Class :10th — Physics (The most exclusive guess paper) — www.pakcity.org

Objective

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1. Which of the following is an example of simple harmonic motion?
   - (A) The motion of simple pendulum
   - (B) A bouncing ball on floor
   - (C) The motion of ceiling fan
   - (D) The spinning of earth on its axis

2. If mass of the body is increased by the factor of 3, the period of pendulum's motion will:
   - (A) Be decreased by a factor of 2
   - (B) Remain same
   - (C) Be decreased by a factor of 4
   - (D) Be increased by a factor of 2

3. Formula for the time period of mass attached to spring is:
   - (A) $T=2\pi\sqrt{\frac{m}{4}}$
   - (B) $T=2\pi\sqrt{\frac{l}{m}}$
   - (C) $T=2\pi\sqrt{\frac{m}{k}}$
   - (D) $T=2\pi\sqrt{\frac{k}{m}}$

4. The spring's constant is: Exclusive
   - (A) K = -F/X
   - (B) F=ma
   - (C) K = -x/m
   - (D) w =mg

5. In SHM, velocity at extreme position is:
   - (A) Maximum
   - (B) Minimum
   - (C) Zero
   - (D) Sometime maximum sometime minimum

6. The unit of frequency is:
   - (A) Pa
   - (B) Hz
   - (C) M
   - (D) N

7. The equation of Hook's Law is:
   - (A) F=-kx
   - (B) K = -2F/x
   - (C) F=-1/kx
   - (D) F=-x/k

8. In motion of a simple pendulum restoring force is provided by:
   - (A) Tension in string
   - (B) Inertia
   - (C) Resistance
   - (D) Force of gravity

9. Frequency is equal to:
   - (A) F = 1/T
   - (B) $T=2\pi\sqrt{\frac{l}{g}}$
   - (C) f= 1/g
   - (D) f = kx

10. If length of simple pendulum on earth is 1 m then its time period is:
    - (A) 6 sec
    - (B) 1 sec
    - (C) 2 sec
    - (D) 10 sec

11. When l= 1.0 m then time period of simple pendulum is:
    - (A) 1.88 sec
    - (B) 2.11 sec
    - (C) 1.89 sec
    - (D) 1.99 sec

12. If mass of the body is increased by the factor of 2, the period of pendulum:
    - (A) Remains same
    - (B) Increased by the factor 2
    - (C) Decreased by the factor 2
    - (D) Decreased by the factor 4

13. For simple pendulum the formula of time period is:
    - (A) Hz
    - (B) cm
    - (C) m
    - (D) sec

14. For simple pendulum the formula of time period is:
    - (A) $T=2\pi\sqrt{\frac{m}{g}}$
    - (B) $T=2\pi\sqrt{\frac{g}{1}}$
    - (C) $T=2\pi\sqrt{\frac{1}{g}}$
    - (D) $T=2\pi\sqrt{\frac{m}{k}}$

15. A human eardrum can oscillate back and forth up to…….. Times in a second.
    - (A) 20000
    - (B) 200
    - (C) 200000
    - (D) 2000

16. ..... invented the first pendulum clock?

(A) Christian Huygens (B) Newton (C) Galileo (D) Hooke's

17. Christian Huygens invented the pendulum clock in .....

(A) 1856 (B) 1656 (C) 1956 (D) 1756

18. If the time period is given then frequency is calculated as:

(A) f = 1/T (B) f = 3/T (C) f = 4/T (D) f = 2/T

19. The number of waves passing through a point in one second is called:

(A) Amplitude (B) Frequency (C) Wavelength (D) Displacement

20. The example of shock absorber of the vehicles are:

(A) Vibratory motion (B) Motion (C) SHM (D) Damped Motion

21. Which waves do not require medium for their propagation:

(A) Sound waves (B) Electromagnetic waves
(C) Mechanical waves (D) All of them

22. Which of the following characteristics of a wave is independent of others?

(A) Amplitude (B) Wavelength (C) Frequency (D) Speed

23. Waves transfer:

(A) Wavelength (B) Velocity (C) Frequency (D) Energy

24. Main types of waves are:

(A) 4 (B) 2 (C) 3 (D) 1

25. Radio waves are:

(A) Transverse waves (B) Electromagnetic waves
(C) Longitudinal waves (D) All of these

26. Mechanical waves are classified into ..... types.

(A) 4 (B) 2 (C) 3 (D) 1

27. ..... waves move faster in solids.

(A) Electromagnetic waves (B) Longitudinal waves
(C) Transverse waves (D) All of them

28. The distance between two consecutive compressions is called:

(A) Rarefaction (B) Amplitude (C) Frequency (D) Wavelength

29. Which of the following devices can be used to produce both transverse and longitudinal waves?

(A) A helical Spring (B) A ripple Tank (C) A tuning Fork (D) A string

30. Which of the following is a method of energy transfer?

(A) Radiation (B) Wave motion (C) Conduction (D) All of these

31. Wave equation is:

(A) V / λ (B) $f \lambda$ (C) $f v$ (D) $1 / \lambda v$

32. The relation between velocity, frequency and wavelength for waves is given by:

(A) $V = \lambda / f$ (B) $V\lambda = f$ (C) $Vf = \lambda$ (D) $f\lambda = v$

33. Wavelength of waves can be defined by ratio of:

(A) Distance and speed (B) Speed and frequency

(C) Time period and frequency (D) Frequency and speed

34. Frequency of wave is 4 Hz and wavelength is 0.4 m then its speed will be:

(A) 1.6 m/s **(B) 1.6 m** (C) 16 m (D) 16 m/s

35. If the speed of a wave is 340 m/s and wavelength is 0.5 m, then frequency will be:

(A) 340 Hz (B) 3400 Hz (C) 170 Hz **(D) 680 Hz**

36. Which of the following characteristics of a wave is independent of the others?

(A) Wavelength **(B) Amplitude** (C) Speed (D) Frequency

37. In a vacuum, all electromagnetic waves have the same:

(A) Frequency **(B) Speed** (C) Wavelength (D) Amplitude

38. The relation between time, speed and distance is:

(A) $v = t^2/d$ (B) $v = dt$ (C) $v = t/d$ **(D) $v = d/t$**

39. Generating high frequency requires more:

(A) Frequency **(B) Energy** (C) Displacement (D) Wavelength

40. Earth quake produces ..... waves.

(A) Electromagnetic **(B) Seismic** (C) Transverse (D) Longitudinal

41. A large ripple tank with vibrator working at a frequency of 30 Hz produces 25 complete waves in a distance of 50 cm. The velocity of the wave is:

(A) 60 cm/s (B) 750 cm/s (C) 1500 cm/s (D) 53 cm/s

42. A ripple tank is a device used to produce:

(A) Radio waves **(B) Mechanical waves**
(C) Electromagnetic waves (D) Light waves

43. When the water waves enters the region of shallow water their wave length:

(A) Becomes zero **(B) Decreases** (C) Remains same (D) Increases

44. The bending of waves around the corners is called:

(A) Refraction **(B) Diffraction** (C) Interference (D) Reflection

45. Sound is form of Energy OR Which form of energy sound is:

(A) Electrical **(B) Mechanical** (C) Thermal (D) Chemical

46. Two consecutive waves compression and Rarefaction is called:

(A) Focal length (B) Frequency **(C) Wave length** (D) Time Period

47. The example of longitudinal waves is:

(A) Sound waves (B) Water Waves (C) Radio Waves (D) Light waves

48. Which of the waves consist of compressions and rarefactions?

(A) Television waves (B) X-rays **(C) Sound waves** (D) Radio waves

49. The unit of intensity of sound is:

(A) Wm (B) Wm^{-3} (C) Wm^{-1} **(D) Wm^{-2}**

50. The intensity level of rustling of leaves is:

(A) 10 dB (B) 30 dB (C) 40 dB (D) 20 dB

51. The intensity level of train siren is:

(A) 100 dB (B) 130 dB **(C) 120 dB** (D) 150 dB

52. The sound level of whisper is:

Ⓐ 40 dB Ⓑ 70 dB Ⓒ 10 dB **Ⓓ 30 dB**

53. The intensity level of faintest audible sound is:

Ⓐ 40 dB Ⓑ 10 dB **Ⓒ 0 dB** Ⓓ 130 dB

54. The intensity level of vacuum cleaner is:

Ⓐ 100 dB Ⓑ 10 dB **Ⓒ 70 dB** Ⓓ 40 dB

55. The intensity level of mosquito buzzing is:

Ⓐ 40 dB Ⓑ 10 dB Ⓒ 30 dB Ⓓ 0 dB

56. Sound level in dB is:

Ⓐ $10\log\frac{I}{I_0}$ Ⓑ $10\log\frac{I_0}{I}$ Ⓒ $\log\frac{I_0}{I}(db)$ Ⓓ $\log\frac{I}{I_0}(db)$

57. The loudness of sound is most closely related to its:

Ⓐ Period **Ⓑ Amplitude** Ⓒ Wavelength Ⓓ Frequency

58. The pitch of sound mostly depends on:

Ⓐ Frequency Ⓑ Amplitude Ⓒ Period Ⓓ Wavelength

59. The frequency of silent whistle lies between:

Ⓐ 10000-20000 Hz **Ⓑ 20000-25,000 Hz** Ⓒ 15000-25000 Hz Ⓓ 20-20000 Hz

60. The intensity level of lawn mower is:

Ⓐ 70 dB Ⓑ 10 dB Ⓒ 120 dB **Ⓓ 100 dB**

61. One bell is equal to:

Ⓐ 10 dB Ⓑ 40 dB Ⓒ 20 dB Ⓓ 90 dB

62. The sensation of sound persists in our mind for about:

Ⓐ 0.2 s Ⓑ 0.02 s Ⓒ 0.01 s **Ⓓ 0.1 s**

63. To hear a clear echo, the time interval between our sound and the reflected sound must be at least:

Ⓐ 0.2 s **Ⓑ 0.1 s** Ⓒ 0.02 s Ⓓ 0.01 s

64. Speed of sound in air:

Ⓐ 2162 Km/h **Ⓑ 1246 km/h** Ⓒ 1262 Km/h Ⓓ 1264 km/h

65. In general, the speed of sound is greater in:

Ⓐ Liquids Ⓑ Gases Ⓒ None of these **Ⓓ Solids**

66. Calculate the frequency of sound wave of speed 340 m/s and wavelength 0.5 m?

Ⓐ 680 Hz Ⓑ 340 Hz Ⓒ 170 Hz Ⓓ 0.5 Hz

67. The speed of sound in air at 0^0C is:

Ⓐ 376 m/s Ⓑ 231 m/s Ⓒ 386 m/s **Ⓓ 331 m/s**

68. Formula for finding speed of sound is:

Ⓐ $f = v/\lambda$ **Ⓑ $V = f\lambda$** Ⓒ $v = f/\lambda$ Ⓓ $f = v\lambda$

69. If speed of sound is 320 m/s, the distance covered in a time of 1.5 s will be:

Ⓐ 221 m Ⓑ 480 cm Ⓒ 408 m **Ⓓ 480 m**

70. The speed of sound in air at 25^0C is:

Ⓐ 376 m/s Ⓑ 346 m/s Ⓒ 231 m/s Ⓓ 386 m/s

71. The speed of sound in hydrogen at 0^0C is:

Ⓐ 376 m/s Ⓑ 231 m/s Ⓒ 331 m/s Ⓓ 1290 m/s

72. The speed of sound in Aluminum at 25^0C is:

Ⓐ 5950 m/s Ⓑ 6420 m/s Ⓒ 6040 m/s Ⓓ 4700 m/s

73. The speed of sound in wood at 25^0C is:

Ⓐ 2000 m/s Ⓑ 1531 m/s Ⓒ 1498 m/s Ⓓ 1290 m/s

74. The speed of sound in oxygen at 0^0C is:

Ⓐ 376 m/s Ⓑ 331 m/s Ⓒ 386 m/s Ⓓ 317 m/s

75. The speed of sound in Distilled water at 25^0C is:

Ⓐ 3980 m/s Ⓑ 1498 m/s Ⓒ 331 m/s Ⓓ 972 m/s

76. The speed of sound in Helium at 0^0C is:

Ⓐ 376 m/s Ⓑ 972 m/s Ⓒ 1290 m/s Ⓓ 386 m/s

77. The speed of sound in Iron at 25^0C is:

Ⓐ 5950 m/s Ⓑ 3980 m/s Ⓒ 972 m/s Ⓓ 331 m/s

78. The speed of sound in steel at 25^0C is:

Ⓐ 4700 m/s Ⓑ 5960 m/s Ⓒ 5950 m/s Ⓓ 1290 m/s

79. The speed of sound in Nickel at 25^0C is:

Ⓐ 6420 m/s Ⓑ 6040 m/s Ⓒ 231 m/s Ⓓ 3980 m/s

80. The speed of sound in Brass at 25^0C is:

Ⓐ 6040 m/s Ⓑ 4700 m/s Ⓒ 6420 m Ⓓ 2000 m/s

81. The speed of sound in Flint glass at 25^0C is:

Ⓐ 5950 m/s Ⓑ 5960 m/s Ⓒ 6040 m/s Ⓓ 3980 m/s

82. The speed of sound in air was first accurately measured in:

Ⓐ 1738 Ⓑ 1638 Ⓒ 1938 Ⓓ 1838

83. The level of noise recommended in most countries over an eight hour workday is usually:

Ⓐ 83-90 dB Ⓑ 85-90 dB Ⓒ 84-90 dB Ⓓ 82-90 dB

84. A safe level of noise depends upon ..... factors:

Ⓐ 1 Ⓑ 4 Ⓒ 3 Ⓓ 2

85. The technique or method used to absorb undesirable sounds by soft and porous surfaces in called:

Ⓐ Acoustic protection Ⓑ Reflection of sound
Ⓒ Diffraction of sound Ⓓ Noise pollution

86. Sometimes when sound reflect from the walls, ceiling, and floor of the room, the reflecting surfaces are too reflective and the sound becomes grabbed. This is due to multiple reflections called:

Ⓐ Reverberations Ⓑ Reflection
Ⓒ Acoustic protection Ⓓ None of these

87. For a normal person, audible frequency range lies between:

Ⓐ 30Hz-30kHz Ⓑ 20 Hz-20kHz Ⓒ 10 Hz-10 kHz Ⓓ 25 Hz-25 kHz

88. Audibility range ..... with ages.

Ⓐ Remains same Ⓑ Decreases Ⓒ Increases Ⓓ None of these

89. Bats can hear frequency up to:

Ⓐ 120,000 Hz Ⓑ 25,000 Hz Ⓒ 35,000 Hz Ⓓ 100,000 Hz

90. Mice can hear frequency up to:

Ⓐ 20,000 Hz Ⓑ 100,000 Hz Ⓒ 25,000 Hz Ⓓ 35,000 Hz

91. Dogs can hear frequency up to:

Ⓐ 25,000 Hz Ⓑ 35,000 Hz Ⓒ 120,000 Hz Ⓓ 100,000 Hz

92. Cats can hear frequency up to:

Ⓐ 35,00s0 Hz Ⓑ 25,000 Hz Ⓒ 120,000 Hz Ⓓ 100,000 Hz

93. Humans can hear frequency up to:

Ⓐ 25,000 Hz Ⓑ 120,000 Hz Ⓒ 100,000 Hz Ⓓ 20,000 Hz

94. Sounds of frequency higher than ..... are called ultrasound.

Ⓐ 20000 Hz Ⓑ 30000 Hz Ⓒ 25000 Hz Ⓓ 20 Hz

95. Ultrasound is used to locate under water depths or is used for locating objects lying deep in the ocean floor, this technique is called:

Ⓐ SONAR Ⓑ Reverberation Ⓒ Acoustics Ⓓ None of these

96. Thomas young's proved the wave nature of light in:

Ⓐ 1804 Ⓑ 1802 Ⓒ 1801 Ⓓ 1800

97. In .....Planck suggested that light consists of small packets of energy called photon:

Ⓐ 1904 Ⓑ 1901 Ⓒ 1900 Ⓓ 1902

98. Laws of reflection of light are:

Ⓐ 2 Ⓑ 3 Ⓒ 4 Ⓓ 5

99. Who suggested the wave theory of light?

Ⓐ Ibn Al Haytham Ⓑ Einstein Ⓒ Maxwell Ⓓ Newton

100. In a convex mirror focus is:

Ⓐ Behind the mirror Ⓑ Under the mirror
Ⓒ On the mirror Ⓓ In-front of the mirror

101. The formula for focal length is: OR The relation between focal length and radius of curvature is:

Ⓐ Wm^{-2} Ⓑ $f = R/3$ Ⓒ $f = R/4$ Ⓓ $f = R/2$

102. The principal focus of a concave mirror is:

Ⓐ Real Ⓑ Both a and b Ⓒ Virtual Ⓓ None of these

103. A converging mirror with a radius of 20 cm creates a real image 30 cm from the mirror. What is the object distance?

Ⓐ -20 cm Ⓑ -7.5 cm Ⓒ -15 cm Ⓓ -5.0 cm

104. An object is 14 cm in front of a convex mirror, the image is 5.8 cm behind the mirror. What is the focal length of the mirror?

Ⓐ -20 cm Ⓑ -8.2 cm Ⓒ -4.1 cm **Ⓓ -9.9 cm**

105. An object is placed at the center of curvature of a concave mirror. The image produced by the mirror is located:

Ⓐ At the center of curvature Ⓑ Out beyond the center of curvature
Ⓒ Between the center of curvature and focal point Ⓓ At the focal point

106. Magnification does not always mean?

Ⓐ Virtual Ⓑ Real **Ⓒ Enlargement** Ⓓ Smallness

107. In magnification image could also be …….. Than the object.

Ⓐ Real Ⓑ Virtual **Ⓒ Smaller** Ⓓ Same

108. Convex mirrors produce images that are smaller than objects. This increase:

Ⓐ View for the observer Ⓑ A and C
Ⓒ View for the image Ⓓ None of these

109. Which of the following quantities not change during refraction of light?

Ⓐ Its frequency Ⓑ Its wavelength Ⓒ Its speed Ⓓ Its Direction

110. The index of refraction depends on:

Ⓐ Speed of light Ⓑ Image distance Ⓒ Object distance Ⓓ The focal length

111. The refractive index is equal to:

Ⓐ $n = v/c$ **Ⓑ $n = c/v$** Ⓒ $n = 1/cv$ Ⓓ $n = cv$

112. The refractive index of diamond is:

Ⓐ 2.42 Ⓑ 2.21 Ⓒ 1.66 Ⓓ 1.52

113. The value of refractive index of air is:

Ⓐ 2 **Ⓑ 1** Ⓒ 3 Ⓓ 4

114. The refractive index of ice is

Ⓐ 1.33 Ⓑ 2.42 Ⓒ 1.52 **Ⓓ 1.31**

115. The refractive index of crown glass is:

Ⓐ 1.52 Ⓑ 1.66 Ⓒ 2.21 Ⓓ 2.42

116. The speed of light in water is approximately:

Ⓐ 2.6×10^8 m/s Ⓑ 2.5×10^8 m/s Ⓒ 3.3×10^8 m/s **Ⓓ 2.3×10^8 m/s**

117. The speed of light in glass is:

Ⓐ 3×10^{-8} m/s **Ⓑ 2×10^8 m/s** Ⓒ 3×10^8 m/s Ⓓ 2×10^{-8} m/s

118. Snell's law is:

Ⓐ $n = \frac{\sin < r}{\sin < i}$ **Ⓑ $n = \frac{\sin < i}{\sin < r}$** Ⓒ $n = sin < i$ Ⓓ $n = sin < r$

119. If a ray of light in glass is incident on an air surface at an angle greater than the critical angle, the ray will:

Ⓐ Diffract only Ⓑ Partially reflect Ⓒ Refract Only **Ⓓ Reflect only**

120. The critical angle for a beam of light passing from water into air is 48.8 degrees. This means that all light rays with an angle of incidence greater than this angle will be:

Ⓐ Totally transmitted **Ⓑ Totally Reflected**
Ⓒ Absorbed Ⓓ Partially reflected and partially transmitted

121. Critical angle of water is:

(A) 48.8^0 (B) 49.50^0 (C) 50^0 (D) 45^0

122. Conditions for total internal reflection are:

(A) 5 (B) 4 (C) 3 (D) 2

123. Optical fiber works on the principle of:

(A) Total internal reflection (B) Reflection
(C) Refraction (D) Diffraction

124. An instrument used to view the stomach of human body is called:

(A) Cystoscopy (B) Gastroscopy (C) Bronchoscope (D) Endoscope

125. Endoscope is a:

(A) Principle (B) Formula (C) Technique (D) Instrument

126. An instrument used to view the throat of human body is called:

(A) Cystoscopy (B) Bronchoscope (C) Gastroscopy (D) Endoscope

127. The power of lens is reciprocal of:

(A) Principal axis (B) Principal focus (C) Diopter (D) Focal length

128. The power of lenses is equal to:

(A) 4/f (B) 1/f (C) 2/f (D) 3/f

129. The focal length of lens is 1 meter, then its power will be:

(A) 0.5D (B) 1D (C) 1.5D (D) 2D

130. Concave lens spreads light away from the:

(A) Centre of curvature (B) Optical center (C) Principal axis (D) Principal focus

131. Convex lens bends light towards the:

(A) Centre of curvature (B) Optical center (C) Principal axis (D) Principal focus

132. If the image is virtual then its distance from lens is taken as:

(A) Half (B) Negative (C) Double (D) Positive

133. Which type of image is formed by convex lens on a screen?

(A) Inverted and virtual (B) Inverted and real
(C) Upright and virtual (D) Upright and real

134. Which type of image is formed by concave lens on a screen?

(A) Inverted and virtual (B) Upright and virtual
(C) Upright and real (D) Inverted and real

135. For diverging lens f is:

(A) Zero (B) Negative (C) Positive (D) None of these

136. For converging lens f is:

(A) Zero (B) Positive (C) Negative (D) None of these

137. If p = 30cm, q = -10cm then magnification will be:

(A) 3 (B) 1/3 (C) 20 (D) 30

138. The branch of optics that focuses on the creation of images is called:

(A) Image study (B) Optics (C) None of these (D) Geometrical Optics

139. Image formed by camera is:

(A) Virtual, upright and magnified
(B) Real, inverted and diminished
(C) Virtual, upright and diminished
(D) Real, inverted and magnified

140. The working principle of photograph enlarger is basically the same as that of:

(A) Slide projector (B) Concave lens (C) Convex lens (D) Camera

141. In slide projector Projection lens is a:

(A) Convex mirror (B) Concave mirror (C) Concave lens (D) Convex lens

142. In compound microscope objective lens has focal length:

(A) Less than 1 cm (B) Greater than 1 m (C) Zero (D) Equal to 1 cm

143. The mathematical equation for magnification of compound microscope is:

(A) $L\left(1+\frac{L}{f_e}\right)$ (B) $F_0\left(1+\frac{1}{f_e}\right)$ (C) $\frac{L}{f_0}\left(1+\frac{f_e}{L}\right)$ (D) $\frac{L}{f_0}\left(1+\frac{L}{f_e}\right)$

144. In astronomical telescope objective lens has ..... focal length than eyepiece.

(A) Equal (B) Larger (C) Lesser (D) None of these

145. In astronomical telescope the distance between objective lens and eyepiece is equal to:

(A) f_0 (B) $f_0 + f_e$ (C) $f_0 - f_e$ (D) f_0/f_e

146. Which type of image is produced by the converging lens of human eye if it views a distant object?

(A) Real, Erect, same size
(B) Real, Inverted, Diminished
(C) Virtual, inverted, magnified
(D) Virtual, Erect, Diminished

147. The human eye has:

(A) Concave lens (B) Concave mirror (C) Convex mirror (D) Convex lens

148. At the age of 40 the value of least distance of distinct vision is:

(A) 500 cm (B) 50 cm (C) 60 cm (D) 25 cm

149. For people in twenties with normal vision, the near point is located at..... From the eye.

(A) 50 cm (B) 25 cm (C) 500 cm (D) 20 cm

150. There are..... main defects in human eye.

(A) 4 (B) 3 (C) 2 (D) 1

151. In near-sightedness light rays from a distant object are focused .....retina.

(A) In Front of (B) After (C) Beyond (D) None of these

152. Hypermetropia can be corrected using .....lenses.

(A) Simple (B) Concave (C) Convex (D) None of these

153. In Far-sightedness light rays from an object forms a sharp image .....retina.

(A) Behind (B) On (C) After (D) Before

154. An object gains excess negative charge after being rubbed against another object which is:

(A) Neutral
(B) Positively charged
(C) Negatively charged
(D) All of these

155. A positive charge OR A positive electric charge:

(A) Repels other positive charge
(B) Attracts other positive charge
(C) Repels other neutral bodies
(D) Attracts other neutral bodies

156. The electroscope is an instrument which is used for:

(A) Detecting charge (B) Detecting current
(C) Detecting radiations (D) None of these

157. An instrument is used for detecting charge is:

(A) Stroboscope (B) Electroscope (C) Spectroscope (D) Microscope

158. The strength of an electric field at any point in space is called:

(A) Electric potential (B) Electric field intensity
(C) Electrostatic induction (D) Electric field lines

159. To protect the gold leaves from external disturbances in an electroscope a foil is grounded which is make of:

(A) Silver (B) Copper (C) Aluminum (D) Brass

160. The SI unit of charge is:

(A) Coulomb (B) Volt (C) Ohm (D) Ampere

161. According to coulomb's law what happens to force of attraction of two oppositely charged objects as their distance of separation increases?

(A) Decreases (B) Increases
(C) Remains unchanged (D) Cannot be determined

162. The coulomb's law is:

(A) $F = k\frac{q_1 q_2}{r^3}$ (B) $F = qE$ (C) $F = k\frac{q_1 q_2}{r^2}$ (D) $F = G\frac{m_1 m_2}{r}$

163. 1 μC = ... C

(A) 10^{-3} (B) 10^{6} (C) 10^{3} (D) 10^{-6}

164. The value of k in Coulomb's law is:

(A) $9 \times 10^9\ Nm^2C^{-2}$ (B) $9 \times 10^9\ m^2C^{-2}$ (C) $9 \times 10^9\ Nm^{-2}C^{-2}$ (D) $9 \times 10^9\ m^{-2}C^{-2}$

165. The SI unit of Coulomb's constant is:

(A) $Nm^{-2}C^2$ (B) Nm^2C^2 (C) $Nm^{-2}C^{-2}$ (D) Nm^2C^{-2}

166. Electric field lines always:

(A) Never cross each other (B) Cross each other in the region of weak field
(C) Cross each other (D) Cross each other in the region of strong field

167. The equation to calculate electric potential "V" is OR The electric potential "V" at a point be given by:

(A) $w = \frac{q}{v}$ (B) $v = \frac{w}{q}$ (C) $q = \frac{w}{v}$ (D) $q = \frac{v}{w}$

168. What will be the electric lines of force where the intensity of field is maximum?

(A) Wider (B) −ve to +ve (C) Narrow (D) +ve to −ve

169. SI unit of electric intensity is:

(A) NC^{-2} (B) NC (C) NC^{-1} (D) NC^2

170. The equation of electric intensity is:

(A) $F = qE$ (B) $E = \frac{q}{F}$ (C) $F = \frac{F}{q_0}$ (D) $q = EF$

171. The electric lines of forces were introduced by:

(A) Faraday (B) Coulomb (C) Einstein (D) Newton

172. The formula of Electric field intensity is:

Ⓐ Fq_0 Ⓑ $\frac{F}{q_0}$ Ⓒ $\frac{1}{Fq_0}$ Ⓓ $\frac{q_0}{F}$

173. If 4 J of work is done on a 2C charge against the direction of electric field, the value of electric potential is:

Ⓐ 2 V Ⓑ 8 V Ⓒ 4 V Ⓓ 1 V

174. Three capacitors of capacitances 3 pF, 4pF and 5pF are connected in parallel combination, with battery of 6V. Calculate equivalent capacitance:

Ⓐ 17 pF Ⓑ 14 pF Ⓒ 6 pF Ⓓ 12 pF

175. The SI unit of electric potential is:

Ⓐ Ohm Ⓑ Ampere Ⓒ Joule Ⓓ Volt

176. One volt is equal to:

Ⓐ $1\ JC^{-1}$ Ⓑ $1\ C^{-1}$ Ⓒ 1 JC Ⓓ 1 J

177. Five joules of work is needed to shift 10 C of charge from one place to another. The potential difference between the places is:

Ⓐ 10 V Ⓑ 5 V Ⓒ 2 V Ⓓ 0.5 V

178. ..... Blocks DC current but allows AC current to pass through the circuit.

Ⓐ Thermometer Ⓑ Capacitor Ⓒ Resistor Ⓓ Specific resistance

179. The capacitance is defined as:

Ⓐ $\frac{V}{Q}$ Ⓑ $\frac{Q}{V}$ Ⓒ QV Ⓓ VC

180. Each bolt of lightning contain the energy:

Ⓐ 4000 million joules of energy Ⓑ 1000 million joules of energy
Ⓒ 3000 million joules of energy Ⓓ 2000 million joules of energy

181. SI unit of capacitance is:

Ⓐ Coulomb Ⓑ Newton Ⓒ Volt Ⓓ Farad

182. Capacitors are used to differentiate between high frequency and low frequency signals. Such circuit is called:

Ⓐ Filter circuit Ⓑ Parallel circuit Ⓒ Series circuit Ⓓ None of these

183. The ability of capacitor to store charge is called:

Ⓐ Electric energy Ⓑ Electric potential Ⓒ Resistance Ⓓ Capacitance

184. One nano Farad is equal to:

Ⓐ 1×10^{-18}F Ⓑ 1×10^{-9} F Ⓒ 1×10^{-12}F Ⓓ 1×10^{-6} F

185. If 4C charge is given to the plates of capacitor and potential between the plates is 2 V then its capacitance is:

Ⓐ 8F Ⓑ 6f Ⓒ 4F Ⓓ 2F

186. Give the number of factors which affect the ability of a capacitor to store charge:

Ⓐ 4 Ⓑ 3 Ⓒ 2 Ⓓ 1

187. In parallel combination of capacitors, each capacitor will have the same:

Ⓐ Voltage Ⓑ Charge Ⓒ A and B Ⓓ Capacitance

188. Combinations of capacitors are:

(A) 4 (B) 2 (C) 3 (D) 1

189. 1 micro F is equal to:

(A) 1×10^{-5} F (B) 1×10^{-6} F (C) 1×10^{-3} F (D) 1×10^{-4} F

190. If the medium between the two charges is air, then the value of "k" will be:

(A) $9 \times 10^{9}\ m^{-2}C^{-2}$ (B) $9 \times 10^{9}\ Nm^{-2}C^{-2}$ (C) $9 \times 10^{9}\ m^{2}C^{-2}$ (D) $9 \times 10^{9}\ Nm^{2}C^{-2}$

191. In mica capacitor the dielectric is:

(A) Paper (B) Mica (C) Aluminum (D) Plastic

192. The mathematical form of current is:

(A) $I = VR$ (B) $t = \frac{q}{t}$ (C) $I = \frac{t}{q}$ (D) $I = QR$

193. The unit of current is:

(A) Ampere (B) Joule (C) Coulomb (D) volt

194. If 0.5C charge passes through a wire in 10 seconds, then current will be:

(A) 50 mA (B) 5mA (C) 5 A (D) 20A

195. In an Electric circuit when Electrons move from low to high potential they will:

(A) Lose their identity (B) Gain energy (C) Lose energy (D) Gain potential

196. An electric current in conductors is due to the flow of:

(A) Negative ions (B) Positive ions (C) Positive charges (D) Free electrons

197. One milli ampere is equal to:

(A) 10^{-2}A (B) 10^{-1}A (C) 10^{-3}A (D) 10^{-12}A

198. The rate of flow of charges is called:

(A) Coulomb (B) Volt (C) Current (D) Current

199. Electrical potential and e.m.f:

(A) Are the same terms (B) Positive ions
(C) Are the different terms (D) Have different units

200. Formula of e.m.f is equal to:

(A) $E = \frac{W}{Q}$ (B) $F = mv$ (C) $W = EQ$ (D) $W = \frac{E}{Q}$

201. And ideal voltmeter has a resistance:

(A) Very high (B) low (C) Very low (D) Nothing

202. What will be the voltage across the 6 Ohm resistor when 4 Ampere current passes through it:

(A) 36V (B) 18V (C) 9V (D) 2V

203. Mathematical equation of Ohm's law is:

(A) $V = IR$ (B) $V = IR^2$ (C) $V = QT$ (D) $V = I^2R$

204. SI unit of resistance is:

(A) Farad (B) Ohm (C) Volt (D) Ampere

205. Specific resistance of copper is ..... $\times 10^{-8}\Omega m$.

(A) 5.25 (B) 2.75 (C) 1.62 (D) 1.69

206. An electric current in conductor is due to the flow of:

(A) Free electrons (B) Positive charges (C) Positive ions (D) Negative ions

207. What happens to the intensity or the brightness of lamps connected in series as more and more lamps are added:

(A) Cannot be change (B) Remain same (C) Increase (D) Decrease

208. When resistances are connected in series the current passing through them is:

(A) Zero (B) Same (C) Different (D) None of these

209. The SI unit of e.m.f is:

(A) JC (B) NC (C) JC^{-1} (D) NC^{-1}

210. Mathematical form of Joule's law is:

(A) $W = I^2R^2T$ (B) $W = IR^2T$ (C) $W = IRT$ (D) $W = I^2RT$

211. Electrical Energy is given by:

(A) Qt (B) QC (C) QR (D) QV

212. Five joules of work is needed to shift 10C of charge from one place to another. The potential difference between the places is:

(A) 0.5V (B) 10V (C) 2V (D) 5V

213. If e.m.f of a battery is 2V, then the energy supplied by battery is …….. when one coulomb of charge flows through the close circuit.

(A) 4J (B) 2.8J (C) 5J (D) 2J

214. What is the power rating of a lamp connected to a 12V source when it carries 2.5A:

(A) 60W (B) 30W (C) 14.5W (D) 4.8W

215. The unit of electric power is:

(A) Volt (B) Joule (C) Ampere (D) Watt

216. The electric power of washing machine in watt is:

(A) 800 (B) 750 (C) 100 (D) 50

217. One watt is equal to:

(A) sJ^{-1} (B) J^2s (C) Js (D) Js^{-1}

218. 1kWh is equal to: OR 1 kilowatt is equal to:

(A) 4.6MJ (B) 3.6Mj (C) 4.6J (D) 3.6kJ

219. When we double the voltage in a simple electric circuit, we double the:

(A) Power (B) Both A and C (C) Current (D) Resistance

220. One micro ampere is equal to:

(A) $10^{-12}A$ (B) $10^{-9}A$ (C) $10^{-6}A$ (D) $10^{-3}A$

221. The study of magnetic effect current is called:

(A) Electric Capacity (B) Electromagnetism (C) Magnetism (D) Electricity

222. If we increase current on wire perpendicular in magnetic field, then the magnetic force on wire will be:

(A) Increase (B) Will be Zero (C) Decrease (D) Will not change

223. The presence of magnetic field can be detected by: or The presence of a magnetic field can be detected by a:

(A) Magnetic compass (B) Stationary positive charge
(C) Stationary negative (D) Small mass

224. What statement is true about the magnetic poles?

(A) A single magnetic pole does not exist (B) Magnetic pole do not effect each other
(C) Like pole attracts (D) Unlike pole repel

225. What is the direction of the magnetic field lines inside a bar magnet?

(A) From north pole to south pole (B) There are no magnetic field lines
(C) From south pole to north pole (D) From side to side

226. Which part of DC motor reverses the direction of current through coil every half cycle?

(A) Split Rings (B) Brushes (C) Commentator (D) Armature

227. In D.C motor coil can rotate in magnetic field by an angle of:

(A) 45^0 (B) 60^0 (C) 90^0 (D) 30^0

228. Which device is based on the principle of electromagnetism:

(A) Mobile phone (B) C-D (C) T-V (D) Electric motor

229. A D.C motor converts:

(A) Electrical Energy into Chemical Energy.
(B) Electrical Energy into Mechanical Energy.
(C) Mechanical Energy into Chemical Energy.
(D) Mechanical Energy into Electrical Energy.

230. Michael Faraday belonged to:

(A) Russia (B) K.S.A (C) British (D) U.S.A

231. Which thing works on the principle of electromagnetic induction in hydroelectric power house:

(A) Voltaic Cell (B) Galvanic Cell (C) Motor (D) Generator

232. Law of electromagnetic induction and electrolysis were presented by:

(A) Michael Faraday (B) Newton (C) Jorge coulomb (D) Simon ohm

233. The direction of induced e.m.f in a circuit is in accordance with the conservation of:

(A) Energy (B) Momentum (C) Charge (D) Mass

234. On which principle induced e.m.f is produced in the secondary coil?

(A) Induced Current (B) Mutual Induction (C) Electric Induction (D) Self-Induction

235. Transformer is used for:

(A) Increase voltage (B) Increase resistance (C) Both A and B (D) None of these

236. Transformer is used to:

(A) Decrease voltage (B) Increase voltage (C) Both A and B (D) None of these

237. A device which is used to increase the alternating voltage is called:

(A) Step-up transformer (B) Motor
(C) Generator (D) Step-down transformer

238. Transformer is used to change the value of:

(A) Power (B) Voltage (C) Energy (D) Charge

239. ..... in a transformer the voltage across secondary coil is denoted by:

Ⓐ V_P Ⓑ N_S Ⓒ N_P **Ⓓ V_S**

240. Turns ratios in a transformer is 1 : 100, it means that:

Ⓐ $N_S = 100N_P$ Ⓑ $N_S = N_P/10$ Ⓒ $I_S = 101_P$ Ⓓ $V_P/10$

241. The transformer works on: or The principle of working of transformer is:

Ⓐ Principle of Mutual Induction Ⓑ Principle of Self Induction
Ⓒ Principle of D.C Motor Ⓓ Principle of A.C generator

242. The step up transformer:

Ⓐ Increases the input voltage Ⓑ Has more turns in the primary coil
Ⓒ Has less turns in the secondary soil Ⓓ Increases the input current

243. The turn ratio of transformer is 10. Its means:

Ⓐ $V_S = 10V_P$ Ⓑ $N_S = N_P/10$ Ⓒ $I_S = 10I_P$ **Ⓓ $N_S = 10N_P$**

244. A device which is used to increase or decrease the alternation voltage is called:

Ⓐ Voltage **Ⓑ Transformer** Ⓒ Generator Ⓓ Motor

245. When number of turns in primary coil is greater than secondary coil, this transformer is called:

Ⓐ Up and down Ⓑ Step up **Ⓒ Step down** Ⓓ All of these

246. The application of mutual induction is:

Ⓐ Relay **Ⓑ Transformer** Ⓒ A.C Generator Ⓓ D.C Motor

247. The particles emitted from a got cathode surface are:

Ⓐ Protons **Ⓑ Electrons** Ⓒ Negative Ions Ⓓ Positive Ions

248. The process by which electrons are emitted by a hot metal surface is known:

Ⓐ Thermionic Emission Ⓑ Conduction Ⓒ Evaporation Ⓓ Boling

249. In tungsten filament the potential given to produce the Beam of Electron by thermionic Emission is:

Ⓐ 6V Ⓑ 9V Ⓒ 8V Ⓓ 7V

250. Cathode rays have a charge:

Ⓐ + ve and − ve Ⓑ Neutral **Ⓒ Negative** Ⓓ Positive

251. The biggest achievement of electronics is:

Ⓐ Mobile phone Ⓑ Transistor Ⓒ Calculator **Ⓓ Computer**

252. The cathode ray oscilloscope consists of main parts:

Ⓐ 5 Ⓑ 4 **Ⓒ 3** Ⓓ 2

253. In CRO the potential of grid is:

Ⓐ Neutral Ⓑ Zero Ⓒ Positive **Ⓓ Negative**

254. The screen of a cathode ray tube consists of a material called:

Ⓐ Phosphorus Ⓑ Glass Ⓒ Iron Ⓓ Zinc

255. The logical operation performed by this gate is:

Ⓐ NOR **Ⓑ NAND** Ⓒ AND Ⓓ OR

256. The deflecting plate is a component of:

(A) C.R.O (B) Fluorescent Tube (C) Computer (D) Radio

257. George Bole invented:

(A) Geometry (B) Boolean Algebra (C) Mean Algebra (D) Arithmetic

258. If X = A +B then X = 0 when:

(A) A = 0, B = 0 (B) A = 0, B = 1 (C) A = 1, B = 0 (D) A = 1, B = 1

259. If X = A.B, then x = 1 when:

(A) A = 1, B = 0 (B) A = 1, B = 1 (C) A = 0, B = 1 (D) A = 0, B = 0

260. The output of OR gate will be zero (O) when:

(A) A = 0, B = 0 (B) A = 1, B = 0 (C) A = 0, B = 1 (D) A = 1, B = 1

261. The equation of Not operation is:

(A) $X = A - B$ (B) $X = A + B$ (C) $X = A.B$ (D) $X = \overline{A}$

262. Number of input terminals in NOT gate is:

(A) 2 (B) 1 (C) 3 (D) 4

263. The output of two NOR gates is 1 when:

(A) A = 1, & B = 0 (B) A = 1, & B = 1 (C) A = 0, & B = 1 (D) A = 0, & B = 0

264. Number of input terminals in NOT gate is:

(A) Non-Inversion (B) Inversion (C) Both A & B (D) None of these

265. Which logical operation is performed by this gate?

(A) OR (B) NOR (C) AND (D) NAND

266. The output of NAND-gate is "0" when:

(A) A = 1 , B = 1 (B) A = 1, B = 0 (C) A = 0, B = 0 (D) A = 0, B = 1

267. AND gate can be formed by using two gates:

(A) NAND gates (B) OR gates (C) NOT gates (D) NOR gates

268. The output of NOR-gate will "1" if:

(A) A = 1, B = 0 (B) A = 1, B = 1 (C) A = 0, B = 1 (D) A = 0, B = 0

269. If $\overline{A + B} = X$. Then X = 1 when:

(A) A = 1, B = 0 (B) A = 0, B = 0 (C) A = 1, B = 1 (D) A = 0, B = 1

270. The computer based information system (CBIS) is formed by …….. components.

(A) 6 (B) 5 (C) 4 (D) 3

271. In computer terminology information means:

(A) Processed data (B) Large data (C) Raw data (D) Any data

272. From which of the following you can get information almost about everything?

(A) Internet (B) Computer (C) Teacher (D) Books

273. …….. is not proceeding: or Which of the following is not processing?

(A) Manipulating (B) Calculating (C) Gathering (D) Arranging

274. In computer terminology the term machinery refers to:

(A) Procedure (B) Data (C) Software (D) Hardware

275. Telephone system has parts: or The telephone system has parts:

Ⓐ 5 Ⓑ 4 **Ⓒ 2** Ⓓ 3

276. Telephone was invented in: or Graham Bell made a simple Telephone in:

Ⓐ 1976 Ⓑ 1776 Ⓒ 1676 **Ⓓ 1876**

277. Alexander Graham Bell in 1876 made:

Ⓐ Telephone Ⓑ Computer Ⓒ Machine Ⓓ Cell

278. Radio wave are:

Ⓐ Electromagnetic Ⓑ Sound wave Ⓒ Mechanical Ⓓ All of these

279. Which is the most suitable means of reliable continuous communication between an orbiting Satellite and earth?

Ⓐ Any Light waves **Ⓑ Microwaves** Ⓒ Sound waves Ⓓ Radio waves

280. Radio technology is used in:

Ⓐ Mobile phone Ⓑ Micro phone Ⓒ Fax machine Ⓓ Telephone

281. Fax machine is also called:

Ⓐ Telephone **Ⓑ Tele facsimile machine** Ⓒ Computer Ⓓ Radio

282. One Kilo byte (1 KB) data is equal to: or 1 KB=?

Ⓐ 10 MB Ⓑ 1024 MB Ⓒ 124 KB **Ⓓ 1024e**

283. One megabyte is equal to: or One megabyte has how many kilo bytes: or A megabyte has how many kilo bytes:

Ⓐ 1024 KB Ⓑ 1034 KB Ⓒ 1054 KB Ⓓ 1044 KB

284. The basic operations performed by a computer are:

Ⓐ Arithmetic and logic operation Ⓑ Non-arithmetic operation
Ⓒ Logic operation Ⓓ Arithmetic operation

285. 1 GB data is equal to:

Ⓐ 1024 Bytes Ⓑ 1000 KB Ⓒ 1024 KB **Ⓓ 1024 MB**

286. One bytes is equal to:

Ⓐ 4 Bits **Ⓑ 8 Bits** Ⓒ 6 Bits Ⓓ 10 Bits

287. The brain of any computer system is:

Ⓐ Memory Ⓑ Control Unit **Ⓒ CPU** Ⓓ Monitor

288. 1024 Kb are equal to:

Ⓐ 1 PB **Ⓑ 1 MB** Ⓒ 1 TB Ⓓ 1 GB

289. 1024 bytes are equal to:

Ⓐ 1 mB Ⓑ 1 GB Ⓒ 1 MB **Ⓓ 1 KB**

290. A CD can store over ..... of computer data.

Ⓐ 680 gigabyte Ⓑ 680 megabyte Ⓒ 17 gigabyte Ⓓ 17 megabyte

291. If CD is made of soft elastic material then it is called:

Ⓐ Computer disc Ⓑ Hard disc Ⓒ Metallic disc **Ⓓ Floppy**

292. The disc made of Aluminum is:

Ⓐ Laser disc **Ⓑ Hard disc** Ⓒ Floppy disc Ⓓ Compact disc

293.A ordinary floppy disk can store data upon:

Ⓐ 6 to 10 megabyte Ⓑ 1 to 3 megabyte Ⓒ 2 to 3 megabyte **Ⓓ 3 to 5 megabyte**

294.A device used to transport files from one computer to another:

Ⓐ Printer **Ⓑ Flash driver** Ⓒ Laser Ⓓ Compact disc

295.E-mail is: or For what does term e-mail stands for: or What does the term e-mail stand for:

Ⓐ Electricity Ⓑ Urgent mail Ⓒ Emergency mail **Ⓓ Electronic mail**

296.Which of there is not a web browser?

Ⓐ Mozilla Fire fox **Ⓑ You Tube** Ⓒ Safari Ⓓ Chrome

297.Whit broadband information can be loaded:

Ⓐ In 1 day **Ⓑ In 1 sec** Ⓒ 1 hour Ⓓ In 1 min

298.The number of Neutrons in Tritium ${}^{3}_{1}H$ is:

Ⓐ 4 Ⓑ 3 **Ⓒ 2** Ⓓ 1

299.One of the Isotopes of uranium ${}^{238}_{92}U$.Find the number of Neutrons in this isotope is:

Ⓐ 146 Ⓑ 238 Ⓒ 330 Ⓓ 92

300.Particles in the nucleus of an atom are:

Ⓐ Protons and Neutrons Ⓑ Protons
Ⓒ Electrons and neutrons Ⓓ Protons and electrons

301.Isotopes of hydrogen are:

Ⓐ 5 Ⓑ 4 **Ⓒ 3** Ⓓ 2

302.Atomic number is denoted by a symbol:

Ⓐ ${}^{B}_{Z}X$ Ⓑ ${}^{A}_{Z}X$ Ⓒ A **Ⓓ Z**

303.Isotopes are atoms of same elements whose ..... is different.

Ⓐ Atomic mass Ⓑ No. of protons Ⓒ No. of Atoms Ⓓ Atomic number

304.The proton is heavier than an Electron:

Ⓐ 1800 times Ⓑ 1870 times **Ⓒ 1836 times** Ⓓ 1863 times

305.Generally an atom is represented by the symbol:

Ⓐ X^{A} Ⓑ X Ⓒ ${}^{A}_{Z}X$ **Ⓓ ${}^{A}_{Z}X$**

306.In ${}^{238}_{92}U$,92 is the number of:

Ⓐ N + e Ⓑ P + N **Ⓒ Protons** Ⓓ Neutrons

307.During natural radioactivity how many types of radiations are emitted?

Ⓐ 4 Ⓑ 2 **Ⓒ 3** Ⓓ 1

308.Which among the following Radiations has more penetrating power?

Ⓐ Gamma particle Ⓑ Alpha particle Ⓒ All of these Ⓓ Beta particle

309.Atomic mass number can be found by relation:

Ⓐ Z + N Ⓑ Z − A Ⓒ A + N Ⓓ Z + A

310.The half-life of Hydrogen is:

Ⓐ 2.85 years **Ⓑ 12.3 years** Ⓒ 30 years Ⓓ 5730 years

311.Safe limit of radiation exposure in one year is:

(A) 5 rem (B) 3 rem (C) 4 rem (D) 6 rem

312. The half-life of lead is:

(A) 10.4 hours (B) 10.6 hours (C) 10.0 hours (D) 10.2 hours

313. The Half-life of plutonium in years is:

(A) 1.85 (B) 3.85 (C) 0.85 (D) 2.85

314. The half-life of a certain isotope is 1 day. What is the quantity of the isotopes?

(A) One quarter (B) One eight (C) One half (D) None of these

315. The half-life of radium-226 is:

(A) 2800 years (B) 5730 years (C) 4000 years (D) 1620 years

316. For the diagnosis of brain tumor is used:

(A) Iodine-131 (B) Phosphorus-32 (C) Cobalt-60 (D) Carbon-14

317. The half-life of Carbon-14 is:

(A) 3750 years (B) 5730 years (C) 5370 years (D) 7530 years

318. In $^{235}_{92}U$, 92 is the number of:

(A) Number of protons (B) Protons and Neutrons
(C) Neutrons and Electron (D) Number of neutrons

319. When uranium (92 protons) ejects a beta particle, how many protons are left in the remaining nucleus:

(A) 90 (B) 91 (C) 92 (D) 93

320. Release of Energy by the Sun due to:

(A) By Nuclear Fusion (B) By chemical reaction
(C) By Nuclear Fission (D) By burning of gases

321. The nuclear fission observed by:

(A) Stress Amin (B) Newton (C) Eon stein (D) Snell

Class :10th	Physics (The most exclusive guess paper)

Imp. Short Questions

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Q.1: What is meant amplitude?
Q.2: What is the difference between vibration and frequency?
Q.3: Write two characteristics of simple harmonic motion.
Q.4: Define mechanical waves. And write the names of its types.
Q.5: What is meant by simple pendulum? Write the formula of its time period.
Q.6: Define spring constant. Write its formula.
Q.7: Define vibratory motion.
Q.8: Define restoring force.
Q.9: If time period of simple pendulum is 1.99s then find its frequency.
Q.10: Define simple harmonic motion.
Q.11: Define time period.
Q.12: What is meant by wave length?
Q.13: What is the difference between transverse and longitudinal waves?

Q.14: What are longitudinal waves? Also give one example.
Q.15: Define wave equation. And write its formula.
Q.16: The frequency of a wave moving on a slinky is 4 Hz and wave length is 0.4m. Find its speed.
Q.17: What is stethoscope?
Q.18: What is meant by loudness of sound?
Q.19: The sound of women is shriller than men. Why?
Q.20: What is the difference between frequency and pitch?
Q.21: Define pitch and quality of sound.
Q.22: What is meant by sound less whistle? What is the range of its frequency?
Q.23: What is meant by intensity of sound? What is its unit?
Q.24: What is the difference between loudness and intensity of sound?
Q.25: Write the mathematical relation between loudness and intensity of sound?
Q.26: What is meant by decibel scale?
Q.27: What are the audible frequency ranges?
Q.28: Write down the audible frequency ranges for children and old people.
Q.29: Explain the concave mirror and convex mirror by diagram.
Q.30: Define center of curvature and radius of curvature.
Q.31: Define mirror formula.
Q.32: State the laws of refraction.
Q.33: Write Snell's law. And write its formula.
Q.34: What are the values of refractive index for water and ice?
Q.35: Define refractive index.
Q.36: What is critical angle?
Q.37: What is convex or converging lens? Explain by diagram.
Q.38: Define principle focus and focal length.
Q.39: What is meant by power of a lens? Also write its formula.
Q.40: The power of a convex lens is 5D. Find its focal length.
Q.41: Differentiate between real and virtual image.
Q.42: What is meant by electrostatic induction?
Q.43: State Coulomb's law.
Q.44: What is the effect of distance on Coulomb's force? Describe.
Q.45: In System International, what is the value of k in Coulomb's law?
Q.46: Define electric field. Write its unit.
Q.47: Define electric field intensity.
Q.48: Is electric field intensity a vector quantity? What will be its direction?
Q.49: Define electric field lines. Who introduced them?
Q.50: Write down two characteristics of electric field lines.
Q.51: Define electric potential. Write its unit.
Q.52: Define volt.
Q.53: Write the formula of electric potential energy.
Q.54: Who and when the first battery was discovered?
Q.55: What is the difference between a capacitor and a dielectric?
Q.56: Define capacitance. Write its unit.
Q.57: Write down two characteristics of the series combination of capacitors.
Q.58: What is meant by dielectric?
Q.59: Write down two uses of capacitors.
Q.60: What is filter circuit?
Q.61: Write the names of different types of capacitors.

Q.62: Define variable capacitors.
Q.63: Define fixed capacitors.
Q.64: What is meant by electrolytic capacitor?
Q.65: What is meant by Mica capacitor?
Q.66: What is the SI unit of electric current? Define it.
Q.67: Define electric current. Write its mathematical formula.
Q.68: What is meant by conventional current?
Q.69: What is the difference between flow of current and water?
Q.70: Which instruments are used to measure current?
Q.71: What is the difference between galvanometer and ammeter?
Q.72: What is electrolyte?
Q.73: The diameter of a copper wire is 2mm. find its cross sectional area.
Q.74: What is the SI unit of potential difference? Define it.
Q.75: What is the difference between electromotive force and potential difference?
Q.76: State Ohm's law. Write its mathematical formula.
Q.77: What is meant by resistance? Write its unit.
Q.78: Define the SI unit of resistance.
Q.79: The resistance of conductor increases on increasing the temperature. Why?
Q.80: What is meant by Ohmic and Non Ohmic conductors?
Q.81: State Joule's law. Write its mathematical formula.
Q.82: What is the difference between kilowatt hour and electric power?
Q.83: Write down the difference between watt and kilowatt hour.
Q.84: Define electric power. Write down its equation.
Q.85: Describe right hand rule.
Q.86: What is meant by solenoid?
Q.87: Who discovered the magnetic field produced around a straight current carrying conductor?
Q.88: Write two methods of increasing magnetic force.
Q.89: What is meant by electromagnetic induction?
Q.90: State the law of electromagnetic induction of Faraday.
Q.91: State Lenz's law of induced emf.
Q.92: What is the difference between step up and step down transformer?
Q.93: Differentiate between digital and analogue quantities.
Q.94: What is meant by analogue quantities? Give example.
Q.95: Differentiate between analogue and digital electronics.
Q.96: Write the uses of digital electronics.
Q.97: What is digital to analogue converter?
Q.98: Write the advantages of uses of digital electronics over analogue electronics.
Q.99: What is meant by DAC and ADC?
Q.100: What is meant by digital electronics? Give an example.
Q.101: What is meant by binary variable?
Q.102: What is meant by logic algebra or Boolean algebra?
Q.103: What is meant by logic state?
Q.104: Which are three universal logic gates?
Q.105: Write the names of logic operations.
Q.106: Define truth table.
Q.107: What is meant by AND operation? Write its symbol.
Q.108: Write truth table of AND operation.
Q.109: Write the symbol of AND gate.

Q.110: Draw circuit diagram for AND gate.
Q.111: What is meant by OR operation? Write its symbol.
Q.112: Draw circuit diagram for OR gate.
Q.113: What is meant by NOT operation? Write its symbol.
Q.114: Write truth table of NOT operation.
Q.115: Write the symbol of NOT gate.
Q.116: Write truth table of NOR operation.
Q.117: Write the symbol of NOR gate.
Q.118: Write the use of logic gates.
Q.119: Define data.
Q.120: Write the names of four input devices in computer.
Q.121: What are Super computers?
Q.122: How light signal is sent through optical fibers?
Q.123: What is meant by internet?
Q.124: Write down the services of internet.
Q.125: What is electronic mail?
Q.126: Write down two uses of E mail.
Q.127: What are browsers?
Q.128: Define operating system? Also give an example.
Q.129: What is E commerce?
Q.130: What are the two important services used in internet?
Q.131: Define information.
Q.132: Define information technology.
Q.133: Define telecommunication.
Q.134: Write two uses of computer in our daily life.
Q.135: What is meant by CPU? Why is it called the brain of computer?
Q.136: What is meant by ATM?
Q.137: Write the names of four web browsers.
Q.138: What is global web?
Q.139: What is meant by isotopes?
Q.140: A nuclide is represented by symbol 13×6. Find the number of protons and neutrons in it.
Q.141: What is meant by neutron number?
Q.142: Differentiate between atomic number and neutron number.
Q.143: What is meant by isotope? How many isotopes hydrogen has?
Q.144: What is meant by natural radioactivity?
Q.145: What is meant by radioactive elements? Give examples.
Q.146: Write a short note on cosmic radiations.
Q.147: What is meant by cosmic radiations?
Q.148: Write down the causes of background radiations.
Q.149: What is meant by nuclear transmutation?
Q.150: What is meant by penetrating ability?
Q.151: Write down two characteristics of beta radiations.
Q.152: What is meant by carbon dating?
Q.153: What is meant by tracers?
Q.154: Differentiate between stable and unstable nuclei.
Q.155: Define nuclear fission.
Q.156: Write down the equation of nuclear fission.
Q.157: What is meant by Fission chain reaction?
Q.158: Write two characteristics of gamma rays.

Q.159: Write down two characteristics of alpha radiations.
Q.160: Write general equation of beta Decay. Also give an example.
Q.161: What is meant by half-life of a radioactive element?
Q.162: What is meant by half life?
Q.163: Write two uses of radio isotopes.
Q.164: What is meant by radioactive tracers?
Q.165: What is the use of radioactive isotopes in medical treatment?

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Imp. Long Questions

Theory plus problems

Q.1: Define simple harmonic motion. Prove that motion of mass attached to a spring on a horizontal surface is simple harmonic motion.
Q.2: Define mass of spring by Hook's law. Define spring constant by Hook's law.
Q.3: The time period of a simple pendulum is 2s. What will be its length on the earth? What will be its length on the moon if $g_m = g_e/6$? Where $g_e = 10ms^{-2}$.
Q.4: A pendulum of length 0.99m is taken to the moon by an astronaut. The period of the pendulum is 4.9s. What is the value of g on the surface of the moon?
Q.5: A simple pendulum completes one vibration in two seconds. Calculate its length when $g = 10ms^{-1}$.
Q.6: Draw a transverse wave having amplitude of 2cm and a wavelength of 4cm. Label a crest and trough on the wave.
Q.7: Derive a relationship between velocity, frequency and wavelength of a wave. Write a formula relating velocity of a wave to its time period and wavelength.
Q.8: Define mechanical waves. Describe its types. Also give an example of each.
Q.9: If 100 waves pass through a point of a medium in 20 seconds, what is the frequency and the time period of the wave? If its wavelength is 6cm, calculate the wave speed.
Q.10: What is the wavelength of the radio waves transmitted by an FM station at 90MHz? Where $1M = 10^6$, and speed of radio wave is $3 \times 10ms^{-1}$.
Q.11: What is the difference between loudness of sound and intensity of sound? Write the mathematical relation between them.
Q.12: A normal conversation involves sound intensities of about $3.0 \times 10 - 6Wm^{-2}$. What is the decibel level for this intensity? What is the intensity of the sound for 100dB?
Q.13: At Anarkali bazar Lahore, intensity level of sound is 80dB, what will be the intensity of sound there?
Q.14: At a particular temperature, the speed of sound in air is $330ms^{-1}$, If the wavelength of a note is 5cm, calculate the frequency of the sound wave. Is this frequency in the audible range of the human ear?
Q.15: Doctor counts 72heartbeats in 1min. calculate the frequency and period of the heartbeats.
Q.16: A student clapped his hands neat a cliff and heard the echo after 5s. What is the distance of the cliff from the students if the speed of the sound is taken as $346ms^{-1}$.
Q.17: A sound wave has a frequency of 2k Hz and wavelength 35cm. How long will it take to travel 1.5km?
Q.18: Find the frequency of sound, when speed of sound is $340ms^{-1}$ and wavelength is 0.5m.

Q.19: *An object* 10.0cm *in front of a convex mirror forms an image* 5.0cm *behind mirror. What is the focal length of the mirror?*

Q.20: *An image of statue appears to be* 11.5cm *behind convex mirror with focal length* 13.5cm. *Find the distance from the statue to the mirror.*

Q.21: *What is critical angle? Derive a relationship between the critical angel and the refractive index of a substance.*

Q.22: *What is meant by total internal reflection? Explain with the help of diagram. Write the conditions for total internal reflection.*

Q.23: *The power of a convex lens is* 5D. *At what distance the object should be placed from the lens so that its real and* 2 *times larger image is formed.*

Q.24: *A convex lens of focal length 6cm is to be used to form a virtual image three times the size of the object. Where must the lens be places?*

Q.25: *State Coulomb's law. Write its mathematical form. Also clear the meaning of k. and write its value in air.*

Q.26: *The charge of how many negatively charged particles would be equal to* 100μC. *Assume charge on one negative particle is* 1.6×10^{-19}?

Q.27: *The force of repulsion between two identical positive charges is 0.8N, when the charges are* 0.1m *apart; find the value of each charge.*

Q.28: *Write down explain the relation between electric field lines and electric intensity.*

Q.29: *A point charge of* +2C *is transferred from a point at potential* 100V *to a point at potential* 50V. *What would be the energy supplied by the charge?*

Q.30: *The electric potential at a point in an electric field is* 10^4V. *If a charge of* +100μC *is brought from infinity to this point. What would be the amount of work done on it?*

Q.31: *Find the equivalence capacitance of capacitors connected in series.*

Q.32: *Explain the working of parallel plate capacitor.*

Q.33: *What are electrolytic capacitors? What do you know about them?*

Q.34: *A current of* 3mA *is flowing through a wire for 1minute, what is the charge flowing through the wire?*

Q.35: *How can we differentiate between e.m.f and potential difference?*

Q.36: *Explain Ohm's law. What are its limitations?*

Q.37: *The resistance of a conductor wire is* 10MΩ. *If a potential difference of* 100volts *is applied across its ends, then find the value of current passing through it in mA.*

Q.38: *State Joule's law and also derive its mathematical form.*

Q.39: *By applying a potential difference of* 10V *across a conductor, a current of* 1.5A *passes through it. How much energy would be obtained from the current in* 2minutes?

Q.40: *What is kilo watt hour? Define it. And find the relation between kilo watt hour and joule.*

Q.41: *What is meant by electromagnetic induction? State an experiment of Faraday.*

Q.42: *Describe a simple experiment to demonstrate that a changing magnetic field can induce e.m.f. in circuit.*

Q.43: *What is transformer? On which principle it works? How it works? Write down its types.*

Q.44: *A transformer is needed to convert a mains* 240V *supply into a* 12V *supply. If there are* 2000 *turns on the primary coil, then find the number of turns on the secondary coil.*

Q.45: *A step-up transformer has a turn ratio of* 1:100. *An alternating supply of* 20V *is connected across the primary coil. What is the secondary voltage?*

Q.46: *What are the three universal logic gates? Give their symbols and truth tables.*

Q.47: *What is meant by AND operation? Describe its different states. Write Boolean expression and truth table of AND operation.*

Q.48: *How safety alarm in houses works? Explain it.*

Q.49: *Which are the three universal logic gates? Write their symbols and truth tables.*

Q.50: What is computer? Write its role our daily life.

Q.51: Explain the Transmission of Light Signal Through Optical Fibers.

Q.52: What is internet? Internet is useful source of knowledge and information. Discuss.

Q.53: What is meant by electronic mail? Write its uses and advantages.

Q.54: What is meant by background radiations?

Q.55: What do you understand by half-life of a radioactive element?

Q.56: What is meant by half life? Explain it with the help of Radium 226. And show the activity of Radium of graph.

Q.57: Ashes from a campfire deep in a cave show carbon-14 activity of only one-eighth the activity of fresh wood. How long ago was that campfire made?

Q.58: What is meant by radio isotopes? Write its uses in medicine and industry.

Q.59: The half-life of is $^{16}_{7}N$ 7.3s. A sample of this nuclide of nitrogen is observed for 29.2s; calculate the fraction of the original radioactive isotope remaining after this time.

Q.60: Cobalt-60 is a radioactive element with half-life of 5.25years. What fraction of the original sample will be left after 26years?