Rotting of biomars in a closed tank produces biogas is a

| a) Good  liquid | b) Good oil | ✔c) Good fertilizer | d) All of these |

781) The refractive index steps down from 1.52 to 1.48 at the boundary in

| ✔a) Multi mode steps index fibre | b) Single mode step index fibre | c) Multi mode graded index fibre | d) Both b and c |

782) Whenever a body moves from one position to another , the change in position is called

| a) Acceleration | b) Velocity | c) Speed | ✔d) Displacement |

783) The components of a vector mutually perpendicular to each other are called

| a) Equal vector | ✔b) Rectangular components of a vector | c) Opposite vectors | d) resultant vector |

784) In stationary wave the points which always remains at rest are

| ✔a) nodes | b) anti nodes | c) crest | d) all of these |

785) In multi mode graded index fibre transmission of light take place by

| a) Continuous Refraction | b) Total internal refraction | ✔c) Both of these | d) None of these |

786) The 3rd frontiers in fundamental science is

| a) World of extra large things | ✔b) World of middle size things | c) World of extra small things | d) All of these |

787)      The dimensions of torque are

| ✔a) $[ML^2T^{-2}]$ | b) $[M^2LT^{-2}]$ | c) $[MLT^2]$ | d) $[ML^{-2}T]$ |

788) The capacity of a body to do work is called its

| a) Power | ✔b) Energy | c) Force | d) Momentum |

789) The weight of an object in an elevator moving down with an acceleration of 9.8 m$/$s$^2$ will become

| a) Half | b) Bouble | c) Unchanged | ✔d) Zero |

790) The dimensions of acceleration are

| a) $[LT^{-1}]$ | b) $[MLT^{-1}]$ | c) $[MT^{-2}]$ | ✔d) $[LT^{-2}]$ |

791) The centripetal force depends upon.

| a) Mass of the body | b) Speed of the body | c) Radius of the circle | ✔d) All of these |

792) The unit of power of a lens is

| a) Watt | b) meter | ✔c) Dioptre | d) cm |

793) Scalar product of two vectors $\vec{A}$ and $\vec{B}$ in terms of rectangular components can be written as

| a) $\vec{A}.\vec{B} = A_X B_Y$ | b) $\vec{A}.\vec{B} = A_Y B_X$ | ✔c) $\vec{A}.\vec{B} = A_X B_X$ | d) All of these |

794) If velocity time graph is parallel to time axis , then acceleration of moving body will be.

| a) Maximum | ✔b) Zero | c) Positive | d) Negative |

795) Speed of sound in vacuum is .

| a) 280 ms$^{-1}$ | b) 332 ms$^{-1}$ | c) 333 ms$^{-1}$ | ✔d) Zero |

796) When two vectors are multiplied then result will be

| a) scalar quantity | b) vector quantity | ✔c) either a or b | d) none of these |

797) For smaller values of $\Delta\theta$, the angular displacement is a

| ✔a) Vector quantity | b) Scaler quantity | c) Constant quantity | d) None of them |

798) The SI unit of power is

| a) Joule | ✔b) watt | c) newton | d) erg |

799) When two waves having same frequency and travelling in the same direction superpose produce the phenomenon of

| ✔a) interference | b) diffraction | c) beats | d) stationary waves |

800) Which of the following measurements of length is most precise?

| a) 5 cm | b) 5.4cm | c) 5.41 cm | ✔d) 5.412cm |

801) Let $x_1 = 10.5\pm0.1$ cm and $x_2 = 26.8 \pm 0.1$ cm is recorded as x= $x_2 - x_1$, the uncertainty in x is:

| a) 0.1 cm | b) $\pm0$ cm | c) $\pm0.2$ cm | d) −0.1 cm |

802) The angle of incidence for which angle of refraction becomes $90^0$ is called

| a) Reflected angle | b) Phase angle | ✔c) Critical angle | d) Incident angle |

803) The value of constant " $\gamma$ " for monatomic gas is

| ✔a) 1.67 | b) 1.40 | c) 1.29 | d) 1.30 |

804) The velocity of the projectile is minimum

| ✔a) At the highest point | b) Before striking the ground | c) At height of the hight |

805) The direction of angular momentum is

| a) Away the axis of rotation | ✔b) Along the axis of rotation | c) None of these | d) Both of these |

806) The overlapping of physics and other fields gave birth to?

| a) Physical chemistry | b) Bio physics | c) Astro physics | ✔d) All of these |

807) The horizontal range of the projectile is given by

| ✔a) $R = \dfrac{V_i^2 \sin 2\theta}{g}$ | b) $R = \dfrac{V_i^2 \sin 2\theta}{f}$ | c) $R = \dfrac{V_i^2 \sin 2\theta}{2f}$ | d) All |

808) The radial acceleration of a satellite orbiting around the earth is equal to

| a) Zero | ✔b) g | c) w infinity | d) None of these |

809) The minimum number of vector of un-equal magnitudes whose vector sum can be zero is

| a) 1 | b) 2 | ✔c) 3 | d) 4 |

810) The slope of velocity time graph at any instant represents.

| a) Instantaneous velocity | ✔b) Instantaneous acceleration | c) Force | d) Power |

811) The typical source of wave energy is

| a) Earth | b) Moon | ✔c) Sun | d) Work |

812) The magnitude of a vector r= a î + b ĵ + c k̂ can be written as

| a) $r = \sqrt{a^2\hat{i} + b^2\hat{j} + c\hat{k}}$ | b) $r = \sqrt{a+b+c}$ | ✔c) $r = \sqrt{a^2 + b^2 + c^2}$ | d) None of these |

813) The most common method of modulation in fibre optic communication is called

| ✔a) Digital modulation | b) Frequency modulation | c) Wave length modulation | d) All of these |

814) If a body is rotating counter-clockwise , then angular displacement is

| ✔a) Positive | b) Negative | c) Zero | d) Minimum |

815) Human blood pressure is measured in

| a) $Nm^{-2}$ | b) Pascal | c) torr | ✔d) All of these |

816) One Kilowatt hour is the work done by an agency of one Kilowatt power in

| a) one day | ✔b) one hour | c) one sec | d) none of these |

817) The maximum K.E. of the spring mass system is

| ✔a) $K.E. = \dfrac{1}{2} k x_0^2$ | b) $K.E. = \dfrac{1}{2} kx^2\left(1 + \dfrac{x^2}{x_0^2}\right)$ | c) $K.E. = \dfrac{1}{2} k x^2$ | d) $K.E. = \dfrac{1}{2} kx^2\left(1 - \dfrac{x^2}{x_0^2}\right)$ |

818) Instantaneous change of momentum is called

| a) Acceleration | ✔b) Impulse | c) Force | d) Pressure |

819) Slope of velocity time graph describes a physical quantity called.

| a) Displacement | ✔b) Average acceleration | c) Average velocity | d) Momentum |
|---|---|---|---|

820) The amount of heat required to raise the temperature of one mole of the gas through 1K at constant volume is called

| a) Heat capacity | b) Heat capacity at constant at constant pressure | ✔c) Heat capacity at constant volume | d) None of these |
|---|---|---|---|

821) The blood pressure of the person

| a) Decreases with age | ✔b) Increases with age | c) Remains constant | d) None of these |
|---|---|---|---|

822) Light from the sun reaches are nearly

| ✔a) Plane wave front | b) Spherical wave fronts | c) Both of these | d) None of these |
|---|---|---|---|

823) The commercial unit of electric energy is

| a) Kilowatt | b) Kilowatt meter | ✔c) Kilowatt hour | d) All of them |
|---|---|---|---|

824) The area under velocity time graph is equal to.

| ✔a) Distance | b) Power | c) Force | d) Work |
|---|---|---|---|

825) The dimensions of weight are given by

| a) $[ML^2 T^2]$ | b) $[ML^2 T^1]$ | ✔c) $[MLT^{-2}]$ | d) $[ML^2 T^{-1}]$ |
|---|---|---|---|

826) When a body is moving in a circle , then its tangential velocity.

| a) Remains constant | ✔b) Changes continuously | c) Becomes zero | d) None of these |
|---|---|---|---|

827) Newton's first law of motion gives us

| a) Measurement of force | ✔b) Definition of force | c) Both a and b | d) None of these |
|---|---|---|---|

828) The magnitude of $\hat{i}.(\hat{j} \times \hat{k})$ is

| ✔a) 1 | b) 2 | c) 4 |
|---|---|---|

829) If E is the elastic modulus and $\rho$ is the density of the medium , the speed of the sound is.

| ✔a) $v = \sqrt{\dfrac{E}{\rho}}$ | b) $v = \sqrt{E\rho}$ | c) $v = \gamma\sqrt{\dfrac{\rho}{E}}$ | d) $v = \sqrt{\dfrac{1}{E\rho}}$ |
|---|---|---|---|

830) For a car moving round a corner track , necessary centripetal force is provided by

| a) Frictional force | b) Normal reaction | ✔c) Both A & B | d) Gravitational force |
|---|---|---|---|

831) Rate of change of angular displacement is called

| a) Linear velocity | ✔b) Angular velocity | c) Linear acceleration | d) Angular acceleration |
|---|---|---|---|

832) Single mode step index fibre can carry

| a) 12 TV Channels or 14000 phone calls | b) 14 TV Channels or 15000 phone calls | ✔c) 14 TV Channels or 14000 phone calls | d) 12 TV Channels or 15000 phone calls |
|---|---|---|---|

833) Moment of force of a body about its center of gravity due to its weight is

| a) Minimum | b) Maximum | ✔c) Zero | d) mg |

834) When the fuel in the rocket decreases due to burning , then acceleration of the rocket

| a) Increases | b) Decrease | c) Remain same | ✔d) Becomes zero |

835) An aeroplane is moving towards air port , its apparent frequency picked at the radar

| ✔a) Increases | b) Decreases | c) Remains constant | d) None of these |

836) Newton calculated the speed of sound in air at STP as given

| ✔a) $280 \text{ ms}^{-1}$ | b) $332 \text{ ms}^{-1}$ | c) $333 \text{ ms}^{-1}$ | d) $340 \text{ ms}^{-1}$ |

837) When a body falls down towards the earth acceleration due to gravity is taken

| a) Negative | ✔b) Positive | c) Zero | d) None of them |

838) The velocity of a free falling body just before hitting the ground is $9.8 \text{ ms}^{-1}$, the height through which it fall be.

| a) 98 m | b) 19.6 m | ✔c) 4.9 m | d) 9.8 m |

839) Before launching , the launching mass of a typical rocket consist of fuel

| a) 40 ⁒ of rocket mass | b) 60 ⁒ of rocket mass | ✔c) 80 ⁒ of rocket mass | d) 90 ⁒ of rocket mass |

840) The slope of velocity time graph gives.

| a) Speed | ✔b) Acceleration | c) Torque | d) Displacement |

841) At maximum height the horizontal component of velocity is

| a) Maximum | b) Minimum | c) zero | ✔d) unchanged |

842) A slinky spring is a loose which has small initial length but a relatively

| ✔a) large extended length | b) medium extended length | c) very small extended length | d) none of these |

843) A device used to measure speed of liquid flow is called

| a) Barometer | ✔b) Venturi meter | c) Volmeter | d) Sphygmonanometer |

844) The time rate of change of velocity of a body is called

| a) Speed | b) Displacement | c) Distance | ✔d) Acceleration |

845) K.E. of vibrating mass spring system at any instant is

| a) $K.E.=\frac{1}{2}k\,x_0{}^2$ | b) $K.E.=\frac{1}{2}kx^2\left(1+\frac{x^2}{x_0{}^2}\right)$ | c) $K.E.=\frac{1}{2}k\,x^2$ | ✔d) $K.E.=\frac{1}{2}kx^2\left(1-\frac{x^2}{x_0{}^2}\right)$ |

846) One angstrom is equal to

| a) $10^{-6}$ m | b) $10^{-6}$ cm | c) $10^{-8}$ m | ✔d) $10^{-8}$ cm |

847) When the line of action of applied force passes through the pivot point then its torque is

| a) Maximum | b) Minimum | ✔c) Zero | d) 1 |

848) The branch of physics which deals with the transformation of heat energy into other forms of energy is called

| a) Mechanics | ✔b) Thermodynamics | c) Nuclear physics | d) Particle physics |

849) When a meteor enters into earth's atmosphere the energy converts into

| a) Kinetic energy | b) Potential energy | ✔c) Heat energy | d) Nuclear energy |

850) The unit of entropy is.

| a) J K | b) J | ✔c) $\frac{J}{K}$ | d) $\frac{K}{J}$ |

851) At a very large distance from a point source we get

| a) A spherical wave front | ✔b) A plane wave front | c) A cylindrical wave front | d) a circular wave front |

852) Value of solar constant is.

| ✔a) $1.4 \, kW \, m^{-2}$ | b) $1.0 \, kW \, m^{-2}$ | c) $0.1 \, kW \, m^{-2}$ | d) $4.1 \, kW \, m^{-2}$ |

853) Blood pressure is measured by a instrument called

| a) Barometer | b) Stethoscope | ✔c) Sphygmonanometer | d) Hydrometer |

854) The airplane lift is based on

| a) Linear momentum | b) Angular momentum | ✔c) Bernoulli's principle | d) All of these |

855) The ability to reveal the minor detail of the object under examination is called

| ✔a) Resolving power | b) Magnification | c) Magnifying power | d) Power |

856) In decimal fractions , zeros to the right of significant figures

| ✔a) Are significant | b) Are not significant | c) May or may not significant | d) None of these |

857) The angle $\theta = \omega t$ specifies the

| a) Displacement of the body | b) Direction of motion of the body | ✔c) Both of these | d) None of these |

858) Number of beats per second is equal to the

| ✔a) difference between the frequencies of the two tuning forks | b) sum of the frequencies of the two tuning forks | c) ratio of the frequencies of two tuning fork | d) none of these |

859) Carnot engine used

| a) Isothermal process | b) Adiabatic process | c) Isobaric process | ✔d) Both a and b |

860) The light emitted from LED to the transmitter has a typical wave length

| a) 1.3 cm | b) 1.3mm | c) 1.3 km | ✔d) $1.3\mu$m |

862) A succession of events which bring the system back to its initial condition is called

| a) Forward process | b) Irreversible process | ✔c) A cycle | d) None of these |

863) The value of g at the center of earth is

| a) Maximum | b) Minimum | c) 9.8 ms$^{-2}$ | ✔d) Zero |

864) The axis of rotation of an object will not change its orientation unless an external

| ✔a) Torque | b) Power acts on | c) Momentum | d) None of these |

865) When an observer moves towards stationary source of sound the observed frequency

| a) Decreases | ✔b) Increases | c) Remains constant | d) Becomes zero |

866) Multi mode graded index fibre core has diameter of range

| a) 100 to 1000 $\mu$m | b) 50 to 100$\mu$ m | c) 50 to 10000 $\mu$ m | ✔d) 50 to 1000 $\mu$m |

867) The angle between the vectors $\hat{i}-3\hat{j}-2\hat{k}$ and $\hat{i}-\hat{j}-\hat{k}$ is

| a) 20$^0$ | b) 45$^0$ | ✔c) 90$^0$ | d) 120$^0$ |

868) SI unit of angular momentum is

| a) kgm$^2$s$^{-1}$ | b) Js | ✔c) Both A & B | d) None of these |

869) The length of the second pendulum is

| a) 99.2 m | ✔b) 99.2 cm | c) 99.2 km | d) 9.92 m |

870) The P.E of an object on the surface of earth is equal to

| a) mv$^2$ | ✔b) zero | c) mgh | d) infinite |

871) The frequency of the second pendulum is

| a) 1.0 Hz | b) 2.0 Hz | ✔c) 0.5 Hz | d) 1.5 Hz |

872) Height of geostationary satellite above the equator is

| a) 26000 km | b) 32000 km | ✔c) 36000 km | d) 42000 km |

873) No body begins to move or comes to rest of itself was given by.

| ✔a) Newton | b) Pascal | c) Bernoulli | d) Bu Ali Sena |

874) The percentage uncertainity in mass and velocity are 2% and 3% respectively. The maximum percentage uncertainity in the measurement of kinetic energy will be:

| a) 11% | ✔b) 8% | c) 6% | d) 1% |

875) The example of scalar product is

| a) Torque | ✔b) Work | c) Force | d) All of these |

876) The light source in the transmitter can be

| a) LED | b) TV | ✔c) Either of these | d) None of these |

877) Satellites are held in orbit by the gravitational pull of.

| a) Moon | b) Sun | ✔c) Earth | d) Star |

878) As water falls down from taps its speed increases and cross-sectional area

| a) Becomes zero | b) Increases | ✔c) Decreases | d) None of these |

879) The horizontal range of projectile is maximum at an angle of

| a) $25^0$ | ✔b) $45^0$ | c) $55^0$ | d) $65^0$ |

880) The behaviour of gases is well accounted by the kinetic theory bases on

| ✔a) Microscopic approach | b) Macroscopic approach | c) Both these | d) None of these |

881) The gravitational P.E is always determined relative to some arbitrary position which is assigned the value of

| a) Minimum P.E | b) Maximum P.E | ✔c) Zero P.E | d) Negative P.E |

882) A spectrometer consist of

| a) Collimator | b) Turn table | c) Telescope | ✔d) All of these |

883) If the slope of the velocity time graph remain constant then body is moving with.

| a) Uniform velocity | b) Negative variable Acceleration | c) Variable Acceleration | ✔d) Uniform Acceleration |

884) The systolic pressure (high pressure) of normal healthy person is

| a) 210 torr | b) 160 torr | ✔c) 120 torr | d) 80 torr |

885) Whenever high magnification is desired will use

| a) Simple microscope | ✔b) Compound microscope | c) Spectrometer | d) A Convex lens |
|---|---|---|---|

886) In satellites the energy needed to amplify and transmit the signals is provided by

| a) A.C. generators | ✔b) D.C. generators | c) Solar cell panels | d) All of these |
|---|---|---|---|

887) Carnot engine cycle consists of

| a) Single step | b) Two steps | c) Three steps | ✔d) Four steps |
|---|---|---|---|

888) The distance between two consecutive crests or trough is called

| a) displacement | b) amplitude | ✔c) wavelength | d) all of these |
|---|---|---|---|

889) In vector product the direction can be determined by

| a) Head to tail rule | ✔b) Right hand rule | c) Left hand rule | d) Fleming's rule |
|---|---|---|---|

890) Power is a

| ✔a) Scalar quantity | b) Vector quantity | c) Fixed quantity | d) Fundamental quantity |
|---|---|---|---|

891) Sound of frequencies higher than 20,000 hertz are called

| ✔a) ultra sonic | b) infra sonic | c) both of these | d) none of these |
|---|---|---|---|

892) A transmitter converts electrical signals into

| a) Sound signals | ✔b) Light signals | c) None of these | d) All o f these |
|---|---|---|---|

893) For very fast moving objects relativistic mechanics is applicable developed by

| ✔a) Einstein | b) Abu ali sena | c) Newton | d) All |
|---|---|---|---|

894) The circumference of a circle subtends an angle at the centre

| a) $\pi$ radian | ✔b) $2\pi$ radian | c) $\frac{\pi}{2}$ radian | d) $4\pi$ radian |
|---|---|---|---|

895) The study of nature is classified into

| ✔a) Two Branches | b) three Branches | c) four Branches | d) five Branches |
|---|---|---|---|

896) The centripetal force can be written as

| a) $F_c = m^2 r \omega$ | b) $F_c = mr^2 \omega$ | c) $F_c = mr^2 \omega^2$ | ✔d) $F_c = mr\omega^2$ |
|---|---|---|---|

897) The first frontiers in fundamental science is

| ✔a) World of extremely large bodies | b) World of middle sized | c) All of these | d) None |
|---|---|---|---|

898) The minimum initial velocity which is given to a body to enable it to escape out of the earth's gravitational field is called

| a) Terminal velocity | b) Angular velocity | ✔c) Escape velocity | d) Orbital velocity |
|---|---|---|---|

899) When one end of organ pipe is closed then

| ✔a) only odd harmonic are present | b) only even harmonics are present | c) all harmonic is present | d) none of these |
|---|---|---|---|

900) The condition for destruction interference can be written as

| ✔a) $\Delta S = (2n+1)\frac{\lambda}{2}$ | b) $\Delta S = (2n)$ | c) $\Delta S = (2n+11)$ | d) all |
|---|---|---|---|

901) The quantities which are based on other physical quantities are called.

| a) Base quantities | b) Vector quantitites | c) Scalar quantities | ✔d) Derived quantities |
|---|---|---|---|

902) The time rate of doing work is known as

| a) Momentum | b) Energy | c) Force | ✔d) Power |
|---|---|---|---|

903) If vector sum of all the forces acting on a body is zero , then body is may be in

| a) Static equilibrium | b) Translational equilibrium | ✔c) Both A & B | d) Dynamic equilibrium |
|---|---|---|---|

904) The waves produced in a typical micro wave oven have wavelength

| a) 12 km | b) 12 m | ✔c) 12 cm | d) 12 nm |
|---|---|---|---|

905) When the temperature increase , the viscosity

| a) Decreases | ✔b) Increases | c) Remains constant | d) None of these |
|---|---|---|---|

906) The maximum height attained by a projectile is

| a) $R_{max} = \frac{V_i^2}{g}$ | b) $H = \frac{V_i^2 \sin 2\theta}{g}$ | ✔c) $H = \frac{V_I \sin 2\theta}{g}$ | d) All of them |
|---|---|---|---|

907) The points on a Huygen's wave front which send out secondary wavelets are

| a) Non coherent sources of light | ✔b) Coherent sources of light | c) Point sources of light | d) None of these |
|---|---|---|---|

908) Impulse is a

| a) Scalar quantity | ✔b) Vector quantity | c) Fixed quantity | d) None of them |
|---|---|---|---|

909) When mud flies off the tyre of a moving bicycle, it will fly.

| a) Toward the centre | b) Tangent to the tyre | ✔c) Along the radius | d) All of these |
|---|---|---|---|

910) If both $R_x$ and $R_y$ components are negative then resultant lies in

| a) 1st quadrant | b) 2nd quadrant | ✔c) 3rd quadrant | d) 4th quadrant |
|---|---|---|---|

911) Fluid is said to be ideal, if

| a) It is non-viscous | b) It is incompressible | c) The fluid motion is steady | ✔d) All of these |
|---|---|---|---|

912) The direction of angular acceleration is

| ✔a) Along the axis of rotation | b) Away the axis of rotation | c) Perpendicular to the axis of rotation | d) All of these |
|---|---|---|---|

913) A body having uniform acceleration of 10 ms$^{-2}$ has a velocity of 100 ms$^{-1}$. In what time its velocity will be doubled?

| a) 8 sec | ✔b) 10 sec | c) 12 sec | d) 14 sec |
|---|---|---|---|

914) The formula for speed of satellite orbiting around the Earth is.

| a) $V = \sqrt{2gr}$ | b) $V = \sqrt{2gR}$ | ✔c) $V = \sqrt{gR}$ | d) $V = \sqrt{\dfrac{gR}{M}}$ |
|---|---|---|---|

915) The mass of fuel consumed by a typical moving rocket to overcome earth's gravity is at the rate of

| a) 100 kgs$^{-1}$ | b) 4000 kgs$^{-1}$ | ✔c) 10000 kgs$^{-1}$ | d) 100000 kgs$^{-1}$ |
|---|---|---|---|

916) A process whereby energy is dissipated from the oscillating system is called

| a) Resonance | b) SHM | ✔c) Damping | d) Reflection |
|---|---|---|---|

917) If the resultant vector lies in 3rd quadrant then its direction is

| a) $\theta = \emptyset$ | ✔b) $\theta = 180^0 + \emptyset$ | c) $\theta = 270^0 + \emptyset$ | d) $\theta = 360^0 + \emptyset$ |
|---|---|---|---|

918) A unit vector is obtained by dividing the vector with

| a) Its direction | ✔b) Its magnitude | c) `Null vector | d) Resultant vector |
|---|---|---|---|

919) Super position principle is the following property of the wave

| a) simple multiplication | ✔b) simple additive | c) both of them | d) all of these |
|---|---|---|---|

920) Environment crisis are also known as.

| a) Population crisis | ✔b) Entropy crisis | c) War crisis | d) Mass crisis |
|---|---|---|---|

921) The minimum number of correctly positioned communication satellites to cover whole populated earth is.

| ✔a) 3 | b) 2 | c) 100 | d) 200 |
|---|---|---|---|

922) Bats navigate and find food by

| a) Micro waves | ✔b) Echo location | c) Electromagnetic waves | d) All of these |
|---|---|---|---|

923) The stationary waves can be set up on the string only with the frequencies of

| a) Simple series | ✔b) Harmonic series | c) Fundamental series | d) None of these |
|---|---|---|---|

924) The expression for velocity with which a satellite moves around the earth is

| a) $v = \sqrt{\dfrac{2GM}{r}}$ | b) $v = \sqrt{\dfrac{Gm}{r}}$ | ✔c) $v = \sqrt{\dfrac{GM}{r}}$ | d) $v = \sqrt{\dfrac{GM}{r^2}}$ |
|---|---|---|---|

925) The first demonstration of wave nature of light was provided in 1801 by the experiment of

| a) Huygen | ✔b) Thomas Young | c) Maxwell | d) Newton |
|---|---|---|---|

926) According to equation of continuity

| a) $A^2 v =$ constant | b) $A v^2 =$ constant | ✔c) $A v =$ constant | d) $\dfrac{A}{v} =$ constant |
|---|---|---|---|

927) The consumption of energy by a 60 watt bulb in 2 sec is

| a) 0.02 J | b) 30 J | c) 80 J | ✔d) 120 J |
|---|---|---|---|

928) One tera is equal to

| a) $10^{10}$ | b) $10^{11}$ | ✔c) $10^{12}$ | d) $10^{-9}$ |
|---|---|---|---|

929) If the mass of the bob of a pendulum is doubled, then its time period is

| a) Doubled | b) Four times | ✔c) Unchanged | d) Halved |
|---|---|---|---|

930) Time taken by light to reach from sun to earth is

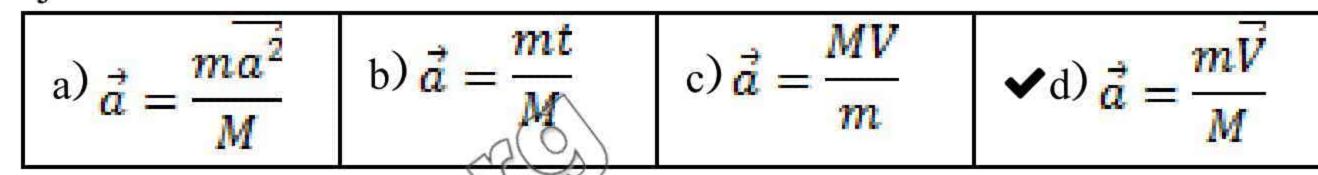| a) 8 min 8 sec | b) 8 min 84 sec | c) 8 min34 sec | ✔d) 8 min 20 sec |
|---|---|---|---|

931) When the height of a satellite from the surface of earth increases

| a) T increase | b) V orbital speed decreases | c) Acceleration due to gravity decrease | ✔d) All of these |
|---|---|---|---|

932) The horizontal range is equal for the angles

| a) $30^0$ to $40^0$ | b) $50^0$ | c) $45^0$ | ✔d) $30^0$ to $60^0$ |
|---|---|---|---|

933) Mathematically, the acceleration of rocket of mass M and whose ejected mass flow rate is " m "

| a) $\vec{a} = \dfrac{m\vec{a^2}}{M}$ | b) $\vec{a} = \dfrac{mt}{M}$ | c) $\vec{a} = \dfrac{MV}{m}$ | ✔d) $\vec{a} = \dfrac{m\vec{V}}{M}$ |
|---|---|---|---|

934) Action and reaction forces act on the

| ✔a) Different bodies | b) Same bodies | c) A and B | d) None of these |
|---|---|---|---|

935) In $d\,sin\theta = m\,\lambda$ where $m = \pm(\ldots\ldots.)$:

| a) 1,3,5,7,.......... | ✔b) 1,2,3,............ | c) Both A & B | d) None of these |
|---|---|---|---|

936) According to Huygen's principle secondary waveles spread out with a speed

| ✔a) Equal to the speed of propagation of the wave | b) Greater to the speed of propagation of the wave | c) Less to the speed of propagation of the wave | d) All of these |
|---|---|---|---|

937) The magnitude of $\vec{A} \times \vec{B}$ in equal to the areas of adjacent sides of

| a) Square | ✔b) Parallelogram | c) Triangle | d) Rectangle |
|---|---|---|---|

938) The product of mass of a particle and its velocity is called

| a) Force | b) Energy | c) Acceleration | ✔d) Linear momentum |
|---|---|---|---|

939) For complete equilibrium, linear acceleration and angular acceleration should be

| a) Maximum | b) Minimum | ✔c) Zero | d) Positive |
|---|---|---|---|

940) If a vector A= $\hat{i} + \hat{j} + \tilde{\hat{k}}$ then its magnitude will be

| a) 3 | b) 4 | ✔c) $\sqrt{3}$ | d) 5 |

941) In the study of interference and diffraction we consider

| a) Particle nature of light | ✔b) Wave nature of light | c) Both of these | d) None of these |

942) The min-number of communication satellites required to cover whole earth is.

| a) 4 | ✔b) 3 | c) 5 | d) 2 |

943) The relation between time period " T " and angular velocity " $\omega$ " of the body is

| a) $\omega = 2\pi T$ | ✔b) $\omega = \dfrac{2\pi}{T}$ | c) $\omega = \pi T$ | d) $\omega = \dfrac{2T}{\pi}$ |

944) The speed of a hoop moving down an incline plane is.

| ✔a) $\sqrt{gh}$ | b) $\sqrt{\dfrac{3}{4}gh}$ | c) $\sqrt{\dfrac{4}{3}gh}$ | d) $\sqrt{\dfrac{2}{3}gh}$ |

945) Propagation of light in an optical fibre requires that the light should be

| a) Partially confined with in the fibre | ✔b) Totally confined with in the fibre | c) Either of these | d) None of these |

946) A brick of mass 2 kg is dropped from a rest position 5.0 m above the ground . What is its velocity at height of 3.0 m above the ground ?

| a) 6 ms$^{-1}$ | b) 9 ms$^{-1}$ | ✔c) 6.3 ms$^{-1}$ | d) 9.8 ms$^{-1}$ |

947) If the magnitude of resultant of two vectors each of magnitude F is also of magnitude F, the angle between them will be

| a) $30^0$ | b) $40^0$ | c) $50^0$ | ✔d) $120^0$ |

948) The device which converts light energy into electrical energy is called

| a) Dry cell | b) Solar cell | c) Photo voltaic cell | ✔d) Both b&c |

949) Vector can be added graphically by a method known as:

| a) Right hand rule | b) Left hand rule | ✔c) Head to tail rule | d) Addition rule |

950) A wider objective and use of blue light of short waves length produces

| a) Large diffraction | ✔b) Less diffraction | c) No diffraction | d) None of these |

951) If a vector A makes an angle $\theta$ with x- axis then its y-component is

| ✔a) A $\sin\theta$ | b) A $\cos\theta$ | c) A $\tan\theta$ | d) zero |
|---|---|---|---|

952) The speed of efflux is equal to the velocity gained by the falling fluid under the action of gravity through a certain height is called

| a) Equation of continuity | b) Bernoulli's Theorem | ✔c) Torricelli's theorem | d) Venturi's theorem |
|---|---|---|---|

953) On a clear day at moon the intensity of solar energy reading the earth's surface is about

| ✔a) 1.0 $KWm^{-2}$ | b) 3.5 $KWm^{-2}$ | c) 5.5 $KWm^{-2}$ | d) 0.7 $KWm^{-2}$ |
|---|---|---|---|

954) When a body is moving in a circle , then direction of its linear velocity is

| a) Along the radius of circle | b) Away from radius of circle | ✔c) Tangent to the circle | d) None of these |
|---|---|---|---|

955) If there is no air friction then for free falling body

| a) Loss in P.E > gain in K.E | b) Loss in P.E< gain in K.E | ✔c) Loss in P.E = gain in K.E | d) Loss in P.E $\neq$ gain in K.E |
|---|---|---|---|

956) Close orbiting satellites orbit the earth at a height of obout

| a) 400 cm | b) 100 m | ✔c) 400 km | d) 4000 km |
|---|---|---|---|

957) In scalar product the product of two vector is

| ✔a) scalar quantity | b) vector quantity | c) Both a&b | d) All of these |
|---|---|---|---|

958) Direction and location of submarines can be detected by

| a) Magnetic effect | b) Electric effect | ✔c) Doppler's effect | d) All of these |
|---|---|---|---|

959) Radar system is an application of

| a) Photoelectric effect | b) Compton effect | ✔c) Doppler's effect | d) All of these |
|---|---|---|---|

960) Glare can considerably be reduced by using

| ✔a) Polariod sunglasses | b) Unpolariod sunglasses | c) Both of these | d) None of these |
|---|---|---|---|

961) One radian is equal to

| a) $77.3^0$ | ✔b) $57.3^0$ | c) $67.3^0$ | d) $47.3^0$ |
|---|---|---|---|

962) When the object is placed inside the principal focus of the convex lens the image formed will be

| ✔a) Magnified and virtual | b) Magnified and real | c) Diminished and real | d) Diminished and virtual |
|---|---|---|---|

963) The fringe spacing varies inversely with the

| a) Distance between slits and screen | ✔b) Separations of the slits | c) Wavelength | d) None of these |
|---|---|---|---|

964) A body of mass " m " is falling in a viscous medium with terminal velocity " v " net force on the body will be

| a) mg | ✔b) Zero | c) $6\pi^{\eta}rv - mg$ | d) $mg - 6\pi^{\eta}rv$ |
|---|---|---|---|

965) Newton ring are formed as a result of

| a) Refraction of light | b) Dispersion of light | c) Diffraction of light | ✔d) Interference of light |
|---|---|---|---|

966) If $\vec{A}.\vec{B}$ =-AB then angle between $\vec{A}$ and $\vec{B}$ will be

| a) $0^0$ | b) $90^0$ | ✔c) $180^0$ | d) $360^0$ |
|---|---|---|---|

967) Which of the following is more compressible and have smaller elastic modulus

| a) Solids | ✔b) Gases | c) Liquids | d) All of these |
|---|---|---|---|

968) The points of the medium at which the resultant amplitude of the wave is always zero are called

| ✔a) nodes | b) anti nodes | c) cests | d) none of them |
|---|---|---|---|

969) The earth surface or a point at infinity from the earth can be chosen as zero reference level of

| a) Elastic P.E | ✔b) Gravitational P.E | c) K.E | d) Electric energy |
|---|---|---|---|

970) The water rises along coasts due to the gravitational pull of the

| a) Earth on water | b) Sun on water | ✔c) Moon on water | d) All of them |
|---|---|---|---|

971) The instantaneous displacement for the vertical mass spring system is

| a) $x = x_0 \cos\sqrt{\frac{k}{m}}t$ | b) $x = x_0 \sin\sqrt{\frac{m}{k}}t$ | ✔c) $x = x_0 \sin\sqrt{\frac{k}{m}}t$ | d) $x = x_0 \cos\sqrt{\frac{m}{k}}t$ |
|---|---|---|---|

972) Newton's laws are empirical laws deduced from

| a) Observation | b) Theories | c) Hypothesis | ✔d) Experiments |
|---|---|---|---|

973) Polarization in the characteristics of

| a) Heat waves | ✔b) Light waves | c) Sound waves | d) Water waves |
|---|---|---|---|

974) Two mutually perpendicular lines in plane from a systemof coordinate axes called

| a) Cartesian coordinate system | b) Rectangular coordinate system | ✔c) Both a&b | d) All of these |
|---|---|---|---|

975) When the columns of soldiers are crossing a bridge , the soldiers are ordered to

| ✔a) Break their steps | b) Match their steps | c) Stop | d) None of these |
|---|---|---|---|

976) Which of the following is a base quantity ?

| a) Force | b) Acceleration | c) Power | ✔d) Time |
|---|---|---|---|

977) In rotational motion torque is equal to $\tau$

| a) $m^2 r\alpha$ | ✔b) $mr^2\alpha$ | c) $mr\alpha$ | d) $m^2 r^2\alpha$ |
|---|---|---|---|

978) The moment of inertia of a sphere of radius " r " about its diametrical axis is

| a) $mr^2$ | b) $\frac{1}{12}mr^2$ | c) $\frac{1}{2}mr^2$ | ✔d) $\frac{2}{5}mr^2$ |
|---|---|---|---|

979) Multi mode step index fibre is used for carrying

| a) x−rays | ✔b) White light | c) laser light | d) yellow light |
|---|---|---|---|

980) The magnitude of a vector r= 3 î + 6 ĵ+2 $\hat{k}$ is

| a) −1 | b) 3 | c) −7 | ✔d) 7 |
|---|---|---|---|

981) The velocity of the projectile is maximum

| a) At the highest point | ✔b) At point of launching and just before striking the ground | c) At half of the height | d) After striking the ground |
|---|---|---|---|

982) The example of vector product is

| a) Torque | b) Angular momentum | c) Magnetic force on charge | ✔d) All of these |
|---|---|---|---|

983) According to Laplace correction , Boyle , law takes the form.

| a) PV = constant | b) $P^Y$ V = constant | ✔c) P$V^Y$ = constant | d) $P^Y$ V = constant |

984) The direction of acceleration is along

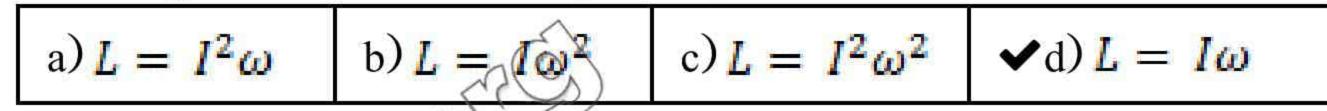| a) Initial velocity | b) Final velocity | ✔c) Change in velocity | d) None of these |

985) If every particle that passes a particular point , moves along exactly the same path , as followed by particular which passed that points earlier , the flow is said to be

| a) Streamline | b) Laminar | c) Steady | ✔d) All of these |

986) When average velocity becomes equal to instantaneous then body is called moving with.

| a) Instantaneous acceleration | b) Constant acceleration | ✔c) Constant velocity | d) Variable velocity |

987) Angular momentum of a rigid body about its axis of rotation is

| a) $L = I^2\omega$ | b) $L = I\omega^2$ | c) $L = I^2\omega^2$ | ✔d) $L = I\omega$ |

988) Rate of flow = constant , is according to

| a) Bernoulli's theorem | ✔b) Equation of continuity | c) Torricelli's theorem | d) Venturi relation |

989) Conventionally Anti clock wise Torque is taken as

| ✔a) Positive | b) Negative | c) Zero | d) All of these |

990) The scalar product of two mutually perpendicular vector is

| a) Maximum | ✔b) Zero | c) Negative | d) Minimum |

991) Bragg's equation can be written as

| a) dSin$\theta$ = n$\lambda$ | ✔b) 2dSin$\theta$ = n$\lambda$ | c) dSin$\theta$ = $\lambda$ | d) dSin$\theta$ = $\frac{\lambda}{2}$ |

992) In any measurement , the accurately known digits and first doubtful digit are called

| a) Accurate figure | b) Doubtful figure | ✔c) Significant figure | d) Rounded off figure |

993) If $R_x$ is positive and $R_y$ is negative then the resultant lies in

| a) 1stt quadrant | b) 2nd quadrant | c) 3rd quadrant | ✔d) 4th quadrant |

994) Work is a

| ✔a) Scalar quantity | b) Vector quantity | c) Fixed quantity | d) None of them |
|---|---|---|---|

995) The stationary waves which are not in harmonic series

| ✔a) Quickly damped out | b) Quickly grown up | c) Either of these | d) None of these |
|---|---|---|---|

996) The speed of sound is greater in solids than in gases due to their high.

| a) Density | ✔b) Elasticity | c) Temperature | d) Pressure |
|---|---|---|---|

997) The instrument used to see the distant object is called

| a) Microscope | ✔b) Telescope | c) Spectrometer | d) Convex lens |
|---|---|---|---|

998) When an elevator is moving upward with an acceleration " a " then apparent weight of the body in the elevator

| ✔a) Increase | b) Decrease | c) Remains constant | d) None of these |
|---|---|---|---|

999)

The dimensions of momentum are

| a) $[ML^1 T^{-2}]$ | ✔b) $[MLT^{-1}]$ | c) $[ML^2 T^{-2}]$ | d) $[MLT^{-2}]$ |
|---|---|---|---|

1000) When the string of length vibrates in one loop then wave length of waves will be

| a) $\lambda = 1$ | ✔b) $\lambda = 2\ell$ | c) $\lambda = \dfrac{\ell}{2}$ | d) $\lambda = 4\ell$ |
|---|---|---|---|

1001) Absolute uncertainties are added in the following operations.

| a) Addition | b) Subtraction | ✔c) Both A & B | d) None of these |
|---|---|---|---|

1002) The dimensions of entropy are.

| a) $[ML^2T^2]$ | b) $[ML^2T^{-1}k]$ | ✔c) $[ML^2T^2k^{-1}]$ | d) $[ML^2T^3]$ |
|---|---|---|---|

1003) The S.I. unit of co-efficient of viscosity is

| a) $kgm^{-1}s^{-2}$ | b) $kgm^{-1}s^{-1}$ | c) $Nsm^{-2}$ | ✔d) Both B & C |
|---|---|---|---|

1004) According to torricelli's theorem , the speed of efflux can be written as

| a) $v_2 = \sqrt{2g(h_2 - h_1)}$ | b) $v_2 = \sqrt{2g(h_2 + h_1)}$ | ✔c) $v_2 = \sqrt{g(h_1 - h_2)}$ | d) $v_2 = \sqrt{2g(h_1/h_2)}$ |
|---|---|---|---|

1005) When first condition is satisfied, the body will be in

| ✔a) Translational equilibrium | b) No linear equilibrium | c) Both A & B | d) None of these |

1006) Resonance occurs when the frequency of the applied force and driven harmonic oscillator are

| a) Different | ✔b) Same | c) Zero | d) None of these |

1007) If there is super position of two waves of same frequency which are exactly out of phase than resultant replacement

| a) decrease | b) increase | c) constant | ✔d) becomes zero |

1008) Repeating the measurement several times and taking an average can reduce the effect of.

| ✔a) Random error | b) Systematic error | c) Both of them | d) None of these |

1009) The value of constant " $\gamma$ " for polyatomic gas is

| a) 1.67 | ✔b) 1.29 | c) 1.40 | d) 1.25 |

1010) When a body changes its position with respect to its surroundings the body is said to be in the state of

| a) Rest | b) Equilibrium | ✔c) Motion | d) Torque |

1011) The least distance of distinct vision for a normal eye is

| a) 15 cm | b) 20 cm | ✔c) 25 cm | d) 30 cm |

1012) Orbital radius for a geostationary satellite is

| a) $2.23 \times 10^4$ km | b) $3.23 \times 10^4$ km | ✔c) $4.23 \times 10^4$ km | d) $5.23 \times 10^4$ km |

1013) For communication , whole of the populated earth's surface can be covered by

| a) Two satellites | ✔b) Three satellites | c) One satellites | d) Four satellites |

1014) If the object is held closer to the eye at distance less than 25 cm the image formed will be

| a) Very clear | ✔b) Blurred and fuzzy | c) Darker | d) Brighter |

1015) The temperature scale which is independent of nature of substance is.

| ✔a) Thermodynamics scale | b) Centigrade scale | c) Fahrenheit scale | d) Regnault scale |

1016) When a ball is thrown straight up, the acceleration at its highest point is.

| a) Upward | ✔b) Zero | c) Downward | d) Horizontal |
|---|---|---|---|

1017) Which of the following is non conservative force

| a) Gravitational force | b) Elastic spring force | c) Electric force | ✔d) Frictional force |
|---|---|---|---|

1018) Two forces of magnitude $F_1$ and $F_2$ act on a body at an angle $\theta$ to each other the magnitude of their resultant force is

| a) $\sqrt{F_1^2 + F_2}$ | b) $\sqrt{F_1^2 - F_2}$ | c) $F_1 + F_2$ | ✔d) $\sqrt{F_1^2 + F_2^2 + 2F_1 F_2 \cos\theta}$ |
|---|---|---|---|

1019) If an amount of heat " Q " enters the system, it

| a) Decreases its internal energy | ✔b) Increases its internal energy | c) Decreases the pressure | d) Both a and c |
|---|---|---|---|

1020) When an elevator is moving downward with an acceleration " a " then apparent weight of the body in the elavotor.

| a) Increase | ✔b) Decrease | c) Remains constant | d) Becomes zero |
|---|---|---|---|

1021) When a body goes upward then its

| a) K.E increase & P.E decreases | ✔b) K.E decreases & P.E increase | c) Both K.E & P.E decreases | d) Both K.E & P.E increase |
|---|---|---|---|

1022) When an elevator ( lift ) is moving upward with an acceleration " a " the apparent weight of the body in the elevator will be

| ✔a) T = W + ma | b) T = ma – W | c) T = W | d) T = ma |
|---|---|---|---|

1023) The blue colour of sky is due to

| a) Diffraction of light | b) Reflection of light | c) Polarization of ling | ✔d) Scattering of light |
|---|---|---|---|

1024) In an ideal gas when no K.E. is lost, the collision is said to be.

| ✔a) Elastic | b) Perfectly elastic | c) Inelastic | d) Perfectly inelastic |
|---|---|---|---|

1025) The diastolic pressure ( low pressure ) of normal healthy person is

| a) 110–120 torr | ✔b) 75–80 torr | c) 100–110 torr | d) 120–130 torr |
|---|---|---|---|

1026) An un powered and un guided missile is called a

| a) Remote control | b) Simple missile | ✔c) Ballistic missile | d) All of these |
|---|---|---|---|

1027) Sadi Carnot described an ideal engine in

| a) 1640 | b) 1740 | ✔c) 1840 | d) 1940 |
|---|---|---|---|

1028) When a body moves with non-uniform increasing acceleration , then its velocity-time graph is

| ✔a) Curve | b) Horizontal straight line | c) Zig-zag | d) Vertical straight line |
|---|---|---|---|

1029) For which position , will the maximum blood pressure in the body have the smallest value

| a) Standing up right | ✔b) Lying horizontally | c) Standing on one's head | d) Sitting relaxed |
|---|---|---|---|

1030) Magnitude of cross product of two vectors represent

| a) area of circle | b) area of triangle | ✔c) area of parallelogram | d) area of square |
|---|---|---|---|

1031) The fluid is said to be incompressible if its density is

| a) Zero | b) Very high | c) Very small | ✔d) Constant |
|---|---|---|---|

1032) The direction of angular momentum is determined by

| a) Head to tail rule | b) Left hand rule | ✔c) Right hand rule | d) None of these |
|---|---|---|---|

1033) The structure of hemoglobin can be determined by

| ✔a) Diffraction grating | b) x-rays diffraction | c) Michelson's interferometer | d) None of these |
|---|---|---|---|

1034) In spectrometer prism or a grating is placed on a

| ✔a) Turn table | b) Collimator | c) Telescope | d) Microscope |
|---|---|---|---|

1035) The portion of the wave below the mean level is called

| a) crest | ✔b) trough | c) node | d) antinodes |
|---|---|---|---|

1036) When the reflecting end of the organ pipe is open it behave as

| a) node | ✔b) anti nodes | c) both of these | d) all of these |
|---|---|---|---|

1037) The component of the weight which balances the tension is

| ✔a) $mg\cos\theta$ | b) $mg\sin\theta$ | c) $mg\tan\theta$ | d) $-mg\cos\theta$ |
|---|---|---|---|

1038) The distance between a node and the next anti node is

| ✔a) $\dfrac{\lambda}{2}$ | b) $\dfrac{\lambda}{2}+1$ | c) $2$ | d) all of these |
|---|---|---|---|

1039) Thick tar and honey have

| ✔a) Large co-efficient of viscosities | b) Zero co-efficient of viscosities | c) Small co-efficient of viscosities | d) None of these |
|---|---|---|---|

1040) With the increase of temperature , speed of sound

| ✔a) Increases | b) Decreases | c) Remains constant | d) Becomes zero |
|---|---|---|---|

1041) As the food we eat in the day has about the same energy as

| a) $\dfrac{1}{2}$ liter of petrol | b) $\dfrac{1}{2}$ liter of water | ✔c) $\dfrac{1}{3}$ litre of petrol | d) All of these |
|---|---|---|---|

1042) In thermodynamics , internal energy is a function of

| ✔a) State | b) Pressure | c) Temperature | d) Volume |
|---|---|---|---|

1043) When there is phase change of $180^0$ it means path difference is

| a) $\dfrac{\lambda}{6}$ | ✔b) $\dfrac{\lambda}{2}$ | c) $\dfrac{\lambda}{4}$ | d) $\lambda$ |
|---|---|---|---|

1044) A precise measurement is the one which has

| ✔a) Greater precision | b) Less precision | c) Medium precision | d) None of these |
|---|---|---|---|

1045) The time period of the mass in " mass spring system " is

| a) $T = \dfrac{1}{2\pi}\sqrt{\dfrac{m}{k}}$ | b) $T = \dfrac{1}{2\pi}\sqrt{\dfrac{k}{m}}$ | ✔c) $T = 2\pi\sqrt{\dfrac{m}{k}}$ | d) $T = 2\pi\sqrt{\dfrac{k}{m}}$ |
|---|---|---|---|

1046) The field in which the work done is independent of the path followed or work done in a closed path is zero is called a

| a) Magnetic field | b) Frictional field | c) Electromagnetic field | ✔d) Conservative field |
|---|---|---|---|

1047) When two protons are brought together

| a) K.E increases | ✔b) P.E increases | c) P.E decreases | d) K.E remain same |
|---|---|---|---|

1048) The points where crests meet trough we get

| a) Constructive interference and bright fringe | b) Constructive interference and dark fringe | ✔c) Destructive interference and dark fringe | d) Destructive interference and bright fringe |
|---|---|---|---|

1049) In the graph of work done, the value of F cos $\theta$ is indicated along.

| a) x–axis | ✔b) y–axis | c) in xy–plane | d) All of these |
|---|---|---|---|

1050) In Newton's rings if there is transmission of light then central spot due to transmission will be

| a) Dark | ✔b) Bright | c) Red | d) Yellow |
|---|---|---|---|

1051) A satellite moving around the earth consitures

| a) An inertial frame of reference | ✔b) No – inertial frame of reference | c) Both A & B | d) None of these |
|---|---|---|---|

1052) The dimensions of angular velocity are

| a) $[LT^{-1}]$ | b) $[LT^{-2}]$ | ✔c) $[T^{-1}]$ | d) $[T^{-2}]$ |
|---|---|---|---|

1053) The force responsible for the vibratory motion of simple pendulum is

| ✔a) $mg\sin\theta$ | b) $mg\cos\theta$ | c) Both A & B | d) None of these |
|---|---|---|---|

1054) In red shift, the spectrum is shifted towards

| a) Shorter wavelength | ✔b) Larger wavelength | c) Medium wavelength | d) None of these |
|---|---|---|---|

1055) According to Newton, the expression for elastic modulus "E" at constant temperature is.

| a) $E = \dfrac{\Delta V/V}{\Delta P}$ | b) $E = \dfrac{\Delta P/P}{\Delta V}$ | ✔c) $E = \dfrac{\Delta P}{\Delta V/V}$ | d) $E = \dfrac{\Delta P}{V/\Delta V}$ |
|---|---|---|---|

1056) Tuning a radio is the best example of

| a) Mechanical resonance | ✔b) Electrical resonance | c) Magnetic resonance | d) All of these |
|---|---|---|---|

1057) Net change in entropy of a system after one complete carnot cycle is.

| a) Positive | b) Negative | ✔c) Zero | d) Some time positive and some time negative |
|---|---|---|---|

1058) The time for the projectile to reach the maximum height is

| a) $t = \dfrac{3V_I \sin\theta}{g}$ | ✔b) $t = \dfrac{V_I \sin\theta}{g}$ | c) $t = \dfrac{2V_I \sin\theta}{g}$ | d) All of these |
|---|---|---|---|

1059) The SI units of impulse are

| a) Ns | b) Nm | c) $Kgms^{-1}$ | ✔d) Both A & B |
|---|---|---|---|

1060) When we say " gravity free system " it means

| a) Force of gravity does not acts | b) Force of gravity acts | ✔c) No force is required to hold the object falling in the frame of reference | d) None of these |
|---|---|---|---|

1061) When gas is allowed to expand adiabatically, the temperature:

| a) Rises | ✔b) Falls | c) May rise or fall | d) Remain constant |
|---|---|---|---|

1062) Laws of motion are not valid in a system which is

| a) Moving with uniform velocity | ✔b) At rest | c) Inertial frame | d) None of these |
|---|---|---|---|

1063) A zero between two significant figures is

| ✔a) Itself significant | b) Not significant | c) May or may not be significant | d) None of these |
|---|---|---|---|

1064) The vector in space has components:

| a) Two | ✔b) Three | c) Five | d) Four |
|---|---|---|---|

1065) The 3rd frontiers in fundamental science is

| a) World of extra large things | ✔b) World of middle size things | c) World of extra small things | d) All of these |
|---|---|---|---|

1066) If a point is moving along a circle of radius $x_0$ . Then instantaneous displacement of its projection on vertical diameter is.

| ✔a) $x = x_0 \sin\omega t$ | b) $x = x_0 \cos\omega t$ | c) $x = x_0 \tan t$ | d) $x = x_0 \sec\omega t$ |
|---|---|---|---|

1067) Which of the following is a derived quantity .

| a) Mass | ✔b) Force | c) Electric current | d) Intensity of light |
|---|---|---|---|

1068) The law of conservation of mass gives us

| ✔a) Equation of continuity | b) Bernoulli's theorem | c) Stokes theorem | d) None of them |
|---|---|---|---|