Step Academy official

Model Town Grw PH: 03016652757

STUDENT NAME			CLASS	F.Sc / I.C.S (PART-II)
PAPER CODE	59600		SUBJECT	Physics
TIME ALLOWED			TOTAL MARKS	
Paper Date			Paper Type	

Q1. Choose the correct answer. 200X1=200

1. SI unit of strength of electric field is:

(A) J/C **(B)** C/V **(C)** N/C **(D)** J/N

2. The electrostatic force of repulsion between two electrons at a distance 1 m is:

(A) $2.3 \times 10^{-24} N$ **(B)** $2.3 \times 10^{-26} N$ **(C)** $2.3 \times 10^{-28} N$ **(D)** $2.3 \times 10^{-30} N$

3. Electric field intensity at a point is defined by the relation:

(A) E = F / q **(B)** E = q / F **(C)** F = E / q **(D)** F = q / E

4. Equation $\phi = \bar{E}.\bar{A}$ is application to surface:

(A) Spherical **(B)** Cylindrical **(C)** Conical **(D)** Flat

5. The electric field intensity due to an infinite sheet of charge:

(A) $\vec{E} = \frac{\sigma}{2\varepsilon_o} \hat{r}$ **(B)** $\vec{E} = \frac{2\sigma}{\varepsilon_o} \hat{r}$ **(C)** $\vec{E} = \frac{1}{2\sigma\varepsilon_o} \hat{r}$ **(D)** $\vec{E} = \frac{\sigma}{\varepsilon_o} \hat{r}$

6. Photo copier and inkjet printer are the applications of:

(A) Magnetism **(B)** Electricity **(C)** Electro magnetism **(D)** Electrostatic

7. The equation $-\frac{\Delta v}{\Delta r}$ is called:

(A) Electric potential **(B)** Electric energy **(C)** Potential barrier **(D)** Potential gradient

8. One joule is equal to:

(A) $1.6 \times 10^{-19} ev$ **(B)** $1.6 \times 10^{19} ev$ **(C)** $6.25 \times 10^{-18} ev$ **(D)** $6.25 \times 10^{18} ev$

9. The toner of printer is given:

(A) Positive charge **(B)** Negative charge **(C)** Neutral **(D)** First positive than negative

10. The heart of a photo copy machine is a drum which is made of:

(A) Copper **(B)** Aluminum **(C)** Nickel **(D)** Cobalt

11. The drum in photo copier is coated with layer of:

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

12. Charge carriers in electrolytes are:

(A) Protons   (B) Electrons   (C) Holes   (D) Positive and negative ions

13. Selenium is a:

(A) Conductor   (B) Photo conductor   (C) Insulator   (D) Semi-conductor

14. Special organ called ampulla of lorenzini that are very sensitive to electric field are found in:

(A) Bats   (B) Cats   (C) Dogs   (D) Sharks

15. Farad is defined as:

(A) Coulomb/volt   (B) Ampere/volt   (C) Coulomb/joule   (D) Volt/coulomb

16. The capacitance of a parallel plate capacitor in vacuum is:

(A) $C_{vac} \frac{A\varepsilon_0}{d}$ (B) $C_{vac} \frac{A\varepsilon_0\varepsilon_r}{d}$ (C) $C_{vac} \frac{\varepsilon_n d}{d}$ (D) $C_{vac} \frac{A\varepsilon_0\varepsilon_r d}{d}$

17. Electron volt is the unit of:

(A) Potential   (B) Potential difference   (C) Electric current   (D) Electric energy

18. The slope of (q-t) curve at any instant of time gives:

(A) Voltage   (B) Time   (C) Capacitance   (D) Inductance

19. The electric field created by positive point charge is:

(A) Radially inward   (B) Zero   (C) Circular   (D) Radially outward

20. A billion electrons are added to pith ball. Its charge is:

(A) $-1.6 \times 10^{-10} C$ (B) $-1.6 \times 10^{-12} C$ (C) $-1.6 \times 10^{-14} C$ (D) $-1.6 \times 10^{-7} C$

21.
In Millikan's oil drop experiment of charged particle of mass 'm' is in equilibrium in an applied electric field E. if the direction of electric field is reversed then acceleration of the particle will be:

(A) Zero   (B) g/2   (C) g   (D) 2g

22. If electric lines of force are equally spaced the electric field is:

(A) Uniform   (B) Non-uniform   (C) Weak   (D) Strong

23. The fact that electric field exist in space around an electrical charge is:

(A) Electrical property   **(B)** Gravitational property   **(C)** Intrinstic property of nature   **(D)** Extrinstic property of nature

24. When a charge of $5\mu C$ passes through a conductor in 2s, the current in the conductor is:

(A) 10 A   **(B)** 2.5 A   **(C)** 2.5mA   **(D)** 2.5 μA

25. A charged conductor has charge on its:

(A) Inner-surface   **(B)** Outer-surface   **(C)** Middle-surface   **(D)** Surrounding space

26. By increasing the temperature of conductor, the flow rate of charges:

(A) Increases   **(B)** Remains constant   **(C)** Changes exponentially   **(D)** Decreases

27. When a wire of length ' I 'and resistance R is cut into two equal parts then resistivity of each part:

(A) Becomes half   **(B)** Remains unchanged   **(C)** Becomes two times   **(D)** Becomes four times

28. Resistivity at a given temperature depends upon:

(A) Area of cross section   **(B)** Length   **(C)** Nature of material of conductor   **(D)** Both length and area

29. Resistance tolerance for gold color is:

(A) 50%   **(B)** 30%   **(C)** 20%   **(D)** 5%

30.
A certain wire has a resistance R, the resistivity of another wire of an identical material with the first, except for twice its diameter is:

(A) $\frac{1}{4}R$ **(B)** 4R   **(C)** 2R   **(D)** Same as R

31. Resistance tolerance of silver band is:

(A) 10%   **(B)** 6%   **(C)** 7%   **(D)** 5%

32.
The maximum power (pout) is delivered to a load resistance R, when the internal resistance of the source is:

(A) $r = \alpha$ **(B)** $r = R$ **(C)** $r = 0$ **(D)** $= \frac{R}{4}$

33. Color codes are used to calculate the:

(A) Nature of resistor   **(B)** Numerical value of resistance   **(C)** Potential difference   **(D)** Current

34. What is the colour code for 52 resistance:

(A) Red green blue gold (B) Green red blue gold (C) Yellow red blue gold (D) Green red violet gold

35. If length of Solenoid is doubled but N same, B inside the Solenoid becomes:

(A) Half (B) Double (C) One fourth (D) Four times

36. The resistance of a conductor L, cross-sectional area 'A' and resistivity ' ' is given by:

(A) $R = \dfrac{\rho}{AL}$ (B) $R = \rho AL$ (C) $R = \rho\dfrac{L}{A}$ (D) $R = \rho\dfrac{A}{L}$

37. Torque on a current carrying coil is given by:

(A) $ILB\cos\infty$ (B) $ILB\sin\infty$ (C) $IBA\cos\infty$ (D) $IBA\sin\infty$

38. If current flowing through a solenoid becomes four times, then magnetic field inside it becomes:

(A) Two times (B) Three times (C) Four times (D) Half

39. The force on current earning conductor placed in magnetic field is expressed by:

(A) $\vec{F} = I\vec{L}.\vec{B}$ (B) $\vec{F} = I\vec{L} \times \vec{B}$ (C) $\vec{F} = I^2\vec{L} \times \vec{B}$ (D) $\vec{F} = I^2\vec{L} \times \vec{B}$

40. The unit of magnetic flux is:

(A) Tesla (B) Weber (C) weber m^{-2} (D) Tesla m^{-2}

41. The value of permeability of free space in SI unit is:

(A) $4\pi \times 10^{-9} WbA^{-1}m^{-1}$ (B) $4\pi \times 10^{-7} WbA^{-1}m^{-1}$ (C) $4\pi \times 10^{-10} WbA^{-1}m^{-1}$ (D) $4\pi \times 10^{7} WbA^{-1}m^{-1}$

42. Magnetic lines of force:

(A) Imaginary (B) Real (C) Perpendicular (D) In phase with electric lines of force

43. The number of electrons in CRO is controlled by:

(A) x-deflecting plates (B) y-deflecting plates (C) Grid (D) Filament

44. Cathode ray oscilloscope works by deflecting a beam of:

(A) Neutrons (B) Protons (C) Electrons (D) Positions

45. The CRO is used for:

(A) Displaying the wave form of frequency (B) Displaying the wave form of given vibration (C) Displaying wave form of given voltage (D) Converting A.C into D.C

46. Torque on a current carrying cell has the equation:

(A) $\tau = q(v \times B)$ (B) $\tau = BILq$ (C) $\tau = BINA\, Cos\alpha$ (D) $\tau = NLAB\, Cos\alpha$

47.
When a metal is heated sufficiently electrons are given off by the metal. This phenomenon is known as:

(A) Photoelectric effect   (B) Piezo electric effect   (C) Thermionic emission   (D) Secondary emission

48. A device used for detection of current is called:

(A) Inductor   (B) Voltmeter   (C) Capacitor   (D) Galvanometer

49. High resistance in voltmeter is given by:

(A) $\dfrac{I_g R_g}{I - I_g}$ (B) $\dfrac{I - I_o}{I_g}R_g$ (C) $\dfrac{IR_g}{I - I_g}$ (D) $\dfrac{V_g}{I - I_g}$

50. If a low resistance is connected parallel to a galvanometer then galvanometer is converted into:

(A) Ammeter   (B) Voltmeter   (C) Ohmmeter   (D) Multi-meter

51. The relation between current I and angle of deflection in a moving coil galvanometer is:

(A) $I \infty \theta$ (B) $I \infty \dfrac{I}{\theta}$ (C) $I \infty \sin\theta$ (D) $I \infty \cos\theta$

52. The effective way to increase the sensitivity of moving coil galvanometer is:

(A) Increase the area of coil   (B) Increase the number of turns   (C) Increase the magnetic field   (D) Increase the value of constant C

53. Sensitivity of a galvanometer can be increased by:

(A) Decreasing the value of torsional couple   (B) Decreasing number of turns   (C) Decreasing area of plane of coil   (D) Decreasing magnetic field

54. Galvanometer can be made more sensitive if the value of factor $\dfrac{C}{NAB}$ is:

(A) Made large   (B) Made small   (C) Remained constant   (D) Made zero

55. The sensitivity of galvanometer is given by:

(A) $\dfrac{C\theta}{BAN}$ (B) $\dfrac{C\theta N}{BA}$ (C) $\dfrac{NAB}{C\theta}$ (D) $\dfrac{AN}{BC\theta}$

56. If we make magnetic field stronger the value of induced current is:

(A) Decreased   (B) Increased   (C) Vanishes   (D) Remains constant

57. If 10A current passes through 100 mH incutor, then energy stored as:

(A) 100J   (B) 5J   (C) 20J   (D) Zero

58.

A metal rod of 1m is moving at a speed of 1ms^{-1} in a direction making an angle 30^0 with 0.5T magnetic field. The emf produced is:

(A) 0.25 N
(B) 2.5 N
(C) 0.25 N
(D) 2.5 N

59. When a coil is moved in a uniform magnetic field, an induced emf is produced due to change in:

(A) Flux density
(B) Electric flux
(C) Magnetic flux
(D) Magnetic field strength

60. Henry is SI unit of:

(A) Current
(B) Resistance
(C) Flux
(D) Self-induction

61. Lenz's Law is in accordance with the law of conservation of:

(A) Momentum
(B) Charge
(C) Energy
(D) Angular momentum

62. Lenz's Law deals with:

(A) Magnitude of emf
(B) Direction of emf
(C) Direction of induced current
(D) Resistance

63. The winding of the electromagnet in motor are usually called:

(A) Magnetic coils
(B) Field coils
(C) Electric coils
(D) Electric-o-electric coils

64. The winding of the electromagnet in motor are usually called:

(A) Magnetic coils
(B) Field coils
(C) Electric coils
(D) Electric-o-electric coils

65. ……… expressions for mutual inductance is correct.

(A) $M = \dfrac{N_s \phi_s}{I_p}$
(B) $M = \dfrac{\phi_s}{N_s I_p}$
(C) $M = \dfrac{I_p}{N_s f_s}$
(D) $M = \dfrac{N_s}{I_p f_s}$

66. The relation of EMF of two cell $\dfrac{E_1}{E_2}$ is:

(A) $\dfrac{I_2}{I_1}$
(B) $\dfrac{I_1}{I_2}$
(C) $\dfrac{1}{I_1 I_2}$
(D) $I_1 \times I_2$

67. The negative sign with induced emf in Faraday's Law is in accordance is in:

(A) Lenz's Law
(B) Ampere's Law
(C) Gauss Law
(D) Boyle's Law

68. The self-inductance of solenoid is:

(A) $L = \mu_0 nAL$
(B) $L = \mu_0 N^2 AI$
(C) $L = \mu_0 n^2 AI$
(D) $L = \mu_0 NAL$

69. Energy stored in inductor is:

(A) $\frac{1}{2}LI^2$ 　　　　　(B) $\frac{1}{2}LI$ 　　　　　(C) $\frac{1}{2}L^2I$ 　　　　　(D) $\frac{1}{2}L^2I^2$

70. In case of inductor, energy is stored in the:

(A) Electric field 　　(B) Magnetic field 　　(C) Potential field 　　(D) Gravitational field

71. The only difference between the construction of DC and AC generator is:

(A) Carbon brushes 　　(B) Coil 　　(C) Commutator 　　(D) Magnetic field

72. The devices in the circuit that consume electrical energy are known as:

(A) Dissipaters 　　(B) Generator 　　(C) Load 　　(D) Motors

73. Commentator was invented in:

(A) 1736 　　(B) 1834 　　(C) 1935 　　(D) 1885

74. Commentator was invented by:

(A) Henry 　　(B) Ousted 　　(C) Maxwell 　　(D) William sturgeon

75. The combined effect of resistance and reactance is known as:

(A) Inductance 　　(B) Conductance 　　(C) Resistance 　　(D) Impedance

76. The slope of q-t curve at any instant of time gives:

(A) Current 　　(B) Voltage 　　(C) Charge 　　(D) Both A and B

77. The highest value reached by the voltage or current in one cycle is called:

(A) Peak to peak value 　　(B) Peak value 　　(C) Instantaneous value 　　(D) Root mean square value

78. The waveform of alternating voltage is a :

(A) Cotangent curve 　　(B) Cosine cure 　　(C) Tangent curve 　　(D) Sine cure

79. Average value of current and voltage over a complete cycle is:

(A) Positive 　　(B) Negative 　　(C) Zero 　　(D) Infinite

80. The power factor in A.C circuit is:

(A) $\sin\theta$ 　　(B) $\cos\theta$ 　　(C) $\tan\theta$ 　　(D) $\cot\theta$

81. The expression P=VI holds only when current and voltage are:

(A) In phase 　　(B) Out of phase 　　(C) At right angle to each other 　　(D) At angle of 120°

82. The peak value of A.C source is 20A, then its rms value will be:

(A) 14.1A   (B) 10A   (C) 20A   (D) 28.2A

83. In A.C wave form, negative peak is obtained at the phase angle of:

(A) 90^0 (B) 120^0 (C) 270^0 (D) 360^0

84. Relation for resonance frequency of RLC series circuit is:

(A) $\dfrac{1}{\sqrt{2\pi Lc}}$ (B) $\dfrac{2\pi}{\sqrt{Lc}}$ (C) $\dfrac{1}{2\pi\sqrt{Lc}}$ (D) $\dfrac{1}{\sqrt{Lc}}$

85. Root mean square value of voltage is given by:

(A) $V_{rms} = 2V^{\circ}$ (B) $V_{rms} = \sqrt{2V^{\circ}}$ (C) $V_{rms} = \dfrac{V_0}{\sqrt{2}}$ (D) $V_{rms} = \dfrac{V_0}{2}$

86. An A.C voltmeter reads 220V, its peak value will be:

(A) 225 V   (B) 340 V   (C) 311.12 V   (D) 300 V

87. In RLC series circuit the phase angle between Yc and Xc is:

(A) $\tan^{-1}\dfrac{\omega c}{R}$ (B) $\tan^{-1}\dfrac{\omega}{Rc}$ (C) $\tan^{-1}\dfrac{\omega z}{Rc}$ (D) $\pi\,rad$

88. In RLC series circuit at resonance the phase difference between capacitor and inductor reactances is:

(A) 90^0 (B) 270^0 (C) 0^0 (D) 180^0

89. One of the sources of an A.C voltage is:

(A) Motor   (B) Battery   (C) UPS   (D) Solar cell

90. In RLC series circuit, at resonance frequency X_C and X_L are:

(A) In phase   (B) Opposite in phase   (C) Differ by a phase $\dfrac{\pi}{2}$ (D) At angle of 120^0

91. The phase of A.C at positive peak from origin is:

(A) $\dfrac{3\pi}{2}$ (B) $\dfrac{\pi}{2}$ (C) $\dfrac{\pi}{4}$ (D) π

92. Direct current cannot flow through:

(A) Inductor   (B) Resistor   (C) Transistor   (D) Capacitor

93. The flow of D.C current is opposed by:

(A) Resistor   (B) Inductor   (C) Capacitor   (D) All of these

94. Choke consumes extremely small:

(A) Current   (B) Charge   (C) Power   (D) Potential

95. The slope of q-t curve at any instant of time gives:

(A) Current   **(B)** Voltage   **(C)** Charge   **(D)** Both A and B

96. The A.M transmission frequencies range from:

(A) 540KHZ to 1000KHZ   **(B)** 540KHZ to 1600khZ   **(C)** 520khZ to 1600KHZ   **(D)** 520KHZ to 1400KHZ

97. At high frequency the value of reactance of capacitor in A.C circuit will be:

(A) Small   **(B)** Zero   **(C)** Large   **(D)** Infinite

98. In pure capacitor A.C circuit, the current I and charge q are:

(A) In phase   **(B)** Out of phase   **(C)** Parallel to each other   **(D)** None of above

99. High frequency radio wave is called as:

(A) Fluctuative   **(B)** Carrier wave   **(C)** Matter wave   **(D)** Mechanical wave

100. An inductor may store energy in:

(A) Its magnetic field   **(B)** Its electric field   **(C)** Its coil   **(D)** A neighboring circuit

101. In a pure inductive A.C circuit the current:

(A) Lags behind voltage by 90° **(B)** Leads the voltage by 90° **(C)** In phase with voltage   **(D)** Leads the voltage by 270°

102. The device which allows only the continuous flow of AC through it is:

(A) Capacitor   **(B)** Inductor   **(C)** Battery   **(D)** Thermistor

103. In frequency modulation, which factor is changed?

(A) Amplitude of carrier wave   **(B)** Frequency of carrier wave   **(C)** Amplitude of signal   **(D)** Frequency of signal

104. At what frequency, 1 H inductance offers same impedance as $1\mu F$ capacitance:

(A) 50 Hz   **(B)** 159 Hz   **(C)** 512 Hz   **(D)** v

105.
The resistance between the inverting (-) and Non- inverting (+) inputs is called input resistance and is of the order of:

(A) Ohms   **(B)** Kilo ohms   **(C)** Thousands ohms   **(D)** Mega ohms

106. The inductive reactance of a coil is directly proportional to:

(A) Inductance   **(B)** Resistance   **(C)** Frequency of A.C   **(D)** Both frequency of A.C and inductance

107.

The crystalline structure of NaCl is:

(A) Cubical **(B)** Hexagonal **(C)** Trigonal **(D)** Tetragonal

108. Which one of the following is polymeric solids?

(A) Glass **(B)** Nylon **(C)** Copper **(D)** Zinc

109. The critical temperature of Aluminum is:

(A) 3.72K **(B)** 1.18K **(C)** 7.2K **(D)** 8.2K

110. A single domain in ferromagnetic substance contains nearly:

(A) $10^8 \rightarrow 10^9$ **(B)** $10^{12} \rightarrow 10^{16}$ **(C)** $10^{15} \rightarrow 10^{20}$ **(D)** $10^{12} \rightarrow 10^{20}$

111. The SI unit of stress is same as that of:

(A) Pressure **(B)** Force **(C)** Momentum **(D)** Worked

112.
The substance in which atom cooperates with each other in such a way so as to exhibit a strong magnetic field is called:

(A) Ferromagnetic **(B)** Paramagnetic **(C)** Diamagnetic **(D)** Non-magnetic

113. Insulators have conductivity ranging between:

(A) $10^{-8} to 10^{-4} (\Omega m)^{-1}$ **(B)** $10^{-10} to 10^{-20} (\Omega m)^{-1}$ **(C)** $10^{-4} to 10^{+4} (\Omega m)^{-1}$ **(D)** $10^4 to 10^8 (\Omega m)^{-1}$

114. Young's modulus for water's is:

(A) Zero **(B)** 1 **(C)** 2 **(D)** 3

115. The ability of a body to return to its original shape is called:

(A) Strain **(B)** Stress **(C)** Elasticity **(D)** Plasticity

116. The ratio of adding impurity in a semi-conductor is:

(A) 1 to 10^3 **(B)** 1 to 10^4 **(C)** 1 to 10^5 **(D)** 1 to 10^6

117. Soft magnetic material is:

(A) Iron **(B)** Sodium **(C)** Steel **(D)** Copper

118. Out of the following which material is brittle:

(A) Wrought iron **(B)** Copper **(C)** High carbon steel **(D)** Tungest

119. The truth table shown below is for:

A	B	X
0	0	1
0	1	0
1	0	0
1	1	1

(A) XNOR gate   (B) OR gate   (C) AND gate   (D) NAND gate

120. The potential barriers for germanium at room temperature is:

(A) 0.3 V   (B) 0.5 V   (C) 0.7 V   (D) 0.9 V

121. Transistor was discovered by:

(A) Young   (B) I. Curie   (C) John Bardeen   (D) Shale's

122. When a PN-junction is reverse biased the depletion region is:

(A) Widened   (B) Narrowed   (C) Normal   (D) None of these

123. Transistors are made from:

(A) Plastics   (B) Metals   (C) Insulator   (D) Doped semi-conductors

124. A diode characteristics curve is a plot between:

(A) Current and resistance   (B) Voltage and time   (C) Voltage and current   (D) Current and time

125. The gain of transistor amplifier depends upon:

(A) Resistance connected with collector   (B) Resistance connected with base voltage   (C) Input voltage   (D) Output voltage

126. The gain of Amplifier is given as:

(A) $-\beta \dfrac{R_C}{r_{IC}}$ (B) $\beta \dfrac{r_{IC}}{R_C}$ (C) $\dfrac{-R_2}{R_1}$ (D) $1 + \dfrac{R_2}{R_1}$

127. For rectification we use:

(A) Transformer   (B) Diode   (C) Choke   (D) Generator

128. Pulsating output of full wave rectifier can be made smooth by using circuit called:

(A) Filter   (B) Amplifier   (C) Resistor   (D) Transistor

129. Pulsating output of full wave rectifier can be made smooth by using circuit called:

(A) Filter   (B) Amplifier   (C) Resistor   (D) Transistor

130. LDR becomes necessary when op-amp as a:

(A) Night switch   (B) Inverter   (C) Rectifier   (D) Comparator

131. A light emitting diodes (LED) emits light only when:

(A) Reverse biased   (B) Forward biased   (C) Unbiased   (D) None of these

132. Logic gates can control some physical parameters like:

(A) Temperature, Pressure

(B) Resistance, Inductance

(C) Capacitance, Impedance

(D) Current, Voltage

133. Which diode works at reverse biasing?

(A) LED

(B) Photo-voltaic cell

(C) Photo diode

(D) Silicon diode

134. The Boolean expression of NAND gate is:

(A) $X = A.B$

(B) $X = \bar{A}.B$

(C) $X = A.\bar{B}$

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

135. The term invertor is used for:

(A) NOR gate

(B) NAND gate

(C) XNOR gate

(D) NOT gate

136. The device which are required to convert various physical quantities into electric voltage are called:

(A) Filters

(B) Rectifiers

(C) Amplifiers

(D) Sensors

137. The size of base of transistor is:

(A) 10^{-3} m

(B) 10^{-4} m

(C) 10^{-5} m

(D) 10^2 m

138. All motions are:

(A) Absolute

(B) Uniform

(C) Relative

(D) Variable

139. Who explained the photo electric effect?

(A) Max plank

(B) Einstein

(C) Henry

(D) Rutherford

140. 0.1 kg mass will be equivalent to the energy:

(A) 5×10^8 Joules

(B) 6×10^{19} Joules

(C) 9×10^{16} Joules

(D) 9×10^{15} Joules

141. Number of electrons emitted in photoelectric effect depend upon:

(A) IP intensity of incident light

(B) Frequency of incident light

(C) Energy of incident light

(D) Wavelength of incident of light

142. If an object moves with speed of light, its mass will be:

(A) Zero

(B) Maximum

(C) Infinity

(D) Minimum

143. Compton effect proves:

(A) Wave nature of radiation

(B) Wave nature of particle

(C) Dual natural of particle

(D) Particle nature of radiations

144. A kg mass will be equivalent to energy:

(A) 9×10^8 J   **(B)** 9×10^{12} J   **(C)** 9×10^{16} J   **(D)** 9×10^{19} J

145. Compton's shift in wave length ($\Delta\lambda$) is zero, when scattered angle of photon is:

(A) 90^0 **(B)** 180^0 **(C)** 0^0 **(D)** 45^0

146. The special theory of relativity based on:

(A) One postulate   **(B)** Two postulates   **(C)** Three postulates   **(D)** Four postulates

147. Platinum wire becomes yellow at a temperature of:

(A) 900^0C   **(B)** 1300^0C   **(C)** 1600^0C   **(D)** 500^0C

148. In Compton effect the photon behaves as a:

(A) Wave   **(B)** Particle   **(C)** Nucleon   **(D)** Both A & B

149. At higher energies more than 1.02 Mev the dominant process is:

(A) Photo electric effect   **(B)** Compton effect   **(C)** Pair production   **(D)** Nuclear fission

150. Energy of black body radiation depends upon:

(A) Nature of surface of body   **(B)** Nature of material of body   **(C)** Shape and size of body   **(D)** Temperature of the body

151. The rest mass energy of an electron positron pair is:

(A) 0.51 MeV   **(B)** 1.02 MeV   **(C)** 1.2 MeV   **(D)** 1.00 MeV

152. A positron is an-anti particle of:

(A) Proton   **(B)** Electron   **(C)** Neutron   **(D)** Photon

153. Joule-second is the unit of:

(A) Energy   **(B)** Wien's constant   **(C)** Plank's constant   **(D)** Boyle's law

154. The existence of position is 1928 was predicted by:

(A) Anderson   **(B)** Dirac   **(C)** Chadwick   **(D)** Plank

155. The value of Plant's constant h is:

(A) 6.63×10^{-34} Js   **(B)** 6.63×10^{-34} J/s   **(C)** 6.63×10^{-34} Js^{-2} **(D)** 6.63×10^{-34} J/s^2

156. When the K.Emax of photoelectron is zero, the frequency of incident photon is:

(A) Less than   **(B)** Greater than   **(C)** Much than   **(D)** Equal to

157.
If a particle of mass "m" is moving with speed "v" then de-Broglie wavelength associated with it will be:

(A) $\lambda = \dfrac{3h}{mv}$ (B) $\lambda = \dfrac{2h}{mv}$ (C) $\lambda = \dfrac{h}{mv}$ (D) $\lambda = \dfrac{h}{2mv}$

158. The energy of photon is given by:

(A) $\dfrac{mv^2}{2}$ (B) Hf   (C) $v_o e$ (D) $m_o c^2$

159.
Pair production can take place only when energy of radiation is equal and greater than 1.02 MeV, thus correct option is:

(A) X-rays   (B) Heat Radiation   (C) Y-rays   (D) Ultraviolet rays

160.
Two oppositely charged balls A and B attract the third ball C, when placed near them turn by turn. The third ball C must be:

(A) Positively charged   (B) Negatively charged   (C) Electrically neutral   (D) Positively and negatively charged

161. The energy of the photon of wavelength 500 nm is:

(A) 3.10 eV   (B) 2.49 eV   (C) 1.77 eV   (D) 1.52 eV

162. The energy of the photon of wavelength 500 nm is:

(A) 3.10 eV   (B) 2.49 eV   (C) 1.77 eV   (D) 1.52 eV

163. The unit of Plan's constant is:

(A) Joule   (B) Joule-s   (C) Watt   (D) Candela

164.
Light of 4.5eV is incident on a cesium surface and stopping potential is 0.25V, maximum K.E of emitted electrons is:

(A) 4.5 eV   (B) 4.25 eV   (C) 4.75 eV   (D) 0.25 eV

165.
Assuming you radiate as does a black body at your body temperature about 37^0C then the radiated max wave length in λ m is:

(A) $11.6\,\mu m$ (B) $9.35\,\mu m$ (C) $10\,\mu m$ (D) $10.93\,\mu m$

166. The following gas was identified in the sun using spectroscopy:

(A) Hydrogen   (B) Helium   (C) Carbon   (D) Nitrogen

167. Production of X-rays is the reverse process of:

(A) Compton effect   (B) Pair production   (C) Pair annihilation   (D) Photo electric effect

168.

Ballmer series lies in region of electromagnetic spectrum:

(A) Infrared   **(B)** Visible   **(C)** Ultraviolet   **(D)** Fra infrared

169. Second postulate of Bohr's atomic model is:

(A) $mvr = \dfrac{nh}{2\pi}$ **(B)** $mvr = 2\pi nh$ **(C)** $mv = \dfrac{nhr}{2\pi}$ **(D)** $mv = \dfrac{2\pi}{nh}$

170. For Paschen series, the value of "n" starts from:

(A) 2   **(B)** 4   **(C)** 6   **(D)** 8

171. Production of X-rays is reverse process of:

(A) Photo-electric effect   **(B)** Compton effect   **(C)** Annihilation   **(D)** Pair production

172. First spectral series of hydrogen atom was discovered by:

(A) Lyman   **(B)** Rydberg   **(C)** Balmer   **(D)** Paschen

173. Which is not true for X-rays?

(A) X-rays are not defeated by electric field   **(B)** X-rays are polarized   **(C)** X-rays consist of electromagnetic waves   **(D)** X-rays can be diffracted by grating

174. The rest mass of X-ray photon is:

(A) Infinite   **(B)** $9.1 \times 10^{-31} Kg$ **(C)** $1.67 \times 10^{-27} Kg$ **(D)** Zero

175. The relation for paschen series is given as:

(A) $\dfrac{1}{\lambda} = R_H \left(\dfrac{1}{2^2} - \dfrac{1}{n^2} \right)$ **(B)** $\dfrac{1}{\lambda} = R_H \left(\dfrac{1}{3^2} - \dfrac{1}{n^2} \right)$ **(C)** $\dfrac{1}{\lambda} = R_H \left(\dfrac{1}{4^2} - \dfrac{1}{n^2} \right)$ **(D)** $\dfrac{1}{\lambda} = R_H \left(\dfrac{1}{5^2} - \dfrac{1}{n^2} \right)$

176. In meta stable state electron stays for:

(A) 10^{-3} s or more   **(B)** 10^{-3} s or less   **(C)** 10^{-8} s or more   **(D)** 10^{-8} s or less

177. $k \propto -x$ rays are produces due to transition of electrons from:

(A) K to L shell   **(B)** L to K shell   **(C)** M to K shell   **(D)** M to L shell

178. Life time of meta stable is:

(A) 10^{-5} s   **(B)** 10^{-3} s   **(C)** 10^{-8} s   **(D)** 10^{-2} s

179. Laser is a beam of light which is:

(A) Monochromatic   **(B)** Coherent   **(C)** Unidirectional   **(D)** All of these

180. Radius of first orbit of an atom is $r_1 = 0.053$ nm:

(A) 0.106 nm   **(B)** 0.212 nm   **(C)** 0.053 nm   **(D)** 0.53×10^{-10} nm

181. In Helium Neon laser, the discharge tube is filled with:

(A) 80% He, 20% Neon   (B) 85% He, 15% Neon   (C) 83% He, 17% Neon   (D) 90% He, 10% Neon

182. .... has the largest do-Broglie wavelength at same speed.

(A) Proton   (B) α-particle   (C) Carbon atom   (D) Electron

183. The first orbit in the Hydrogen Atom has a radius:

(A) 5.3×10^{-11} m   (B) 5.3×10^{11} m   (C) 3.5×10^{-11} m   (D) 3.5×10^{11} m

184. The number of protons in any atom are always equal to the number of:

(A) Neutrons   (B) Electrons   (C) Positions   (D) Mesons

185. The number of Neutron in $^{238}_{92}U$ is:

(A) 92   (B) 238   (C) 146   (D) 330

186. The number of isotopes of cesium are:

(A) 4   (B) 32   (C) 22   (D) 36

187. The building energy per nucleon is maximum for:

(A) Helium   (B) Iron   (C) Polonium   (D) Radium

188. The dead time of G.M tube is:

(A) 10^{-3} Sec   (B) 10^{-6} Sec   (C) 10^{-4} Sec   (D) 10^{-8} Sec

189. Number of isotopes of Neon gas are:

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

190. The charge on an alpha particle is equal to:

(A) +e   (B) -e   (C) -2e   (D) 2e

191. When a nucleus emits an alpha particle, its atomic mass decreases by:

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

192. For workers in nuclear facilities, a weekly does of-I normally considered safe:

(A) 1.0 msv   (B) 5.0 msv   (C) 2.0 msv   (D) 3.0 msv

193. The reciprocal of decay construct (λ) of a radioactive element is:

(A) Half life   (B) Mean life   (C) Curie   (D) Total life

194. The reciprocal of decay construct (λ) of a radioactive element is:

(A) Half life   (B) Mean life   (C) Curie   (D) Total life

195. By emitting $\beta - particle$ and $\gamma - particle$ simultaneously the nucleus changes its charges by:

(A) -1   **(B)** +1   **(C)** -2   **(D)** +2

196. $\gamma - rays$ emitted from radioactive element have speed:

(A) 1×10^7 ms^{-1} **(B)** 1×10^{18} ms^{-1} **(C)** 3×10^8 ms^{-1} **(D)** 4×10^{19} ms^{-1}

197. The mass of beta particle is equal to mass of:

(A) Protons   **(B)** Electrons   **(C)** Neutron   **(D)** Boron

198. What is different in isotopes?

(A) Number of pro