MEASUREMENTS

Each question has four possible answers, encircled the correct answer:

1. The study of physics deals with:

(a) Laws of motion **(b)** The structure of space and time

(c) Force present in the nature **(d)** All of the above

2. The science of physics based on:

(a) Hypothesis **(b)** Experiments and measurements

(c) Only definition **(d)** Fundamental quantities

3. The branch of physics "wave mechanics" introduced by:

(a) Einstien **(b)** Max Planck

(c) De-broglie **(d)** Bohr

4. The branch of physics which deals with the nuclear particles such as neutrons, protons and nuclear structure is called:

(a) Particle physics **(b)** Solid state physics

(c) Plasma physics **(d)** Nuclear physics

5. The branch of physics which deals with the properties of gravitational field, electromagnetic field and nuclear field is called:

(a) Aerodynamics **(b)** Acorestics

(c) Hydrodynamics **(d)** Field theory

6. The idea that light is electromagnetic waves was introduced by:

(a) Crooks **(b)** Fermi

(c) Maxwell Planck **(d)** Newton

7. Laws of physics expressed in terms of:

(a) Base quantities **(b)** Derived quantities

(c) Both (a) & (b) **(d)** None of these

8. The study of nature is classified into:

(a) Five branches **(b)** Two branches

(c) Six branches **(d)** None of these

9. Engineering physics, Astrophysics, Bio-physics and Geophysics are:

(a) Branches of Chemistry **(b)** Branches of Physics

(c) Applied physics **(d)** None of these

10. ———— is area of physics:

(a) Chemical physics **(b)** Astrophysics

(c) Mechanics **(d)** None of these

11. The study of physics involves investigating such things as:

(a) Structure of space and time

(b) Laws of motion

(c) The interaction between different particles

(d) All of the above

12. Physist started believing that every thing about physics has been discovered by the end of:

(a) 20^{th} Century **(b)** 19^{th} Century

(c) 15^{th} Century **(d)** None of these

13. The overlapping of physics and other fields gave birth to:

(a) Areas of physics **(b)** Areas of science

(c) Interdisciplinary areas of physics **(d)** All of these

14. The branch of physics which deals with the study of production, propagation and properties of sound waves is called:

(a) Heat and thermodynamics **(b)** Optics

(c) Mechanics **(d)** Acoustics

15. The branch of physics which deals with velocities approaches the velocity of light is called:

(a) Quantum physics **(b)** Wave mechanics

(c) Relativistic mechanics **(d)** None of these

16. Experimentation and practical verification was first introduced by:

(a) The Greek philosophers **(b)** The European scientists

(c) The Muslim scientists **(d)** None of these

17. Physics based on Newtonian mechanics is called:

(a) Astrophysics **(b)** Classical physics

(c) Modern physics **(d)** Meta physics

18. Pascal is famous for his work:

(a) Hydrostatics **(b)** Hydrodynamics

(c) Laws of gases **(d)** Behaviour of elastic bodies

19. System international (SI) was established in:

(a) 1960 **(b)** 1967

(c) 1971 **(d)** 1930

20. The basic quantity among the following is:

(a) Torque **(b)** Force

(c) Mass **(d)** Velocity

21. Which one of the scientist made some contribution to geometrical optics?

(a) Archimedes **(b)** Pythagoras

(c) Euclid **(d)** Plato

22. Which of the following is the derived quantity:

(a) Time **(b)** Area

(c) Length **(d)** Mass

23. Which of the following is a set of supplementary units:

(a) Radian and kilogram **(b)** Stcradian and time

(c) Mole and radian **(d)** Radian and steradian

24. The SI unit for measuring plane angle is:

(a) Radian **(b)** Steradian

(c) Both (a) & (b) **(d)** None of these

25. The present standard metre is defined as:

(a) The distance between two points on an alloy bar

(b) The length of mean solar day

(c) The length equal to 165076373 wavelength of krypton at 86 atm

(d) The distance travel by the light in vacuum during a time of $\frac{1}{299792458}$ second

26. SI units of time was redefined in:

(a) 1900 **(b)** 1960

(c) 1967 **(d)** 1983

27. Physical quantities are divided into:

(a) Six categories **(b)** Three categories

(c) Two categories **(d)** None of these

28. The quantities which are defined in terms of other physical quantities are called:

(a) Derived quantities **(b)** Base quantities

(c) Both (a) & (b) **(d)** None of these

29. The basic units in system international (SI) units are:

(a) Three **(b)** Five

(c) Two **(d)** Seven

30. The fundamental quantities which form basic for M.K.S system are:

(a) Mass, work and time **(b)** Mass, acceleration & time

(c) Velocity, force and time **(d)** Mass, length and time

31. Supplementary units are:

(a) Five **(b)** Three

(c) Two **(d)** One

32. The SI units of solid angle is:

(a) Radian **(b)** Steradian

(c) Degree **(d)** None of these

33. The system international (SI) built up from:

(a) Derived units **(b)** Basic units

(c) Supplementary units **(d)** All of these

34. Metre is the basic unit of:

(a) Length **(b)** Mass

(c) Force **(d)** Velocity

35. The kilogram is the basic unit of:

(a) Length **(b)** Mass

(c) Weight **(d)** Time

36. One mile is equal to:

(a) 1.625 km **(b)** 1.609 km

(c) 1.325 km **(d)** 1.850 km

37. One inch is equal to:

(a) 1.32 cm **(b)** 25.4 cm

(c) 2.10 cm **(d)** 2.54 cm

38. One foot is equal to:

(a) 31.90 cm **(b)** 30.84 cm

(c) 30.48 cm **(d)** 84.30 cm

39. Number of nano second in a year is:

(a) 3.1536×10^{7} **(b)** 3.1536×10^{9}

(c) 3.1536×10^{16} **(d)** None of these

40. One year is equal to:

(a) 3.2×10^{7} sec **(b)** 2.25×10^{7} sec

(c) 3.35×10^{7} sec **(d)** All of these

41. Light year is the unit of:

(a) Light **(b)** Time

(c) Velocity **(d)** Distance

42. The SI unit of force is:

(a) Newton **(b)** Joule

(c) Dyne **(d)** Volt

43. The SI unit of work is:

(a) Newton **(b)** Joule

(c) Dyne **(d)** Volt

44. The SI unit of power is:

(a) Newton **(b)** Watt

(c) Dyne **(d)** Ampere

45. The SI unit of intensity of light is:

(a) Joule **(b)** Mole

(c) Kilomole **(d)** Candila

46. The SI unit of amount of substance is:

(a) Joule **(b)** Mole

(c) Volt **(d)** Ohm

47. The SI units of angular momentum is:

(a) kg m/s **(b)** kg m/s^2

(c) kg m^2/s **(d)** None of these

48. Time taken by light to reach from sun to earth is:

(a) 7 min 20 sec **(b)** 8 min 20 sec

(c) 9 min 20 sec **(d)** None of these

49. Time taken by light to reach from moon to earth is:

(a) 1 min 20 sec **(b)** 8 min 20 sec

(c) 2 min 20 sec **(d)** 3 min 20 sec

50. Number of seconds in a day is:

(a) 9000 sec **(b)** 86400 sec

(c) 43200 sec **(d)** 3600 sec

51. The unit of pressure in base units is:

(a) $kg/m\text{-}s^2$ **(b)** kg/ms

(c) $kg\ ms^2$ **(d)** None of these

52. Mean radius of the earth is:

(a) 6.4×10^9 mm **(b)** 6.4×10^3 mm

(c) 6.4×10^6 m **(d)** None of these

53. Solid angle subtended at the centre by a sphere of radius r is:

(a) 2π **(b)** 6π

(c) 6π **(d)** 4π

54. Steradian is defined by:

(a) $\frac{\text{Area of a strip}}{(\text{radius})^2}$ **(b)** $\frac{\text{Arc length}}{\text{radius}}$

(c) $\frac{\text{Area}}{(\text{radius})^2}$ **(d)** None of these

55. The unit of thermodynamic temperature is:

(a) K **(b)** C°

(c) F° **(d)** None of these

56. One atto is:

(a) 10^{-20} **(b)** 10^{-16}

(c) 10^{-14} **(d)** 10^{-18}

57. One femto is:

(a) 10^{-16} **(b)** 10^{-12}

(c) 10^{-15} **(d)** 10^{-9}

58. One pico is:

(a) 10^{-10} **(b)** 10^{-12}

(c) 10^{-18} **(d)** 10^{-10}

59. The number of significant figures, with the increases accuracy of the measuring instruments:

(a) Decreases **(b)** Increases

(c) Remains unchanged **(d)** None of these

60. The number of significant figures, with the increases degree of approximation:

(a) Decreases **(b)** Increases

(c) Remains unchanged **(d)** None of these

61. The number of significant figure in 8.80×10^6 kg is:

(a) 1 **(b)** 5

(c) 3 **(d)** 6

62. The number 64.350 is rounded off as:

(a) 64.35 **(b)** 64.46

(c) 64.36 **(d)** 64.4

63. In scientific notation, the number 0.01 may be written as:

(a) 10^{-2} **(b)** 10^{-4}

(c) 10×10^{-4} **(d)** 1×10^{-4}

64. The number of significant figures in 0.809999 is:

(a) 2 **(b)** 5

(c) 3 **(d)** 4

65. If length = 0.233 m and width = 0.178 m, the most accurate area expressed space of significant figures is:

(a) 0.041 m^2 **(b)** 0.0415 m^2

(c) 0.041747 m^2 **(d)** None of these

66. The number 0.0001 in scientific notation is:

(a) 1×10^4 **(b)** 10^{-3}

(c) 10×10^4 **(d)** 10^{-4}

67. One mega is equal to:

(a) 10^6 **(b)** 10^{-6}

(c) 10^3 **(d)** 10^9

68. Significant figures in 0.000546 are:

(a) 3 **(b)** 4

(c) 5 **(d)** 1

69. The error in a certain measurement occurs due to:

(a) Negligence of a person **(b)** In appropriate technique

(c) Faulty apparatus **(d)** All of the above

70. The uncertainty may occur due to:

(a) Limitation of an instrument **(b)** Natural variance of the object

(c) Personal negligence **(d)** All of the above

71. Systematic error occurs due to:

(a) Instrument **(b)** Zero error of the instrument

(c) Both (a) & (b) **(d)** None of these

72. The least count of a unit meter rod is:

(a) 0.01 cm **(b)** 0.01 mm

(c) Cannot be zero **(d)** Can be zero

73. The significant figure in 0.0010 are:

(a) 4 **(b)** 3

(c) 2 **(d)** 1

74. A precise measurement is one which has:

(a) Less precision **(b)** Maximum precision

(c) Absolute precision **(d)** All of the above

75. Total fractional uncertainty in the period $T = 2\pi\sqrt{\frac{l}{g}}$ will be equal to:

(a) Sum of fractional uncertainty **(b)** Different of uncertainties

(c) Product of uncertainties in l and g **(d)** None of these

76. % uncertainty in the time period of a vibrating body is calculated by:

(a) Least count × Number of vibrations **(b)** Least count / Number of vibrations

(c) Number of vibrations / Least count **(d)** $\frac{\text{Least count}}{\text{Number of vibration}} \times 100$

77. Dimensional analysis helps in:

(a) Finding relation between quantities **(b)** To convert one unit into another

(c) To confirm the correct answer **(d)** All of the above

78. The dimension of force is:

(a) $[ML^2T^{-2}]$ **(b)** $[M^2L^{-2}T]$

(c) $[MLT^{-2}]$ **(d)** [MLT]

79. The dimension $[ML^2T^{-2}]$ belongs to:

(a) Pressure **(b)** Energy

(c) Momentum **(d)** Power

80. $[ML^{-1}T^0]$ is the dimension of:

(a) Surface density **(b)** Linear mass density

(c) Volume mass density **(d)** Weight density

81. The dimensions of weight are:

(a) $[LT^{-2}]$ **(b)** $[LT^{-1}]$

(c) $[MLT^{-2}]$ **(d)** $[ML^2T]$

82. The dimensions of power are:

(a) $[ML^2T^{-3}]$ **(b)** $[ML^2T^{-2}]$

(c) $[MLT^{-1}]$ **(d)** None of these

83. The dimension of density are:

(a) $[ML^{-2}]$ **(b)** $[M^2L^{-2}]$

(c) $[ML^{-3}]$ **(d)** None of these

84. The circumference of the earth was determined by:

(a) Ibn-al-Haitham **(b)** Bohr

(c) Chadwick **(d)** Al-Beruni

85. Hahn discovered uranium fission in:

(a) 1935 **(b)** 1939

(c) 1938 **(d)** 1940

86. Period of audible sound waves is:

(a) 4×10^{2} sec **(b)** 1×10^{-3} sec

(c) 8×10^{-1} sec **(d)** 1×10^{3} sec

87. Errors due to incorrect design of a device are called:

(a) Systematic error **(b)** Random error

(c) Physical error **(d)** None of these

88. The solution of the problem $\frac{6 \times 10^{-8}}{3 \times 10^{-2}} =$ is correct given by:

(a) 2×10^{-4} **(b)** 2×10^{-5}

(c) 2×10^{-10} **(d)** 2×10^{-6}

89. Which of the following is a correct relation:

(a) 1 metre = 10^{-3} centimeter **(b)** 1 decimetre = 10^{2} centimetre

(c) 1 millimetre = 10^{-4} metre **(d)** None of these

90. Density of air is 1.2 kg/m^3. It can be expressed in gm/cm^3 by:

(a) 1.2×10^{-6} **(b)** 12×10^{-4}

(c) 1.2×10^{6} **(c)** 12×10^{3}

91. The period of the earth is equal to:

(a) One solar day **(b)** One lunar day

(c) One astronomical day **(d)** None of these

92. One peta is equal to:

(a) 10^{-12} **(b)** 10^{15}

(c) 10^{-15} **(d)** 10^{9}

93. One exa is:

(a) 10^{18} **(b)** 10^{-15}

(c) 10^{15} **(d)** 10^{-12}

94. The diameter of the milky way is:

(a) 10^{25} m **(b)** 10^{20} m

(c) 10^{30} m **(d)** 10^{-30} m

95. The diameter of an atom is:

(a) 10^{-10} m **(b)** 10^{-12} m

(c) 10^{-5} m **(d)** 10^{-15} m

96. The diameter of a nucleus is:

(a) 10^{-12} m **(b)** 10^{-10} m

(c) 10^{-20} m **(d)** 10^{-15} m

97. Which one of the following scientists made some contributions to geometrical optics:

(a) Euclid **(b)** Plato

(c) Archimedes **(d)** None of these

98. The founder of mathematical physics is:

(a) Archimedes **(b)** Plato

(c) Euclid **(d)** Aristotle

99. The dimensions of $\left[\frac{1}{2}at^2\right]$ are that of:

(a) Velocity **(b)** Force

(c) Time **(d)** Length

100. Which one of the following Muslim Mathematision determined the earths circumference:

(a) Ibn-Sina **(b)** Al-Khawrizmi

(c) Al-Beruni **(d)** None of these

101. Symbolically solid angle is represented as:

(a) rad **(b)** Sr

(c) θ **(d)** Cd

102. 73.650 rounded off upto one decimal is:

(a) 73.6 **(b)** 73.7

(c) 74.00 **(d)** 73.65

103. $[LT^{-2}]$ is demensional formula for:

(a) Velocity **(b)** Force

(c) Acceleration **(d)** Momentum

104. The angle between two radii of a circle which cut off on the circumference an arc, equal in length to the radius, is:

(a) 57.3° **(b)** 3′

(c) 37.5° **(d)** None of these

105. Solid angle is ———— dimensional angle.

(a) 2 **(b)** 3

(c) Both (a), (b) **(d)** None of these

106. The error is constant for ———— error.

(a) Random **(b)** Systematic

(c) Both (a), (b) **(d)** All

107. For 0.0036 no. of significant digits:

(a) 4 **(b)** 3

(c) 2 **(d)** 1

108. For 2.450 no. of significant digits:

(a) 4 **(b)** 3

(c) 2 **(d)** 1

109. For 1.40×10^3, no. of significant digits:

(a) 3 **(b)** 4

(c) 2 **(d)** 1

110. Consider two lengths of (10 ± 0.1) cm out (20 ± 0.1) cm measured by a ruler, which is more accurate:

(a) 1^{st} **(b)** 2^{nd}

(c) Same **(d)** None

111. As $F = 6\pi\eta rv$. Dimensions of coefficient of viscosity η:

(a) $[ML^{-1}T^{-1}]$ **(b)** $[MLT^{-1}]$

(c) $[ML^{-2}T^{-1}]$ **(d)** [ML]

112. Dimensions of specific gravity:

(a) $[M^oL^oT^o]$ **(b)** [MLT]

(c) $[ML^{-1}T]$ **(d)** None

113. Dimensions of specific heat:

(a) $[L^2T^{-2}K]$ **(b)** $[L^2T^{-2}K^{-1}]$

(c) $[MLT^{-2}]$ **(d)** None

114. Dimensions of refractive index:

(a) [MLT] **(b)** $[M^oL^oT^o]$

(c) $[ML^{-1}T^{-2}]$ **(d)** None

115. The time of 30 vibrations of a simple pendulum recorded by a stopwatch accurate upto one both of a second, then uncertainty is:

(a) 0.3s **(b)** 0.003s

(c) 0.0003s **(d)** 0.03s

116. The %age uncertainty for V and I is 2% and 6% respectively. Hence total uncertainty in the value of $R = \frac{V}{I}$ is:

(a) 8% **(b)** $\frac{1}{3}$ %

(c) 4% **(d)** 3%

117. The energy of a photon of light of frequency f is given by hf, where h is the Planck constant. What are the base units of h?

(a) kg ms^{-1} **(b)** kg m^2s^{-1}

(c) kg m^2s^{-2} **(d)** kg m^2s^{-3}

ANSWERS

1.	(d)	**2.**	(d)	**3.**	(c)	**4.**	(d)
5.	(d)	**6.**	(c)	**7.**	(c)	**8.**	(b)
9.	(b)	**10.**	(c)	**11.**	(d)	**12.**	(b)
13.	(c)	**14.**	(d)	**15.**	(c)	**16.**	(c)
17.	(b)	**18.**	(b)	**19.**	(a)	**20.**	(c)
21.	(a)	**22.**	(b)	**23.**	(d)	**24.**	(a)
25.	(c)	**26.**	(c)	**27.**	(c)	**28.**	(a)
29.	(d)	**30.**	(d)	**31.**	(c)	**32.**	(b)
33.	(d)	**34.**	(a)	**35.**	(b)	**36.**	(b)
37.	(d)	**38.**	(c)	**39.**	(c)	**40.**	(a)
41.	(d)	**42.**	(a)	**43.**	(b)	**44.**	(b)
45.	(d)	**46.**	(b)	**47.**	(c)	**48.**	(b)
49.	(a)	**50.**	(b)	**51.**	(a)	**52.**	(c)
53.	(d)	**54.**	(a)	**55.**	(a)	**56.**	(d)
57.	(c)	**58.**	(b)	**59.**	(b)	**60.**	(a)
61.	(c)	**62.**	(d)	**63.**	(a)	**64.**	(c)
65.	(a)	**66.**	(d)	**67.**	(a)	**68.**	(a)
69.	(d)	**70.**	(d)	**71.**	(d)	**72.**	(c)
73.	(c)	**74.**	(a)	**75.**	(a)	**76.**	(d)
77.	(a)	**78.**	(c)	**79.**	(b)	**80.**	(b)
81.	(c)	**82.**	(a)	**83.**	(c)	**84.**	(d)
85.	(c)	**86.**	(b)	**87.**	(a)	**88.**	(d)
89.	(c)	**90.**	(b)	**91.**	(a)	**92.**	(b)
93.	(a)	**94.**	(b)	**95.**	(a)	**96.**	(d)
97.	(a)	**98.**	(a)	**99.**	(d)	**100.**	(c)
101.	(b)	**102.**	(b)	**103.**	(c)	**104.**	(a)
105.	(b)	**106.**	(b)	**107.**	(c)	**108.**	(a)
109.	(a)	**110.**	(a)	**111.**	(a)	**112.**	(a)
113.	(b)	**114.**	(b)	**115.**	(b)	**116.**	(a)
117.	(b)						