12th Physics

Full book solved MCQs

Objective Type

1. Encircle the Correct Option.

1. درست جواب کے گرد دائرہ لگائیں۔

1) The SI unit of magnetic induction is

a) Weber	✔b) Tesla	c) Watt	d) Henry

2) The unit of Compton shift is:

a) Js	✔b) m	c) kg	d) N

3) Curie temperature for iron is

a) 0 K	✔b) 750 K	c) 1023 K	d) 378 K

4) SI unit of impedance is

a) Henry	b) Hertz	c) Ampere	✔d) Ohm

5) The ratio of average induced emf to the rate of change of current in the coil itself is called.

a) Self induction	✔b) Self inductance	c) Mutual induction	d) Mutual inductance

6) Split rings are used in.

a) A.C. generator	b) A.C. motor	c) Transformer	✔d) D.C. motor

7) Inductance of the coil can be increased by using.

a) Paramagnetic core	b) Diamagnetic core	✔c) Ferromagnetic core	d) Antiferromagnetic core

8) Mutual induction between two coils depends upon their

a) Size	b) Shape	c) Separation	✔d) All of these

9) When some dielectric is inserted between the plates of a capacitor then capacitance

a) Decrease	✔b) Increase	c) Remain Constant	d) Infinite

10) Heat generated by a 40 W bulb in one hour is.

a) 140 J	b) 1440 J	c) 14400 J	✔d) 144000 J

11) For a current carrying solenoid the term "n" has units:

a) m	✔b) m^{-1}	c) m^{-2}	d) No unit

12) The maximum kinetic energy of emitted photo electrons depends upon

a) The intensity of incident light	b) Frequency of incident light	c) Metal surface	✔d) Both Frequency of incident light and Metal surface

13) The core of transformer is laminated so reduce.

a) Magnetic loss	✔b) Hysterisis loss	c) Eddy current loss	d) Electric loss

14) Rybberg constant has value.

✔a) $1.0974 \times 10^{7}\ m^{-1}$	b) $6.02 \times 10^{-34}\ m^{-1}$	c) $3 \times 10^{8}\ m^{-1}$	d) $1.6 \times 10^{19}\ m^{-1}$

15) The electric field intensity due to an infinite sheet of charge.

✔a) $\vec{E} = \frac{\sigma}{2\varepsilon_0}\hat{r}$	b) $\vec{E} = \frac{2\sigma}{\varepsilon_0}\hat{r}$	c) $\vec{E} = \frac{1}{2\sigma\varepsilon_0}\hat{r}$	d) $\vec{E} = \frac{\sigma}{\varepsilon_0}\hat{r}$

16) In equation $\varepsilon = -vBL\sin\theta$, θ is the angle between

a) I and B	✔b) v and B	c) v and L	d) L and B

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

✔a) $I \propto \theta$	b) $I \propto \sin\theta$	c) $I \propto \cos\theta$	d) $I \propto \frac{1}{\theta}$

18) The relation " $-\frac{\Delta V}{\Delta r}$ " represents.

a) Electric potential	b) Potential barrier	c) Electric energy	✔d) Potential gradient

19) Kirchhoff's second rule is based on

✔a) Energy conversation	b) Mass conversation	c) Charge conversation	d) Momentum conversation

20) Intensity of field inside a hollow charged sphere will be.

a) Negative	b) Unaffected	✔c) Zero	d) Maximum

21) An inductor of 1 Henry inductance has a reactance 500 ohms , then the frequency required is approximately .

a) 100 Hz	b) 50 Hz	✔c) 80 Hz	d) 120 Hz

22) The force which is responsible for the breaking up of the radioactive element is

✔a) Weak nuclear force	b) Strong nuclear force	c) Electromagnetic force	d) Gravitational force

23) SI Unit of strength of electric field is.

a) J/C	b) C/V	✔c) N/C	d) J/N

24) An AVO meter can also be called as

✔a) Digital multimeter	b) Digital voltmeter	c) Digital ammeter	d) Digital ohm-meter

25) What is the force on a proton placed between two parallel plates containing equal positive charges?

✔a) Zero	b) 2.6×10^{-19} N	c) 9×10^{-19} N	d) 5×10^{-19} N

26) Photodiode can turn its current on and off in:

a) Micro sec	✔b) Nano sec	c) Pico sec	d) Femto sec

27) Capacitance of a capacitor does not depend upon.

a) Distance between plates	b) Area of plates	✔c) Electric field between plates	d) Medium between plates

28) Power factor for a pure inductive circuit is

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

29) Which of the following does not undergo plastic deformation ?

a) Copper	b) Iron	c) Lead	✔d) Glass

30) At resonance the value of current in RLC series circuit is equal to

✔a) $\frac{V_0}{R}$	b) $\frac{1}{2}$	c) V_0R	d) Zero

31) Wave nature of light appears in

a) Pair production	b) Compton effect	c) Speed of wave	✔d) Interference

32) The output resistance of operational amplifier is:

✔a) Few ohms	b) Hundred Ohm	c) Kilo ohm	d) Mega ohm

33) The reactance X_c of a capacitor C when connected across an AC source of frequency " f " is given by

a) $2\pi fC$	✔b) $\frac{1}{2\pi fC}$	c) $\frac{2\pi f}{C}$	d) $\frac{C}{2\pi f}$

34) The binding energy per nucleon is maximum for.

a) Helium	✔b) Iron	c) Polonium	d) Radium

35) The phase difference between current and voltage in an inductive circuit is

a) Zero	✔b) 90^0	c) 180^0	d) 45^0

36) Work done on charged particle moving in uniform magnetic field is

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

37) In three phase voltage across any two lines is about

a) 220 V	b) 230 V	✔c) 400 V	d) 430 V

38) The drum in photo copier is coated with layer of.

a) Aluminium	b) Copper	✔c) Selenium	d) Silver

39) In CRO , the output wave form of time base generator is

a) Circular	b) Square	c) Sinusoidal	✔d) Saw - tooth

40) 100 μF capacitor is connected to an AC voltage of 24 V and frequency 50 Hz . The reactance of the capacitor is

a) 30.8 Ω	✔b) 31.8 Ω	c) 34.8 Ω	d) 40 Ω

41) Two opposite point charges of same magnitude separated by distance 2d, electric potential mid way between them is.

a) 1 V	b) 2 V	✔c) Zero	d) V/2

42) NC−1 is the SI unit of.

a) Force	b) Charge	c) Current	✔d) Electric intensity

43) The diameter of a Hydrogen atom is of order of

a) 10^{-8}m	✔b) 10^{-10}m	c) 10^{-12}m	d) 10^{-14}m

44) Self - induced emf is sometimes called as

a) Motional emf	b) Constant emf	✔c) Back emf	d) Variable emf

45) Application of wave nature of particle is

a) Photodiode	✔b) Electron microscope	c) Compound microscope	d) Photocell

46) Which of the following is similar to electron

✔a) β- particle	b) α-particles	c) Neutrino	d) Photon

47) Capacitance of a capacitor does not depend upon

a) Distance between plates	b) Area of plates	✔c) Electric field between plates	d) Medium between plates

48) Electron volt is the unit of.

a) Potential	b) Electric current	c) Potential difference	✔d) Electric energy

49) The phase difference between the input and output signal of an op-amp as an inverting amplifier is:

a) 0^o	b) 60^o	c) 90^o	✔d) 180^o

50) The condition $hf > 2m_0 C^2$ refers to

a) Compton Effect	✔b) Pair production	c) Photoelectric effect	d) Annihilation of matter

51) Which diode works at reverse biasing?

a) LED	b) Photo-voltaic cell	✔c) Photo diode	d) Silicon diode

52) The force experienced by unit positive charge placed at a point i n an electric field is called

a) Coulomb's force	b) Faraday's force	✔c) Electric field intensity	d) All of these

53) The slope of q-t curve at any instant of time gives

✔a) Current	b) Voltage	c) Charge	d) Both A & B

54) The force between two similar unit charges placed one meter apart in air is.

a) Zero	b) One Newton	✔c) 9×10^9 N	d) 9×10^{-9} N

55) In pure resistive AC circuit the instantaneous values of current and voltage are

✔a) In phase	b) Out of phase	c) Perpendicular to each other	d) May or may not be in phase

56) Mutual inductance of two coils does not depend on.

a) Number of turns of the coils	b) Area of cross-section of coils	✔c) Density of material of coils	d) Nature of the core material

57) The S.I unit of magnetic induction is.

a) Weber	✔b) Tesla	c) Gauss	d) Newton

58) Magnetic flux density is measured in

a) Weber	✔b) Weber / m^2	c) Tesla -m	d) Gauss

59) When a nucleus emits alpha particle its atomic mass decreases by.

a) 1	b) 2	c) 3	✔d) 4

60) Chose the correct answer.

✔a) An elastic deformation is reversible	b) An elastic deformation is irreversible	c) A plastic deformation is reversible	d) An elastic deformation is permanent

61) The existence of Positron in 1928 was predicted by

a) Anderson	✔b) Dirac	c) Chadwick	d) Plank

62) Sec/ohm is equal to.

✔a) Farad	b) Coulomb	c) Joule	d) Ampere

63) Terminal potential difference of a battery of internal resistance r & emf $\mathcal{E}$ *is*

a) $V = \mathcal{E} + lr$	✔b) $V = \mathcal{E} - lr$	c) $V = 2\mathcal{E} - lr$	d) None of these

64) If I_E .I_B and I_C are emitter current , base current and collector current respectively in a transistor then

a) $I_C = I_B.I_E$	b) $I_B = I_E.I_C$	✔c) $I_E = I_B + I_C$	d) $I_C = I_E + I_B$

65) The value of permeability of free space in SI unit is

✔a) $4\pi \times 10^{-7} WbA^{-1}m^{-1}$	b) $4\pi \times 10^{7} WbA^{-1}m^{-1}$	c) $4\pi \times 20^{-7} WbA^{-1}m^{-1}$	d) All of these

66) The current flowing into the base of a transistor is 50 μA. Find its collector current I_C if the value of current gain β is 100

a) 50 A	b) 500 A	✔c) 5 mA	d) 5 μA

67) A metal rod of 2 m is moving at a speed of 1 ms^{-1} in a direction making an angle 30^0 with 0.5 T magnetic field . The emf produced is .

a) 0.1V	✔b) 0.5V	c) 1 V	d) 2 V

68) Holes can exist in:

a) Superconductors	b) Conductors	✔c) Semiconductors	d) Insulators

69) We can find from de Broglie formula

✔a) Wave length	b) Amplitude of wave	c) speed of wave	d) Frequency of wave

70) If electric and magnetic forces on an electron balance each other , the electric intensity will be.

✔a) $E = \frac{mg}{q}$	b) $E = \frac{q}{mg}$	c) $E = \frac{F_e}{q}$	d) $E = \frac{1}{4\pi\varepsilon_0}\frac{q}{r^2}$

71) Electromagnetic Induction obeys Law of Conservation of

a) Charge	✔b) Energy	c) Momentum	d) Mass

72) The total amount of energy radiated per unit orific area of cavity radiator per unit time proportional to

a) T	b) T^2	c) T^3	✔d) T^4

73) Three up quarks combine to form a new particle the charge on this particle is

a) 1 e	✔b) 2 e	c) 3 e	d) 4 e

74) By modern system of NAVSTAR , the speed anywhere on the earth can be determined to accuracy about.

a) 20 ms^{-1}	b) 10 ms^{-1}	✔c) 2 cms^{-1}	d) 2 ms^{-1}

75) Light emitting diodes (LED) are made from semiconductors.

a) Silicon	b) Carbon	c) Germanium	✔d) Gallium arsenide

76) Electro-Encephalon-Graph (EEG) is the diagonstic test for the working of

a) Eye	b) Heart	✔c) Brain	d) Lungs

77) A real transformer does not change.

a) Voltage level	b) Current level	c) Frequency level	✔d) Power level

78) Cathode Ray Oscilloscope works by deflecting beam of

a) Neutrons	✔b) Electrons	c) Protons	d) Positrons

79) Which region is grounded in a common emitter amplifier?

a) Base	✔b) Emitter	c) Collector	d) None of these

80) Potentiometer practically draws current of amount:

✔a) Zero	b) Small	c) Large	d) Infinite

81) If we make magnetic field stronger the value of induced current .

a) Decrease	✔b) Increase	c) Vanishes	d) Remains constant

82) Transistor can be used as:

a) Amplifier	b) Switch	c) Thermistor	✔d) Both a and b

83) Speed of electron in first bohr's orbit is

✔a) 2.19 x 10^6 ms^{-1}	b) 2.19 x 10^{-6} ms^{-1}	c) 2.19 x 10^6 cms^{-1}	d) None of these

84) Good conductor have conductivities of the order of

a) 10^{-7} (Ωm $)^{-1}$	✔b) 10^7 (Ωm $)^{-1}$	c) 10^2 (Ωm $)^{-1}$	d) 10^{-2} (Ωm $)^{-1}$

85) Efficiency of transformer does not affected by.

✔a) Input voltage	b) Cor of transformer	c) Insulation between sheet	d) Resistance of coils

86) Heisenberg received Noble prize in:

a) 1920	b) 1940	c) 1925	✔d) 1932

87) The thermistor convert change of temperature into

a) Heat	b) Light	c) Voltage	d) Energy

88) The direction of field lines around an isolated negative charge -q is

✔a) Radially inward	b) Radially outward	c) Circular	d) All of these

89) Two equal and opposite point charges separated by a distance 2m the electric potential at the midway between them is

✔a) Zero	b) High	c) Low	d) All of these

90) A proton consists of quarks which are.

✔a) Two up , one down	b) One up , two down	c) All up	d) All down

91) The study of electric charges at rest under the action of electric force is known as.

a) Electromagnetism	b) Magnetic Induction	✔c) Electrostatics	d) Electric Field

92) An electron enters the magnetic field at right angle from left, B is into paper. The electron will be deflected

✔a) Upward	b) Inward	c) Towards left	d) Towards right

93) In frequency modulation , which factor is changed.

a) Amplitude of charge carriers	✔b) Frequency of charge carriers	c) Amplitude of signal	d) Frequency of signal

94) The number of types of quark is

✔a) 6	b) 5	c) 4	d) 2

95) $\frac{B^2}{2\mu_\omega}$ is the expression of.

a) Lenz's Law	b) Magnetic energy	✔c) Magnetic energy density	d) Back emf

96) An example of Ferromagnetic substance is:

✔a) Co	b) Al	c) Cu	d) Bi

97) The absolute electric potential at a point distant 20 cm from a charge of 2uC is.

a) 9×10^2 V	b) 9×10^3 V	✔c) 9×10^4 V	d) 9×10^5 V

98) The application of mutual induction is a.

a) D.C motor	b) Radio	c) Television	✔d) Transformer

99) If the coil is wound on iron core, the flux through it.

a) Decreases	b) Becomes zero	c) Remains constant	✔d) Increases

100) Which one is not a crystalline solid?

a) Zinc	b) Copper	✔c) Nylon	d) Zirconia

101) Gamma rays from cobalt – 60 are used for treatment of .

a) Circulation of blood	b) Heart Attack	✔c) Cancer	d) Thyroid glands

102) The SI unit of electric intensity is

✔a) NC^{-1}	b) Tesla	c) N/M	d) Coul / meter

103) The pair production is also called

a) Pair annihilation	✔b) Materialization of energy	c) Fusion reaction	d) Fission reaction

104) Current leads the applied voltage is pure _____ circuit .

a) Resistive	✔b) Capacitive	c) Inductive	d) Deductive

105) The number of electrons emitted depends upon

a) Color of target surface	b) Shape of surface	✔c) Intensity of incident light	d) Frequency of incident light

106) Half life of radium -226 is

a) 1820 Years	b) 1920 Years	✔c) 1620 Years	d) 1680 Years

107) Reciprocal of resistance is called

✔a) Conductance	b) Resistor	c) Conductivity	d) Resistivity

108) If a resistor is traversed in the opposite direction of current then the change in potential is

a) Zero	b) Negative	✔c) Positive	d) Constant

109) Useful device to measure resistance current and voltage is an electronic instrument called

a) Voltmeter	b) Ammeter	c) Ohmmeter	✔d) Digital Multimeter

110) A charge of 1 μC experience a force of 10^{-6} N at a point then the electric intensity at that point is

a) $10^{6}NC^{-1}$	b) $10^{-6}NC^{-1}$	✔c) $1NC^{-1}$	d) NC^{-1}

111) At resonance frequency , the impedance of RLC Parallel Circuit is

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

112) γ rays emitted from radioactivity elements have speed

a) $1 \times 10^{7}\ ms^{-1}$	b) $2 \times 10^{7}\ ms^{-1}$	c) $3 \times 10^{7}\ ms^{-1}$	✔d) $3 \times 10^{8}\ ms^{-1}$

113) Compton's shift in Wave length of ($\Delta\lambda$) is zero when scattered angle of photon is

a) 90^{0}	b) 180^{0}	✔c) 0^{0}	d) 45^{0}

114) The formula for electric field as potential gradient is.

✔a) $E = \frac{-\Delta V}{\Delta r}$	b) $E = \frac{-\Delta V}{\Delta t}$	c) $E = \frac{-\Delta U}{\Delta r}$	d) $E = \frac{-\Delta U}{\Delta t}$

115) The waveform of alternating voltage is a

a) Contangent curve	b) Cosine curve	c) Tangent curve	✔d) Sine curve

116) X-rays diffraction reveals that these are

a) Particle type	✔b) Wave type	c) Both of these	d) None of these

117) If electrons jumps from second orbit to first orbit in hydrogen atom it emits photon of

a) 3.40 eV	✔b) 10.20 eV	c) 13.6 eV	d) 3.8 eV

118) The number of neutron present in a nucleus in a given by.

a) N = A + Z	✔b) N = A − Z	c) N = Z − A	d) N = A × Z

119) By mass spectrograph we can find the value of mass by using formula.

a) $m = \left(\frac{e^2r^2}{2V}\right)B^2$	✔b) $m = \left(\frac{er^2}{2V}\right)B^2$	c) $m = \left(\frac{eV}{2r^2}\right)B$	d) $m = \left(\frac{eV^2}{2r}\right)B$

120) For non-inverting amplifier if $R_1 = \infty$ and $R_2 = 0$ ohm , the gain of non-inverting amplifier is

a) −1	b) Zero	✔c) +1	d) Infinite

121) Radioactivity happens due to disintegration of

✔a) Nucleus	b) Mass	c) Electrons	d) Protons

122) The relation $\varepsilon = -N\frac{\Delta\emptyset}{\Delta t}$ is known as.

a) Ampere's law	✔b) Faradya's law	c) Lenz's law	d) Kickoff's law

123) If V_{rms} are the root mean square value of voltage then peak value of voltage is

✔a) $\sqrt{2}V_{rms}$	b) $2V_{rms}$	c) $\frac{\sqrt{2}}{V_{rms}}$	d) $\frac{V_{rms}}{\sqrt{2}}$

124) In order to increase the range of voltmeter R_H is.

✔a) Increased	b) Decreased	c) Unchanged	d) Increased by 4 times

125) In capacitor

✔a) Current leads voltage by $\frac{\pi}{2}$	b) Current lags voltage by $\frac{\pi}{2}$	c) Current leads the voltage by π	d) Current and voltage are in phase

126) The electrostatic force between two charges is 42 N . If we place a dielectric of $\varepsilon_r = 2.1$ between the charges then the force become equal to.

a) 42 N	b) 88.2 N	✔c) 20 N	d) 2 N

127) Hysteresis loss of the coil can be defined as

✔a) Energy loss	b) Step down process	c) Step up process	d) Electromagnetic induction

128) Lenz's law deals with

a) Magnitude of emf	b) Direction of emf	✔c) Direction of induced current	d) Magnitude of induced current

129) $\sum_{r=1}^{N}(B.\Delta L)_r = \mu_o I$ is the relation for

a) Millikan's law	✔b) Ampere's law	c) Lenz's law	d) Gauss's law

130) The jerks in D.C. motor are created by the use of.

a) Armature	✔b) Commutators	c) Source of emf	d) Slip rings

131) Siemen is the unit of

a) Resistivity	b) Resistance	c) Conductivity	✔d) Conductance

132) A voltmeter is always connected in.

✔a) Parallel	b) Perpendicular	c) Series	d) Straight line

133) A proton consist of quarks which are

✔a) 2 up 1 down	b) 1 up 2 down	c) all up	d) all down

134) Choke consumes extremely small

a) Current	b) Charge	✔c) Power	d) Potential

135) When a charge is projected perpendicular to magnetic field its path

a) Spiral	b) Helix	c) Ellips	✔d) Circular

136) Radiation emitted by human body at normal temperature 37^0 C lies in

a) X-rays region	✔b) Infra red region	c) Visbile region	d) Ultraviolet region

137) The term invertor is used for.

✔a) NOT gate	b) NAND gate	c) XNOR gate	d) NOT gate

138) 1u is equal to

a) 880 Mev	✔b) 931 Mev	c) 980 Mev	d) 8280 Mev

139) The S.I unit of self - inductance or mutual inductance is

a) Maxwell	b) Weber	✔c) Henry	d) Tesla

140) The self inductance of solenoid is.

a) $L = \mu_O nAL$	✔b) $L = \mu_O n^2 AL$	c) $L = \mu_O N^2 AL$	d) $L = \mu_O NAL$

141) What is different in isotopes?

a) Number of protons	b) Number of electrons	✔c) Number of neutrons	d) Charge Number

142) X-Rays have wavelength of the order of

a) 10^{-4} m	b) 10^{-5} m	✔c) 10^{-10} m	d) 10^{-2} m

143) $X = \overline{A + B}$ is the mathematical notation for.

✔a) OR gate	b) NOT gate	c) NAND gate	d) AND gate

144) Electrons vibrating 94,000 times each second will produce radio waves of frequency .

a) 94 Hz	b) 940 Hz	c) 940 KHz	✔d) 94 KHz

145) Which is not a characteristics of laser

✔a) Multi direction	b) Intense	c) Coherent	d) Monochromatic

146) If an electron jumps from nth orbit of energy E_n to pth orbit of energy E_p and a photon of frequency f is emitted then

✔a) $hf=E_n-E_p$	b) $hf=E_P.E_n$	c) $hf=E_P+E_n$	d) None of these

147) When we accelerate the charge , which type of waves are produced.

a) Mechanical waves	b) Travelling waves	c) Stationary waves	✔d) Electromagnetic waves

148) SI unit of magnetic flux is

a) Wb	b) Wb^{-1}	✔c) Wb^{-2}	d) T

149) Due to polarization , electric field E.

a) Increase	✔b) Decreases	c) First increases then decreases	d) Remain same

150) A step up transformer is used 120 V line to provide 240 V . If primary coil has 100 turns the number of turns secondary is.

a) 50	b) 100	c) 150	✔d) 200

151) Laser can be made by creating

a) Meta stable state	b) Population inversion	c) Excited state	✔d) All of these

152) A dot represents the direction of magnetic field.

✔a) Out of page	b) Tangent topage	c) Into the page	d) Parallel to page

153) The current gain β of a transistor is

a) I_C / I_E	b) I_E / I_B	✔c) I_C / I_B	d) I_B / I_C

154) One removing the dielectric from a charged capacitor, its energy.

a) Increases	✔b) Decreases	c) Remain unchanged	d) None of these

155) If the distance between the two charged bodies is halved, the force between them becomes.

a) Double	b) Half	✔c) Four times	d) One fourth

156) In RLC circuits at resonance, the angle between current and voltage is

✔a) 0^o	b) 90^o	c) 180^o	d) 270^o

157) 1 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

158) The SI unit of strain is

a) Nm	b) Nm^{-2}	✔c) No unit	d) $Kgms^{-2}$

159) The galvanometer can be made sensitive by making the factor $\frac{BAN}{C}$.

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

160) The number of terminals in a semiconductor diode are.

✔a) 2	b) 3	c) 4	d) 5

161) A particle having 2e charge falls through a potential difference by 5V energy acquired by it is

a) 2.5 e V	b) 20 e V	c) 0.4 e V	✔d) 10 e V

162) The gradient of the scalar field is always be a.

a) Scalar quantity	b) Variable quantity	✔c) Vector quantity	d) Fixed quantity

163) $\frac{e}{m}$ of an electron is related to

✔a) $\frac{2V}{B^2r^2}$	b) $\frac{B^2r^2}{2V}$	c) $\frac{2Vr^2}{B^2}$	d) $\frac{2VB}{r^2}$

164) When Nitrogen is bombarded with an alpha particle then Nitrogen Nucleus change into Nucleus of

✔a) Oxygen	b) Carbon	c) Helium	d) Neon

165) Magnetic induction is also called:

a) Flux	b) Emf	✔c) Flux density	d) Magnetization

166) Which factor does not affect the conductivity of pn junction diode?

a) Doping	b) Temperature	✔c) Pressure	d) Voltage

167) In colour code of resistance orange colour represents

a) 1	b) 2	✔c) 3

168) A semi conductor will behave as insulator when

a) High P.D is applied across it	b) Pentavalent impurity is added	✔c) Its temperature is 0 K	d) Trivalent impurity is added

169) A battery move a charge of 40 C around a circuit at constant rate in 20 sec. The current will be.

✔a) 2 A	b) 0.5 A	c) 80 A	d) 800 A

170) In photoelectric effect if we increase the frequency of the incident light then of electrons increased

a) Number	✔b) K.E	c) P.E	d) Frequency

171) The CRO is used for

a) Displaying wave form of frequency	b) Displaying wave form of given vibration	c) Converting A.C into D.C	✔d) Displaying wave form of given voltage

172) Nm^{-2} is also called

a) Telsa	b) Weber	✔c) Pascal	d) Gauss

173) Two photons approach each other their relative speed will be

✔a) 2 c	b) 3 c	c) c	d) zero

174) The rest mass energy of an electron positron pair is

✔a) 1.02 MeV	b) 0.21 MeV	c) 0.31 MeV	d) 0.41 MeV

175) The Constant of proportionality "k" depend upon.

a) Nature of medium between two charges	b) The system of units	c) Nature of Bodies	✔d) Nature of medium between two charges and system of units

176) Commutator was invented in.

a) 1736	✔b) 1834	c) 1935	d) 1885

177) The substance in which the atom do not form the magnetic dipoles are called

✔a) Diamagnetic	b) Paramagnetic	c) Ferromagnetic	d) Crystals

178) Kirchhoff's first rule is based on conversation of

a) Energy	b) Voltage	✔c) Charge	d) Mass

179) When current flowing through an inductor is doubled , then energy stored in it becomes.

a) Half	✔b) Four times	c) One fourth	d) Double

180) At what frequency, 1H inductance offers same impedance as 1μF capacitor

a) 50 Hz	✔b) 159 Hz	c) 512 Hz	d) 1590 Hz

181) In order to determine the position of an electron with more accuracy, we must use light of

✔a) Short wavelength	b) Long wavelength	c) Medium wavelength	d) Infinite wavelength

182) Resistance tolerance for gold colour is

a) $\pm$ 50%	b) $\pm$ 30 %	✔c) $\pm$ 5%	d) $\pm$ 20 %

183) The idea for electric field lines was proposed

a) Henry	✔b) Michael Faraday	c) Ampere	d) All of these

184) The numerical value of ground state energy for hydrogen atom in electron volt is

a) 2.51ev	b) - 0.85 ev	c) 3.50 ev	✔d) -13.6 ev

185) Output of D.C. motor is.

a) A.C. energy	b) Chemical energy	✔c) Mechanical energy	d) D.C energy

186) Subatomic particles are divided into groups.

a) Photon	b) Leptons	c) Hadrons	✔d) All of these

187) In an AC circuit with resistor only the current and voltage have a phase difference of

a) 180^0	b) 90^0	✔c) 0^0	d) 60^0

188) High frequency radio wave is called as.

a) Fluctuative	b) Matter wave	✔c) Carrier wave	d) Mechanical wave

189) How many crystal system are there on the base of geomertic arrangements of the atoms

a) 3	b) 5	c) 4	✔d) 7

190) Various types of cancer are treated by

a) Carbon - 14	b) Nickel -63	✔c) Cobalt - 60	d) Strontium -90

191) Hydrogen bomb is an example of.

a) Nuclear fission	b) Chain reaction	✔c) Nuclear fusion	d) Chemical reaction

192) Two charges 1μC and 5μC separated by 20 cm, the ratio of electoral forces acting on them will be.

a) 1:2	b) 1:5	✔c) 1:1	d) 5:1

193) Another unit of electric intensity is

a) V / A	✔b) V / m	c) V / C	d) V / N

194) The radius of 10th orbit in hydrogen atom is

a) 0.053 nm	b) 0.053 m	✔c) 5.3 nm	d) 53 nm

195) The moderator used in a nuclear reactor.

a) Sodium	b) Uranium	c) Graphite	✔d) Cadmium

196) If an electron of charge " e" is accelerated through a potential difference v , it will acquire energy

✔a) Ve	b) V/2	c) E/V	d) Ve^2

197) Binding energy per nucleus is maximum for

✔a) Iron	b) Radium	c) Helium	d) All of these

198) Production of x-rays can be regarded for a photon to create an electron positron pair is

✔a) 1.02 Mev	b) 1.51 Mev	c) 1.22 Mev	d) 1.15 Mev

199) Electric flux through a closed surface does not depend upon

a) Its shape	✔b) Medium	c) Charge	d) None

200) Conductors have conductivities of the order of

a) $10^3(\Omega m)^{-1}$	✔b) $10^7(\Omega m)^{-1}$	c) $10^4(\Omega m)^{-1}$	d) $10^2(\Omega m)^{-1}$

201) Energy density is an inductor is .

a) Directly proportional to magnetic field	✔b) Directly proportional to square of magnetic field	c) Inversely proportional to magnetic field	d) Inversely proportional to square of magnetic field

202) The Boolean expression of Exclusive NOT gate is.

a) X = AB + BA	b) $X = A\bar{B} + \bar{B}A$	c) $X = \overline{A\bar{B} + \bar{B}A}$	✔d) $X = \overline{A\bar{B} + \bar{A}B}$

203) The impedance of R - L series circuit is.

✔a) $Z = \sqrt{R^2 + {X_L}^2}$	b) $Z = \sqrt{R^2 + {X_C}^2}$	c) $Z = \sqrt{R + X_L}$	d) Z = R

204) In current carrying long solenoid the magnetic field produced does not depend upon

✔a) The radius of solenoid	b) Number of turns per unit length	c) Current flowing through solenoid	d) All of the above

205) The resistance of meter cube of a substance is called:

a) Conductivity	b) Resistivity	c) Susceptibility	d) Permittivity

206) Depletion region carries

a) - ve charge	b) + ve charge	c) Ions	✔d) No charge

207) In full wave rectification no of diodes required are equal to

a) 3	✔b) 4	c) 1	d) 2

208) In p-type substances , the minority carries are

✔a) Electrons	b) Protons	c) Holes	d) Neutrons

209) Electromagnetic waves emitted from radio antenna are.

a) Stationary	b) Longitudinal	✔c) Transverse	d) Both A & B

210) Compton shift is equal to Compton wavelength when the scattered x-rays photons are observed at an angle of

a) 30^0	b) 0^0	✔c) 90^0	d) 60^0

211) The half life of radon gas is

a) 3.8 hours	b) 3.8 minutes	✔c) 3.8 days	d) All of these

212) Hydrogen bomb is an example of

a) Nuclear fission	✔b) Nuclear fusion	c) Chain reaction	d) Chemical reaction

213) Maximum motional emf in a conductor is given by VBL. At which angle the conductor moves in magnetic field such that emf in it becomes half then its maximum value is.

a) 0	✔b) 30	c) 45	d) 60

214) Electrons vibrating 94,000 times each second will produce radio waves of frequency.

a) 94 Hz	b) 940 Hz	c) 940 kHz	✔d) 94 kHz

215) The electrons volt is the unit of

a) Electric current	✔b) Electric energy	c) Potential	d) Potential difference

216) A charged particle enters in a strong magnetic field its K.E.

✔a) Remain constant	b) Increases	c) Decreases	d) Increases then decreases

217) A positron is a particle having.

a) Mass equal to electron	b) Charge equal to electron	c) Mass equal to proton	✔d) Mass equal to mass of electron but charge opposite to charge of electron

218) Thyroid cancer is cured by.

✔a) Iodine-131	b) Cesium-137	c) Sodium-24	d) Carbon-14

219) In Millikan's method each drop has the charge of

a) Same Value	b) Half integral multiple of a value	✔c) Integral multiple of a value	d) Zero value

220) 1 kg mass will be equivalent to the energy of:

a) 9×10^8 J	b) 9×10^6 J	c) 9×10^2 J	✔d) 9×10^{16} J

221) The motional emf is given by

a) qvB	b) IBL	c) eBL	✔d) vBL

222) Automatic functioning of street light can be done by the use of

a) Inductor	b) Capacitor	c) Emf	✔d) Comparator

223) In Millikan's oil drop experiment a charged particle of mass m is in equilibrium in an applied electric field $\vec{E}$. If the direction of electric field is reversed then acceleration of the particle will be

a) Zero	b) g	c) g/2	✔d) 2g

224) The charge on electron was measured by R.A. Millikan in

a) 1900	✔b) 1909	c) 1913	d) 1920

225) If an inductor has N turns of a coil and is magnetic flux through its each turn when current I is following , then its self-inductance is given by L.

a) $\frac{I}{N\emptyset}$	✔b) $\frac{N\emptyset}{I}$	c) $\frac{NI}{\emptyset}$	d) $\frac{\emptyset}{NI}$

226) A particle of charge 2 e falls through a potential difference of 3.0 V will have energy.

a) 1.5 eV	✔b) 0.66 eV	c) 6 eV	d) 12 eV

227) For computation of electric flux the surface area should be

a) Parallel	b) Curved	✔c) Flat	d) All of these

228) For a nucleus Δx is given as 1.0×10^{-14} m If the electron remain inside the nucleus then its vibrational velocity should be

a) Less than the speed of light	b) Equal than the speed of light	✔c) Greater than the speed of light	d) Double than the speed of light

229) Number of isotopes of Neon gas are.

a) 2	✔b) 3	c) 4	d) 1

230) The specially designed solid state detector can be used to detect

a) Alpha rays	b) Beta rays	✔c) Gamma rays only	d) X- rays only

231) Two parallel wires carrying currents in the opposite direction.

✔a) Repel each other	b) Attract each other	c) Have no effect upon each other	d) They cancel out their individual magnetic fields

232) For the normal operation of transistor, the emitter base junction is always:

✔a) Forward biased	b) Reverse biased	c) Unbiased	d) Open

233) When a silicon crystal is doped with a pentavalent element , it becomes

a) P- types semiconductor	✔b) n- types semiconductor	c) Intrinsic semiconductor	d) Extrinsic semiconductor

234) By emitting β particle and γ particle simultaneously the charge number of the nucleus

a) Losses by 1	b) Losses by 2	✔c) Increases by 1	d) Increases by 2

235) If an object moves with speed of light, its mass will be.

a) Zero	b) Maximum	✔c) Infinity	d) Minimum

236) The operation of complementation is performed by.

a) AND Gate	b) OR Gate	c) XOR Gate	✔d) NOT Gate

237) The physical quantity related to photon that does not change in Compton effect is:

a) Energy	b) Frequency	c) Wavelength	✔d) Speed

238) When a motor is over loaded then the magnitude of back emf.

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

239) Force on a moving charge in a uniform magnetic field will be maximum when the angle is

a) 0^0	b) 30^0	c) 60^0	✔d) 90^0

240) The phase angle of a series RLC circuit at resonant frequency is.

✔a) Zero	b) π	c) $\frac{\pi}{2}$	d) $\frac{\pi}{4}$

241) SI unit of potential barrier is

a) Ampere	✔b) Volt	c) Coulomb	d) No unit

242) Dr. Abdul Islam unified electromagnetic force and

a) Weak nuclear force	✔b) Strong nuclear force	c) Magnetic force	d) Gravitational

243) If potential difference across the two plates of a parallel plate capacitor is doubled then the energy stored in it will be

a) Doubled	b) Halved	✔c) 4 times	d) Constant

244) In lamp scale arrangement , the distance between scale and galvanometer is.

a) 3 m	b) 2 m	✔c) 1 m	d) 0.5 m

245) The induced emf lasts so long as the magnetic flux is

a) Constant	✔b) Changing	c) Zero	d) Infinite

246) Current can be induced in a coil by changing the area of the coil in:

✔a) Magnetic field	b) Electric field	c) Gravitational field	d) Nuclear field

247) A simple device that prevents the direction of current fro changing is called.

✔a) Commutator	b) Rotor	c) Armature	d) Detector

248) If I_{rms} = 10 A then I will be equal to

✔a) 14.2 A	b) 1.42 A	c) 142 A	d) 0.142 A

249) Thermistor are of.....types

✔a) 2	b) 3	c) 4	d) 5

250) Reactance of inductor is very high when there is

✔a) High frequency current	b) Low frequency current	c) High frequency inductor	d) Low frequency inductor

251) When ohm meter gives full scale deflection it indicates.

✔a) Zero resistance	b) Small resistance	c) Infinite resistance	d) Very high resistance

252) The highest value reached by the voltage or current in one cycle is called

a) Peak to peak value	b) Instantaneous value	✔c) Peak value	d) Root mean square value

253) Circulation of blood can be studied by using radioactive isotope.

a) Cobalt-60	✔b) Sodium-24	c) Phosphours-32	d) Iodine-131

254) If the following particles have the same energy, which particle has the shortest wave length?

a) β-particle	b) α-particle	✔c) Neutron	d) Proton

255) The photo copying process is called.

a) Photography	✔b) Xerography	c) Scanning	d) Holography

256) To shutdown the nuclear reactor these rods are inserted into the reactor

a) Uranium	✔b) Cadmium	c) Plotonium	d) Iron

257) A positively charged particle of certain mass may be held suspended in electrical field of suitable strength if the field is directed

a) Outward	b) In ward	✔c) Upward	d) Downward

258) If the separation between the plates of a capacitor is doubled then its capacitance becomes

a) Double	✔b) Half	c) One fourth	d) Three times

259) Potential difference across two terminals of silicon diode at 300 k is

a) 0.3 V	✔b) 0.7 V	c) 0.9 V	d) 1.2 V

260) In spectrum of hydrogen, bracket series lies in.

a) Ultraviolet region	✔b) Infrared region	c) Visible region	d) X-rays region

261) In a half wave rectifier the diode conducts during

a) Both halves of input cycle	b) A portion of positive half of input cycle	c) A portion of negative half of input cycle	✔d) One half of the input cycle

262) A.C generator based upon the.

a) Lenz's Law	b) Maxwell's relation	✔c) Faradays Law of electromagnetic induction	d) Mutual induction

263) Electric lines of forces are parallel and equally spaced then electric field is

a) Weak	b) Strong	c) Non uniform	✔d) Uniform

264) The current flowing through each resistor of equal resistance is parallel combination is.

a) Same	✔b) Different	c) Zero	d) Infinite

265) The maximum safe limit weekly dose for persons working in a nuclear reactor is

✔a) 1 mSv	b) 2 mSv	c) 3 mSv	d) 4 mSv

266) SI unit of current gain is

a) Coulomb	b) Ampere	c) Second	✔d) No unit

267) The phase angle at +ve positive peak is

✔a) $\frac{\pi}{2}$	b) π	c) $\frac{3\pi}{2}$	d) 2π

268) In AC wave form , negative peak is obtained at the phase angle of

a) 90^0	b) 120^0	✔c) 270^0	d) 360^0

269) The device used for rectification is called

✔a) Rectifier	b) Transformer	c) Thermistor	d) Wheat stone bridge

270) The unit of electric charges is

a) Volt	b) Henry	✔c) Coulomb	d) Weber

271) For workers is nuclear facilities , a weekly does of -is normally considered safe.

✔a) 1.0 msv	b) 5.0 msv	c) 2.0 msv	d) 3.0 msv

272) Half life of the iodine -131 is 8 days and its weight 20 mg. After 4 half lives the amount life undecayed called

a) 2.5 mg	✔b) 1.25 mg	c) 0.625 mg	d) All of these

273) Which component of the transistor has greater concentration of impurity?

a) Base	✔b) Emitter	c) Collector	d) All of these

274) α - particle carries a charge.

a) -e	b) +e	✔c) +2e	d) -2e

275) Voltage gain of the transistor as an amplifier is negative because of

a) Input voltage is amplified	b) Out put voltage is amplified	✔c) Phase shift of 180^0	d) Phase shift of 0^0

276) Commentator was invented by.

a) Henry	b) Ousted	c) Maxwell	✔d) William sturgeon

277) Direction of torque on a current carrying coil depends upon the direction of:

a) Current	b) Magnetic field	c) Area	✔d) Both a and b

278) Which is the most refined form of matter?

a) Smoke	b) Fog	✔c) Light	d) Electron

279) A device which converts electrical energy into mechanical energy is called.

a) Transformer	b) A.C.generator	✔c) D.C. motor	d) D.C. generator

280) Equation $\phi = \vec{E} \cdot \vec{A}$ is applicable to surface.

a) Spherical	b) Cylindrical	c) Conical	✔d) Flat

281) The maximum value of emf induced in armature of N turns and area A rotating in magnetic field B with frequency " f " is given by :

✔a) $2\pi fN\ AB$	b) $2\pi fN^2\ AB$	c) $4\pi f^2 N\ AB$	d) $Nf\ AB$

282) If the frequency of AC supplied is halved then the capacitive reactance becomes

a) Half	✔b) Double	c) Four times	d) One fourth

283) At low temperature a body usually emits radiation of

✔a) Long wavelength	b) Short wavelength	c) Infinite wavelength	d) None of these

284) Energy radiated per second per square meter of black body radiations is proportional to

a) T^2	b) T^3	✔c) T^4	d) T^5

285) Which one experiment is the verification of wave nature of particle?

a) Compton effect	✔b) Davisson Germer experiment	c) Pair production	d) Photoelectric effect

286) Energy stored in the inductor is .

a) $\frac{1}{2} L^2 I$	b) $\frac{1}{2} LI$	✔c) $\frac{1}{2} LI^2$	d) $\frac{1}{2} L^2 I^2$

287) $X = \overline{A.B}$ is mathematical notation for.

✔a) NAND gate	b) NOR gate	c) OR gate	d) AND gate

288) If time constant in RC series circuit is small, then capacitor is charged or discharged.

a) Slowly	✔b) Rapidly	c) At constant rate	d) Intermittently

289) At resonance frequency the power factor of RLC parallel circuit is

✔a) 1	b) 2	c) 3

290) Earth orbital speed is.

a) 10 km/s	b) 20 km/s	✔c) 30 km/s	d) 40 km/s

291) Curie is large unit which equals to disintegration per second

a) 3.7×10^{10}	b) 3×10^{8}	c) 4.7×10^{10}	d) 5.7×10^{10}

292) High resistance in voltmeter is given by.

a) $\frac{I_g R_g}{I - I_g}$	b) $\frac{I - I_o}{I_g} R_g$	✔c) $\frac{V}{I_g} - R_g$	d) $I_g - \frac{R_g}{V}$

293) Which one is lower energy photon?

a) Visible light	✔b) Infrared light	c) Ultraviolet light	d) X-rays

294) How many times, the α - particle is more massive than electrons?

a) 6332	✔b) 7332	c) 8332	d) 9332

295) Which of the following belong to hadrons group

✔a) Proton	b) Electron	c) Muons	d) All of these

296) If the distance between two point charges is halved, the electric intensity becomes.

a) Half	b) Double	✔c) 4 times	d) $\frac{1}{4}$ time

297) Gain of operational amplifier is independent of

✔a) Internal structure	b) External structure	c) Batteries	d) Potential changes

298) 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) Uncharged	✔d) Electrically charged

299) At higher energies more than 1.02 Mev the dominant process is

a) Photoelectron effect	b) Compton Effect	✔c) Pair production	d) Nuclear fission

300) Which one of the following can be taken as measure of electric field intensity

a) $\frac{F}{A}$	✔b) $\frac{\emptyset_e}{A}$	c) $\frac{A_q}{A}$	d) None of these

301) If the conductivity of the material is high , then it is

a) An insulator	b) A semi conductor	✔c) A good conductor	d) A super conductor

302) In R-L-C circuit , the energy is dissipated in

✔a) R only	b) R and L	c) R and C	d) R , L and C

303) The devices in the circuit that consume electrical energy are known as

a) Dissipaters	b) Generators	✔c) Load	d) Motors

304) The winding of the electromagnet in motor are usually called.

a) Magnetic coils	b) Electric coils	✔c) Field coils	d) Electric -o-electric coils

305) Which one is a better shield against gamma rays

a) Wood	✔b) Lead	c) Water	d) All of these

306) Find the gain of inverting amplifier of external resistance R_1 = 10 KΩ and

a) -5	✔b) -10	c) -2	d) 50

307) Lenz's law is a consequence of the law of conservation of

a) Charge	b) Current	✔c) Energy	d) Momentum

308) The background radiation to which we are exposed, on the average is.

a) 1 mSv per year	✔b) 2 mSv per year	c) 3 mSv per year	d) 4 mSv per year

309) The sensitivity of galvanometer is given by

a) $\frac{CAN}{B}$	✔b) $\frac{C}{BAN}$	c) $\frac{BAN}{C}$	d) $\frac{BN}{CA}$

310) Both Xenom and cesium have.

a) 33 isotopes	b) 34 isotopes	✔c) 36 isotopes	d) 35 isotopes

311) Energy liberated when one atom of 235_{92} U under goes fission reaction

a) 24 Mev	b) 204 Mev	✔c) 200 Mev	d) 240 Mev

312) In RLC series resonance circuit , at resonance frequency , impedance " Z " is

✔a) R	b) X_L	c) $\sqrt{R^2 + {X_L}^2}$	d) $\sqrt{R^2 + {X_C}^2}$

313) A parallel plate capacitor with oil between the plate ($\varepsilon_0 = 2$) has a capacitance C . If the oil is removed then capacitance of capacitor becomes.

a) C	✔b) $\frac{C}{2}$	c) $\frac{C}{\sqrt{2}}$	d) $\sqrt{2C}$

314) Which one of the following instrument can measure an unknown resistance with sufficient accuracy?

a) Potentiometer	b) Rheostat	✔c) Slide wire bridge	d) Galvanometer

315) Pair production can take place with:

a) X-rays	✔b) Gamma rays	c) Heat radiations	d) Ultraviolet rays

316) When dielectric is placed between the plates of capacitor the value of E between the plates

a) Increase	✔b) Decrease	c) Becomes Zero	d) Remain constant

317) Energy stored per unit volume inside a solenoid is called

a) Electric flux	✔b) Energy density	c) Work	d) Power

318) The heart of a photo copy machine is a drum which is made of.

a) Copper	✔b) Aluminum	c) Nickel	d) Cobalt

319) The motional emf in a conductor depends upon the.

a) Length	b) Orientation	c) Magnetic field	✔d) All of the above

320) Then maximum value of flux is obtained if angle between $\vec{E}$ and $\vec{A}$ is

a) 90^0	b) 80^0	c) 180^0	✔d) 0^0

321) When back emf in motor is zero , it draws.

a) Zero current	b) Minimum current	✔c) Maximum current	d) Steady current

322) What does laser stand for? Give some of its characteristics.

✔a) 10^{-10}m	b) 10^{-8}m	c) 10^{-3}m	d) 10^{-12}m

323) The mass of beta particle is equal to mass of

✔a) Electron	b) Proton	c) Neutron	d) Meson

324) The energy of X-rays depends upon:

a) Accelerating potential	b) Target material	c) Magnetic field	✔d) Both a and b

325) A charged conductor has charge on its.

a) Inner-surface	b) Middle-surface	✔c) Outer-surface	d) Surrounding space

326) Semi conductor resistivity ranges _____ $(\Omega m)^{-1}$

✔a) 10^{-6} to 10^{-4}	b) 10^{6} to 10^{4}	c) 10^{-6} to 10^{-8}	d) 10^{-8} to 10^{-16}

327) Energy density is:

✔a) Energy/volume	b) Energy/time	c) Energy/mass	d) Energy/area

328) If a resistor of resistance R is connected across a battery of internal resistance r then output power will be maximum when

✔a) R = r	b) R =2r	c) R = 4r	d) R = 6r

329) The open loop gain of an operational amplifier is of the order of

a) 10^8	✔b) 10^5	c) 10^2	d) 10^{-3}

330) 1 tesla is equal to

a) $N^{-1}mA^{-1}$	✔b) $Nm^{-1}A^{-1}$	c) $Nm^{-2}A^{-1}$	d) $N^{-1}mA$

331) Reverse current of diode is also known as:

a) Negative Current	b) Conventional current	c) Electronic current	✔d) Leakage current

332) The amount of energy required to eject an electron from metal surface is called

a) Threshold frequency	✔b) Work function	c) Pair production	d) Compton Effect

333) Formula for energy density for an inductor is

✔a) $\frac{B^2}{2\mu_0}$	b) $\frac{1}{2}\varepsilon_0 E^2$	c) $\frac{1}{2}CV^2$	d) $\frac{1}{2}LI^2$

334) Unit of emf is same as that of

✔a) Potential difference	b) Energy	c) Force	d) Work

335) The longest wavelength of Paschen series is.

a) 656 nm	b) 1094 nm	✔c) 1875 nm	d) 2000 nm

336) _____ is correct relation.

✔a) $1T = 10^4$ G	b) $1T = 10^{-4}$ G	c) $1T = 10^{-2}$ G	d) $1T = 10^2$ G

337) A Particle is made up of two up quarks and one down quark is

✔a) Proton	b) Neutron	c) Boson	d) Lepton

338) The Rest Mass of X-rays photon is

a) 9.1×10^{-31}kg	b) 1.66×10^{-27} kg	c) 1.6×10^{-19} kg	✔d) Zero

339) The most suitable metal for making permanent magnet is

✔a) Steel	b) Iron	c) Copper	d) Aluminum

340) In helium-neon laser, red laser light has energy:

a) 3.10 eV	b) 2.10 eV	✔c) 1.96 eV	d) 1.10 eV

341) The reverse current in a p-n junction flows due to

a) Majority charge carriers	✔b) Minority charge carriers	c) Both A & B	d) None of these

342) The bombardment of nitrogen with α - particle will produce.

a) Neutron	✔b) Proton	c) Electron	d) Positron

343) When platinum wire is heated it appears cherry red at temperature

✔a) 900^o C	b) 1100^o C	c) 1200^o C	d) 1300^o C

344) While applying KVL if a source of emf is traversed from position to negative terminal, the potential change is

a) Positive	✔b) Negative	c) Zero	d) Constant

345) The S.I unit of $\vec{E}$ is NC^{-1} and that of $\vec{B}$ is $NA^{-1}m^{-1}$ then the unit of E/B is.

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

346) The emf induced in 1 mH inductance in which current changes form 5A to 3A in 1ms is.

✔a) 2 V	b) 8 V	c) 2×10^{-6} V	d) 2×10^6 V

347) The current in a coil changes form 0 to 2 A in 0.05 s . If the induced emf is 80 V , the self inductance of the coil is.

a) 1 H	b) 0.5 H	c) 1.5 H	✔d) 2 H

348) In photovoltaic cell current is directly proportional to:

a) Wavelength of light	b) Frequency of light	✔c) Intensity of light	d) Energy of light

349) Which one of the following particle moving in the magnetic field cannot be deflected

a) Electron	✔b) Neutron	c) Both A and B	d) None of these

350) The increase in the capacitance of a capacitor is due to:

✔a) Electric polarization	b) Electrolysis	c) Electrification	d) Electric field

351) The only difference between the construction of DC and AC is.

a) Carbon bushes	b) Coil	✔c) Commutator	d) Magnetic field

352) The colour of light emitted by a LED depends on

a) Its forward biasing	b) The amount of forward current	✔c) The type of semi conductor material use	d) Its reverse biasing

353) Torque is produced in a current carrying coil when it is placed in a

✔a) Magnetic field	b) Electric field	c) Gravitational field	d) Nuclear field

354) Laser can only be produced if an atom is in its:

a) Ionized state	✔b) Excited state	c) Ground state	d) Normal state

355) At resonance , the behavior of R-L-C series circuit.

✔a) Resistive	b) Inductive	c) Capacitive	d) Modulative

356) The principle regarding the dual nature of light was first discovered by

✔a) De-Broglie	b) J.J Thomson	c) Campton	d) Heisenberg

357) The surface temperature of sun is about.

a) 9000^0 C	b) 8000^0 C	c) 7000^0 C	✔d) 6000^0 C

358) The sum of positive and negative peak values are usually written as

✔a) P-P value	b) rms values	c) Cycle values	d) p-n values

359) Power output is given by

✔a) $\frac{E^2R}{(R+r)^2}$	b) $\frac{E^2R}{(R+r)(R+r)^2}$	c) I^2R	d) All of these

360) The opposition offered by a capacitor to the flow of an A.C is called

a) Capacitance	b) Resistance	✔c) Reactance	d) Inductance

361) The A.M transmission frequencies range from.

a) 540 kHz to 1000 kHz	b) 520 kHz to 1600 kHz	✔c) 540 kHz to 1600 kHz	d) 520 kHz to 1400 kHz

362) First spectral series of hydrogen atom was discovered by.

a) Lyman	b) Rydberg	✔c) Balmer	d) Paschen

363) The device which are required to convert various physical quantities into electric voltage are called.

a) Filters	b) Rectifiers	c) Amplifiers	✔d) Sensors

364) Disintegration of photon on striking a nucleus into an electron and positron is

a) Annihilation of matter	b) Compton effect	✔c) Pair production	d) Photon electric effect

365) 1 joule =

✔a) 6.25×10^{18} e V	b) 6.30×10^{18} e V	c) 7.25×10^{18} e V	d) 9.1×10^{18} e V

366) The amount of energy is equal to 1.6×10^{-19} J is called

a) Electron energy	b) Electric potential	✔c) Electron volt	d) Electric force

367) A device used for detection of current is called.

a) Inductor	b) Voltmeter	c) Capacitor	✔d) Galvanometer

368) Half life and decay constant are related as.

a) $T_{\frac{1}{2}} = \lambda(0.693)$	b) $\lambda = T_{\frac{1}{2}}(0.693)$	✔c) $T_{\frac{1}{2}} = \frac{0.693}{\lambda}$	d) $T_{\frac{1}{2}} = \frac{\lambda}{0.693}$

369) The electrostatic force of repulsion between two electrons at a distance 1 m is.

a) 2.3×10^{-24} N	✔b) 2.3×10^{-28} N	c) 2.3×10^{-26} N	d) 2.3×10^{-30} N

370) The quantity of reverse current is of the order of:

a) 10^{-3} A	b) 10^{-4} A	✔c) 10^{-6} A	d) 10^{2} A

371) Laser light has the property of

a) Normal waves	b) Non Coherent waves	c) Ionized waves	d) Coherent waves

372) Process of converting alternative current into direct current is called

a) Polarization	b) Modulation	✔c) Rectification	d) Amplification

373) Gain of an inverting amplifier is given by:

✔a) $G = -R_2/R_1$	b) $G = -R_1/R_2$	c) $G = 1 + R_2/R_1$	d) $G = 1 - R_2/R_1$

374) The brightness of the spot on CRO screen is controlled by

a) Cathode	b) Anode	✔c) Grid	d) Plato

375) The number of protons in any atom are always equal to the number of.

a) Neutrons	✔b) Electrons	c) Positrons	d) Mesons

376) In the equation $E=\sigma T^4$ the σ is called

a) Plank's constant	✔b) Stephen's constant	c) Stephen's Boltzmann's constant	d) Boltzmann's constant

377) The field inside a solenoid is given by

✔a) $\mu_o n$ I	b) $2\mu_o n$ I	c) $3\mu_o n$I	d) All of these

378) Metal detector consists of.

✔a) L – C circuit	b) R – C circuit	c) R – L circuit	d) RLC series circuit

379) Half life of U-238 is.

a) 2.5×10^9 years	✔b) 4.5×10^9 years	c) 3.5×10^9 years	d) 5.5×10^9 years

380) In LC series circuit the phase angle between X_L and X_C is

a) $tan^{-1}\frac{\omega L}{R}$	b) $tan^{-1}\frac{\omega}{RL}$	c) $tan^{-1}\frac{\omega C}{R}$	✔d) $\pi\ rad$

381) The SI unit of resistivity is

a) ohm $-m^{-1}$	b) ohm$-m^0$	✔c) ohm$-m^1$	d) All of these

382) The relation between terminal potential difference V_t of a battery of internal resistance r and emf E is

a) $V_t = E + Ir$	✔b) $V_t = E - Ir$	c) $V_t = E/Ir$	d) $V_t = E - I/r$

383) Magnetic force on a moving charged particle is perpendicular to the

a) Magnetic field	b) Electric field	c) Velocity of the particle	✔d) Both a and c

384) Two down and one up quarks make.

✔a) Proton	b) Neutron	c) Photon	d) Positron

385) The power dissipation in AC circuit is expressed as

✔a) $P = I_{rms} \times V_{rms} \cos\theta$	b) $P = I \times V \cos 2\theta$	c) $P = I_{rms} \times V_{rms} \sin\theta$	d) $P = I \times V \sin 2\theta$

386) When electron combines with a positron we gain

a) One photon	b) Three photon	✔c) Two photon	d) Four photon

387) The potential difference between the heat and tail of an electric eel to.

✔a) 600 volt	b) 700 volt	c) 800 volt	d) 900 volt

388) Absolute potential difference due to point charge of 1C at a distance of 1m is given by

a) 9×10^6 volts	b) 9×10^7 v	c) 9×10^8 v	✔d) 9×10^9 v

389) Photoelectric current depends on

✔a) Intensity of light	b) Frequency of light	c) Speed of light	d) Polarization of light

390) Operational amplifier can be used as:

a) Night switch	b) Comparator	c) Amplifier	✔d) All of the above

391) The current always leads the voltage in an

✔a) RC circuit	b) RL circuit	c) RLC series circuit	d) RLC parallel circuit

392) Compton effect observed with

✔a) x-rays	b) Visible light	c) Radio waves	d) All of these

393) The particles which do not experience strong force are called.

a) Baryons	b) Hadrons	c) Mesons	✔d) Leptons

394) SI unit of relative permittivity is.

a) $Nm^{-2}C^{-1}$	b) $\frac{C^{-2}}{Nm^2}$	c) $\frac{C^2}{Nm^2}$	✔d) None of these

395) In p type material minority charge carries are

✔a) Free electrons	b) Holes	c) Protons	d) Mesons

396) Which one of the following relation is correct?

a) Joule = volt × ampere	b) Joule = volt / ampere	c) Joule = coulomb/volt	✔d) Joule = coulomb × volt

397) 0.1 Kg mass will be equivalent to energy

a) 5×10^8 J	b) 9×10^8 J	c) 8×10^8 J	✔d) 9×10^{16} J

398) LED are made from semiconductor:

a) Silicon	b) Germanium	c) Carbon	✔d) Gallium arsenide

399) The amount of energy stored in the wire when it is deformed

a) $W = \frac{1}{2}F_1 {l_1}^2$	b) $W = \frac{1}{2}{F_1}^2 l_1$	✔c) $W = \frac{1}{2}F_1 l_1$	d) $W = 2F_1 l_1$

400) If electric and gravitational forces on an electron placed in a uniform electric field balance each other, then the electric field intensity will be:

✔a) mg/q	b) qg/m	c) m/qg	d) q/mg

401) The term "voltage" has the same units as.

a) Time	b) Current	✔c) Electromotive	d) Magnetic flux

402) Unit of electric intensity of electric field is

a) JC^{-1}	✔b) JV^{-1}	c) Jm^{-3}	d) JI^{-3}

403) Wheatstone bridge is used to determine

a) Current	✔b) Resistance	c) Voltage	d) Field

404) When the temperature of a conductor is raised, its resistance:

a) Always decrease	✔b) Always increase	c) Remains the same	d) First increase then decrease

405) ...has the largest de Broglie wave length at same speed

a) Proton	b) Alpha particle	c) Gamma particle	✔d) Electron

406) The building blocks of protons and neutrons are called.

a) Ions	b) Electrons	c) Positons	✔d) Quarks

407) If F_1 and F_2 are forces acting on α-particle and electron respectively when moving perpendicular to the magnetic field then

a) $F_1 = F_2$	✔b) $F_1 > F_2$	c) $F_1 < F_2$	d) All of these

408) A particle carrying a charge of 2e falls through a potential difference of 3V. The energy acquired by it is.

a) 9.6×10^{-18} J	b) 1.6×10^{-19} J	✔c) 9.6×10^{-19} J	d) 9.6×10^{-17} J

409) The special theory of relativity based on.

a) One postulate	✔b) Two postulates	c) Three postulate	d) Four postulates

410) In Helium Neon laser the discharge tube is filled with

a) 8 % He, 20 % Neon	✔b) 85 % He, 15 % Neon	c) 83 % He, 17% Neon	d) 80 % He, 10 % Neon

411) Thermistor is a heat sensitive

a) Inductor	b) Capacitor	✔c) Resistor	d) Diode

412) The shortest wavelength in Lyman series is equal.

a) R_H	b) $\frac{R_H}{2}$	✔c) $\frac{1}{R_H}$	d) $\frac{2}{3}R_H$

413) When we are using op-amp as comparator and $V_- > V_+$ then:

a) $V_o = +V_{CC}$	✔b) $V_o = -V_{CC}$	c) $V_o > -V_{CC}$	d) $V_o < -V_{CC}$

414) Direct current cannot flow through

a) Inductor	b) Resistor	c) Transistor	✔d) Capacitor

415) With the speed of motor , magnitude of back emf.

a) Remain same	✔b) Increases	c) Decreases	d) First increases then decreases

416) If the coil is wound on an iron core the magnetic flux through it will

a) Zero	✔b) Increases	c) Decreases	d) Remain constant

417) The resistance of a conductor does not depend on its:

a) Length	b) Area	c) Resistivity	✔d) Mass

418) The energy stored in the capacitor is :

a) Magnetic energy	✔b) Electrical energy	c) Gravitational energy	d) Mechanical energy

419) The color of strips on a a carbon resistor from extreme left is yellow black and red respectively its resistance is

✔a) 4 kΩ	b) 5 kΩ	c) 6 kΩ	d) 7 kΩ

420) In CRO when cathode is heated by a filament, it emits

a) Neutrons	b) Radiations	✔c) Electrons	d) Radiations

421) The power factor of an AC circuit is given by

✔a) cosθ	b) sinθ	c) tanθ	d) θ

422) Mutual induction play role in.

a) Generator	b) Galvanometer	c) D.C motor	✔d) Transformer

423) SI Unit of permittivity of free space are.

a) Nm^2C^{-2}	b) $N^{-1}m^2C^{-1}$	c) $C^2N^{-1}m^{-1}$	✔d) $C^2N^{-1}m^{-2}$

424) For Paschen series, the value of "n" starts from.

a) 2	✔b) 4	c) 6	d) 8

425) Half life of radon gas is.

a) 3.8 minutes	✔b) 3.8 days	c) 3.8 months	d) 3.8 years

426) The SI unit of radiation dose is.

a) Roentgen	✔b) Gray	c) Curie	d) Rem

427) Particles that experience the strong nuclear force

✔a) Hadrons	b) Leptons	c) Photons	d) Quarks

428) An inductor may store energy in

✔a) Its magnetic field	b) Its electric field	c) Its coil	d) A neighboring circuit

429) In annihilation emitted photons move in opposite direction to conserve

✔a) Momentum	b) Energy	c) Charge	d) Mass

430) Compton shift in the wave length will be minimum when angle of scattering is

✔a) 0^o	b) 60^o	c) 90^o	d) 270^o

431) Beam of electrons are also called

a) Positive rays	b) X-rays	✔c) Cathode rays	d) Cosmic rays

432) The population inversion is in which

a) All electrons are in excited state	✔b) Majority of electrons are in excited state	c) Some electrons are in ground state	d) Some electrons are in excited state

433) The SI unit of electric potential is.

a) kg $m^2s^{-1}C$	✔b) kg $m^2s^{-2}C^{-1}$	c) kg $m^2s^{-2}C$	d) kg $m^2s^2C^{-1}$

434) Alternating Current can be transmitted to

a) Short distance at very low cost	b) Short distance at very high cost	c) Long distance at very high cost	✔d) Long distance at very low cost

435) The resistance of a conductor at absolute zero is:

✔a) Zero	b) Infinite	c) Positive	d) Negative

436) SI unit of electric flux is

a) NC^{-1}	✔b) $Nm^2 C^{-1}$	c) Tesla	d) Weber

437) Balmer empirical formula explains the electromagnetic radiation of any excited atom in terms of their.

a) Energy	b) Mass	✔c) Wavelength	d) Momentum

438) To convert a galvanometer into a volt meter a high resistance is connected.

✔a) In series	b) In parallel	c) In perpendicular	d) Along tangent

439) If the distance between two charges is halved and charges are also doubled, then force between them will be.

a) Two time	b) Four time	c) Eight time	✔d) Sixteen time

440) In R-L series circuit phase angle is given by.

a) $\theta = tan^{-1}\frac{1}{\omega LR}$	b) $\theta = tan^{-1}\omega LR$	c) $\theta = tan^{-1}\frac{R}{\omega L}$	✔d) $\theta = tan^{-1}\frac{\omega L}{R}$

441) The colour of light emitted by a LED depends on.

a) Its forward bias	b) Its reverse bias	c) The amount of forward current	d) The type of semi-conductor material used

442) Domains are existed in

✔a) Ferromagnetic materials	b) Paramagnetic materials	c) Diamagnetic materials	d) Semi conductors

443) The SI unit of relative permittivity is.

a) Fm^{-1}	b) $C^2N^{-1}m^{-2}$	c) Nm^2C^{-2}	✔d) No Unit

444) Compton Effect proves

a) Wave nature of radiation	b) Wave nature of particle	c) Dual nature of particle	✔d) Particle nature of radiation

445) The statement $\varphi_e = \frac{1}{\varepsilon_o}Q$ was given by.

a) Faraday	b) Dersted	✔c) Gauss	d) Coulomb

446) When a conductor moves across a magnetic field, an emf is set up , this emf is called.

a) induced emf	b) mutual emf	c) self emf	✔d) motional emf

447) If 1×10^2 electrons passes through a conductor in 1.0 μs, then the current is.

a) 2 A	b) 1.6 A	✔c) 1.6×10^6 A	d) 2.6×10^6 A

448) In case of capacitor , the unit of reactance is

✔a) Ohm	b) Mho	c) Farad	d) Henry

449) The working principle of transformer is.

a) Self induction	b) Faraday's Law	✔c) Mutual induction	d) Electromagnetic induction

450) A 0.50 T field over an area of 2 m^2 which lies at an angle of 30^o to the field, the magnetic flux is

✔a) 0.866 Weber	b) 0.5 Weber	c) 1.5 Weber	d) 1 Weber

451) The particles which do not experience strong force are called

✔a) Leptons	b) Mesons	c) Hadrons	d) Baryons

452) If the magnetic field intensity is double then magnetic energy density becomes.

✔a) Four times	b) Double	c) Half	d) Eight times

453) The devices in the circuit that consume electrical energy are known as.

a) Dissipaters	b) Generator	✔c) Load	d) Motors

454) When the motor is running at maximum speed , the back emf will be.

a) Maximum	b) Minimum	c) No back emf	d) Varies

455) Which of the following are not hadrons?

✔a) Muons	b) Mesons	c) Protons	d) Neutrons

456) Whenever circuit is open then the terminal potential difference and emf become

a) Maximum	b) Zero	✔c) Equal	d) Different

457) When motor is just started, back emf is almost.

a) Maximim	✔b) Zero	c) Minimum	d) Infinite

458) The peak value of alternating current is I_0 . Its mean square value is

a) 2I	✔b) $I_0^2 / 2$	c) I_0^2

459) The current which flows from a point at higher potential to a point at lower potential is called.

a) Electric Current	b) Either of these	✔c) Conventional Current	d) None of these

460) The negative sign with induced emf in Faraday's law is in accordance with

✔a) Lenz's law	b) Ampere's law	c) Gauss's law	d) Induced emf

461) When a nucleus emits alpha particle its atomic mass decreases by

a) 3	b) 32	✔c) 4	d) 2

462) The critical temperature for mercury is

a) 7.2 k	✔b) 4.2 k	c) 1.18 k	d) 3.7 k

463) The inverse of pair production is

a) Hertz effect	b) Compton effect	✔c) Annihilation of matter	d) Black body

464) 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

465) Which one has the least resistance.

a) Galvanometer	✔b) Ammeter	c) Voltameter	d) Ohm meter

466) The work done in bringing a unit positive charge from infinity to that point in an electric field is called.

a) Potential	✔b) Absolute potential	c) Potential difference	d) All of these

467) Photo copier and inkjet printer are the applications of.

a) Magnetism	b) Electro-magnetism	c) Electricity	✔d) Electrostatics

468) An α particles contains

a) 1 proton and 1 neutron	b) 1 proton and 2 neutron	c) 3 proton and 3 neutron	✔d) 2 proton and 2 neutron

469) If the time constant of RC circuits is small ,the capacitor charge or discharge :

a) slowly	b) rapidly	c) moderately	d) None of these

470) Energy stored in the inductor is in the form of.

a) Electrical energy	b) Kinetic energy	✔c) Magnetic energy	d) Chemical energy

471) For R-L series Circuit , the voltya

a) $tan^{-1}\left(\frac{\omega C}{R}\right)$	b) $tan^{-1}\left(\frac{\omega L}{R}\right)$	c) $tan^{-1}\left(\frac{\omega}{RC}\right)$	✔d) $tan^{-1}\left(\frac{1}{\omega CR}\right)$

472) A sample contains N radioactive nuclei. After 4 half lives number of nuclei decayed is

a) $\frac{4}{6}$	b) $\frac{4}{16}$	✔c) $\frac{15N}{16}$	d) All of these

473) Strain energy in deformed material is proportional to

a) Square of the extension	b) Under root of the extension	c) Cube root of the extension	✔d) Extension produced

474) The speed of an electron in nth orbit is given as

✔a) $2\pi Ke^2/$nh	b) $4\pi Ke^2$	c) $3\pi Ke^2$	d) All of these

475) Intensity of field inside a hollow charged sphere will be

a) Negative	b) Positive	✔c) Zero	d) Infinity

476) When an RC circuit is connected across a battery amount of charge deposited on plates is _____ times the equilibrium charge after one time contant

✔a) 0.63	b) 0.67	c) 0.75	d) 0.86

477) The electric field intensity between two oppositely charged parallel plates is:

a) $\frac{\sigma}{\varepsilon_o}$	b) $\frac{\sigma}{2\varepsilon_o}$	c) $\frac{2\sigma}{\varepsilon_o}$	d) $\frac{\varepsilon_o}{\sigma}$

478) Charge to mass ratio (e/m) of a proton is ..... that of electron

a) equal to	b) greater than	✔c) less than	d) None of these

479) Photo diode is used for detection of

a) Heat	b) Charge	✔c) Light	d) Current

480) The impedance Z can be expressed by

a) Z = I + V	b) Z = I − V	c) $Z = \frac{I_{rms}}{V_{rms}}$	✔d) $Z = \frac{V_{rms}}{I_{rms}}$

481) Tesla can be written as

a) NAm^{-1}	✔b) $NA^{-1}m^{-1}$	c) $N^{-1}Am^{-1}$	d) $NA^{-1}m$

482) Electric current produces magnetic field was discovered by:

a) Faraday	b) Maxwell	✔c) Oersted	d) Lenz

483) The Lorentz force on a charged particle moving in electric field B is given by

✔a) $F = F_E + F_B$	b) $F = F_E - F_B$	c) $F=F_BF_E$	d) All of these

484) Selenium is a .

a) Insulator	b) Conductor	✔c) Photoconductor	d) First insulator then conductor

485) Color television emits

a) β- rays	b) y−rays	✔c) X− rays	d) All of these

486) Which of the following has no charge?

a) Alpha rays	b) Beta rays	✔c) Gamma rays	d) Cathode rays

487) Colour code of yellow colour is

a) 2	b) 3	✔c) 4	d) 5

488) A device which converts mechanical energy into electrical energy is called.

a) D.C generator	✔b) A.C. generator	c) D.C. motor	d) Transformer

489) The substance which have partially filled conduction bands are callled

a) Insulator	✔b) Semi conductor	c) Conductor	d) Super conductor

490) The central region of a transistor is called

✔a) Base	b) Emitter	c) Collector	d) Center

491) An electron of mass m and charge e is moving in a circle of radius r with speed v in a uniform magnetic field of strength B. then

✔a) $r \propto m$	b) $r \propto B$	c) $r \propto V$	d) $r \propto e$

492) At what frequency, 1H inductance offers same impedance as 1 μF capacitor

a) 50 Hz	✔b) 159 Hz	c) 512 Hz	d) 1590 Hz

493) A capacitor stores energy in the form of.

a) Magnetic field	b) Hear energy	✔c) Electrical energy	d) Mechanical energy

494) A current flowing towards the reader is denoted by.

a) Cross	b) A bracket	✔c) A bot	d) Positive sign

495) If the length and number of turns of a solenoid are doubled, strength of magnetic field will:

a) Doubled	b) Become half	✔c) Not change	d) Become four times

496) SI unit of strength of electric field

a) J / C	b) C / V	✔c) N / C	d) All of these

497) The thickness of the base of the transistor is of the order of

a) 10^{6} m	✔b) 10^{-6} m	c) 10^{6} mm	d) 10^{-6} μm

498) Which one is not present in A.C generator ?

a) Armature	b) Magnet	c) Slip rings	✔d) Commutator

499) Which one is photo conductor?

a) Copper	✔b) Selenium	c) Mercury	d) Aluminium

500) The color code for carbon resistance usually consist of

a) 3 bands	✔b) 4 bands	c) 5 bands	d) 7 bands

501) The lines which provide information about the electric force exerted on charged particles are

a) Magnetic field lines	✔b) Electric field lines	c) Tangent lines	d) Curved lines

502) In a time constant, the amount of charge deposit on a capacitor is:

✔a) 63% of equilibrium charge	b) 37% of equilibrium charge	c) 69% of equilibrium charge	d) 39% of equilibrium charge

503) Two down and one up mark make

a) Proton	✔b) Neutron	c) Photon	d) Positrom

504) X-rays exhibit the phenomenon of:

a) Interference	b) Diffraction	c) Polarization	✔d) All of these

505) A 5m wire carrying a current of 2A is at right angle to the uniform magnetic field of 0.5T. The force on the wire is

a) 2N	b) 3N	c) 4N	✔d) 5N

506) When platinum wire is heated it appears dull red at

a) 550^{0} C	✔b) 500^{0} C	c) 900^{0} C	d) 1300^{0} C

507) The rest mass of photon is:

✔a) Zero	b) 1.67×10^{-27}kg	c) 1.67×10^{-31}kg	d) 9.11×10^{-31}kg

508) When a β particle is emitted out of any nucleus then its mass number is

✔a) Unchanged	b) Increased	c) Decreased	d) Infinite

509) Which one of the following is crystalline solid?

✔a) Zirconia	b) Natural rubber	c) Glassy solid	d) Poly strene

510) In nature electromagnetic waves are:

✔a) Transverse	b) Longitudinal	c) Stationary	d) All of these

511) At resonance frequency the impedance of RLC series circuit is

a) Zero	✔b) Minimum	c) Maximum	d) Moderate

512) The couple C for the unit twist of the suspension wire can be decreased by

✔a) Increasing length	b) Decreasing length	c) Increasing diameter	d) None of these

513) The energy of photon is given by

✔a) hf	b) vf	c) Ve	d) None of these

514) When platinum is heater it becomes orange at

a) 500^0 C	✔b) 1100^0 C	c) 1500^0 C	d) 5200^0 C

515) The dead time of Geiger Muller counter is of the order

a) 10^{-1} s	b) 10^{-2} s	c) 10^{-3} s	✔d) 10^{-4} s

516) The relation for maximum value of deflecting couple is given by

a) $\tau = B/NIA$	✔b) $\tau = BNIA$	c) $\tau = BNA$	d) $\tau = BNAsin\theta$

517) If a charge is free to move in an electric field then acceleration will be

✔a) qE/m	b) qEm	c) mE/q	d) Em/q

518) $\frac{e}{m}$ of an electron is

a) 9.11×10^{-31} C/kg	b) 8.11×10^{-31} C/kg	c) 12.11×10^{-31} C/kg	✔d) 1.71×10^{11} C/kg

519) The potential barrier for Ge at room temperature is

✔a) 0.3 volt	b) 3 volt	c) 1 volt	d) 5 volt

520) If a charge is at rest in a magnetic field then force on charge is

✔a) Zero	b) qvB sin θ	c) qvB cos θ	d) All of these

521) Laser beam can be used to generate three dimensional images of objects in a process called:

✔a) Holography	b) Tomography	c) Spacography	d) Electrography

522) In nuclear radiations , track of α - particle is.

a) Thin	b) Discountinouns	c) Erratic	✔d) Continuous

523) The unit of $\frac{\omega}{R}$ in R - L series circuit is.

a) Ohm	b) Volt	c) Henry	✔d) Unitless

524) Ampere second stands for the unit of.

✔a) Charge	b) Emf	c) Energy	d) Power

525) The value of Planck'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

526) The force which varies inversely with the square of the distance is:

a) Electric force	b) Gravitational force	c) Magnetic force	✔d) Both a and b

527) When an electron absorbs energy it jumps to

a) Lower energy state	✔b) Higher energy state	c) Ground state	d) Remains in the same state

528) Operational amplifier will act as inverting amplifier when the input signal is connected to:

✔a) Inverting terminal	b) Non inverting terminal	c) Output terminal	d) Neutral terminal

529) NC^{-1} is the SI unit of

a) Force	b) Charge	c) Current	✔d) Electric intensity

530) Resonating frequency of RLC series circuit if f_r = _____

a) $\frac{2\pi}{\sqrt{LC}}$	b) $\frac{1}{2\pi}\sqrt{LC}$	✔c) $\frac{1}{2\pi\sqrt{LC}}$	d) $2\pi\sqrt{LC}$

531) The inverse phenomena to X-rays emission is

a) Interference	b) Diffraction	✔c) Photoelectric effect	d) Laser action

532) A p-n junction is a:

a) Transistor	b) Oscillator	c) Battery	✔d) Diode

533) Internal frame is frame in which

✔a) 1st law holds	b) 2nd law holds	c) 3rd law holds	d) Kelvin's law holds

534) Resistance of choke is

a) Zero	✔b) Very small	c) Large	d) Infinite

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

a) 4.4 eV	b) 3.5 eV	c) 2.4 eV	✔d) 0.25 eV

536) Which one of the following resistance is used to convert a Galvanometer into an Ammeter?

a) High resistance	b) Low resistance in series with galvanometer	✔c) Shunt	d) High resistance in series with galvanometer

537) The number of terminals in a semiconductor diode are

✔a) 2	b) 3	c) 5	d) 6

538) The continuous X-rays spectrum is produced by:

a) Accelerated electrons	✔b) Decelerated electrons	c) Inner shell electrons	d) Valence electrons

539) A rubber ball of radius 2 cm has a charge of 5 μC on its surface, which is uniformly distributed , the value of $\vec{E}$ at its centre is.

a) 10 NC^{-1}	b) 2.5 NC^{-1}	c) 5×10^{-6} NC^{-1}	✔d) Zero

540) The effective way to increase the sensitivity of moving coil galvanometer is.

a) Increase the are of coil	b) Increase the number of turns	✔c) Increase the magnetic field	d) Increase the value of constant C

541) The capacitance of a capacitor depends upon.

a) Thickness of plates	b) Charges on the plates	c) Voltage applied	✔d) Geometry of the capacitor

542) Davisson and Germer indicates in their experiment

a) Electron polarization	✔b) Electron diffraction	c) Electron reflection	d) Electron refraction

543) The energy density in a capacitor is directly proportional to.

a) $\varepsilon_0\varepsilon_r$	✔b) E^2	c) C^2	d) V^2

544) All motions are.

a) Absolute	b) Uniform	✔c) Relative	d) Variable

545) For an open circuit , the current flowing through circuit will be

a) Infinite	b) Finite	c) Maximum	✔d) Zero

546) In D.C generator , split rings act as.

a) Capacitor	✔b) Commutator	c) Inductor	d) Resistor

547) mho m^{-1} is the SI unit of

✔a) Conductivity	b) Conductance	c) Resistance	d) Capacitance

548) Electric current produces magnetic field was discovered by.

a) Faradayh	b) Maxwell	✔c) Oersted	d) Lenz

549) A sensitive galvanometer is.

✔a) Unstable	b) Stable	c) Moderate	d) None of these

550) After two half-lives the number of decayed nuclei of an element are

a) $\frac{4}{16}$	b) $\frac{5N}{16}$	c) $\frac{7N}{16}$	✔d) $\frac{3N}{4}$

551) Reciprocal of bulk modulus is

a) Elasticity	b) Young modulus	✔c) Compressibility	d) Shear modulus

552) Electric intensity inside the hollow sphere is.

a) $\frac{\sigma}{\varepsilon_0}$	b) $\frac{1}{\varepsilon_0}$	✔c) Zero	d) None of these

553) The magnetic flux $\emptyset_B$ is equal to

✔a) $\vec{B}.\vec{A}$	b) $\vec{B} \times \vec{A}$	c) BA $\sin\theta$	d) All of these

554) Which diode is used for detection of light?

a) Light emitting diode	b) Photo voltaic	✔c) Photo diode	d) All of these

555) The magnitude of current induced in a conductor depends upon

a) Number of turns	b) Speed of conductor	c) Strength of magnetic field	✔d) All of these

556) A wire of uniform area of cross section A and length L is cut into two equal parts. The resistivity of each part is

a) Doubled	b) Halved	✔c) Remains the same	d) Zero

557) Total flux through a closed surface depends on.

a) Shape of surface	b) Medium only	c) Charge enclosed only	✔d) Charge and Medium

558) In case of photocopier , a special dry, black powder called toner is given by.

a) Positive charge	b) Neutral	✔c) Negative charge	d) First positive than negative

559) Output of exclusive OR Gate is X.

a) $\overline{A.B}$	✔b) $A.\bar{B}+\bar{A}.B$	c) $A.\bar{B}=\bar{A}.B$	d) $\overline{A.B+B.A}$

560) The energy of photon of wavelength 500 nm is:

a) 3.10 eV	✔b) 2.49 eV	c) 1.77 eV	d) 1.52eV

561) The unit of electric intensity other than NC^{-1} is.

a) VA^{-1}	✔b) Vm^{-1}	c) VC^{-1}	d) NC

562) Magnetic field intensity at a point due to the current carrying conductor can be determined by

✔a) Ampere's law	b) Faraday's law	c) Ohm's law	d) Newton's law

563) X-rays are electromagnetic radiations having wavelength in the range of

a) Proton	✔b) Electron	c) Baryon	d) Neutron

564) Logic gates can control some physical parameters like.

a) Temperature , Pressure	b) Resistance , Inductance	c) Capacitance , Impedance	✔d) Current , Voltage

565) A particle of mass m and charge q is released from rest in a uniform electric field E. The K.E, attained by the particle after moving a distance 'd' is.

a) K.E	b) P.E	c) Electrical K.E	d) Electrical P.E

566) If I_0 is the peak value of AC supply , then its rms value is given as I_{rms} = _____

✔a) $\frac{I_o}{\sqrt{2}}$	b) $\frac{I_o}{0.707}$	c) $I_0\sqrt{2}$	d) $\frac{7N}{8}$

567) Subatomic particles are divided into.

a) Six groups	b) Five groups	c) Four groups	✔d) Three groups

568) The amount of energy equal to 1.6×10^{-19} J is called.

a) One volt	✔b) One electron volt	c) One milli volt	d) One mega electron volt

569) Half life of U-239 is.

a) 26.5 minutes	b) 24.5 minutes	c) 25.5 minutes	✔d) 23.5 minutes

570) Solid bodies are charged due to the transfer of

✔a) Electrons	b) Protons	c) Neutrons	d) All of these

571) The value of the induced emf in a loop of wire is directly proportional to the rate of change of

a) Electric flux	✔b) Magnetic flux	c) Motional flux	d) Both a and b

572) If $V_{rms} = 10\sqrt{2}$ volts , then peak voltage V will be

a) 10 volts	✔b) 20 volts	c) 30 volts	d) $10/\sqrt{2}$ volts

573) A battery is used in.

✔a) Ohmmeter	b) Ammeter	c) Galvanometer	d) Voltmeter

574) The negative of the potential gradient is.

a) Electrostatic force	b) Potential difference	c) Electromotive force	✔d) Electric field intensity

575) Torque on a current carrying coil is given by

a) ILB cos α	b) ILB sin α	✔c) IBA cos α	d) IBA sin α

576) In night switch the reference voltage is applied at:

a) Inverting input	✔b) Non inverting input	c) Output	d) All of these

577) Antiparticle of electron is

a) Proton	b) Photon	c) Neutron	✔d) Positron

578) Potassium cathode in photocell emits electrons for a light

✔a) Visible	b) Infrared	c) Ultraviolet	d) X-rays

579) If charged body is moved against the electric field, it will gain.

a) P.E	b) K.E	c) Mechanical energy	✔d) Electrical potential energy

580) The use of LDR is in the circuit of

✔a) Night switch	b) Logic gate	c) Rectifier	d) Oscillator

581) The materialization of energy takes place in the process of

a) Photoelectric effect	b) Compton effect	✔c) Pair production	d) Annihilation of matter

582) Two up quarks and one down quarks makes a.

✔a) Proton	b) Newton	c) Photon	d) Meson

583) If the medium between the charges is not free space then electrostatic force will be.

a) Increase	✔b) Decrease	c) Remain same	d) None of these

584) If the number of turns become double but length remain same then magnetic field in the solenoid become

a) Zero	b) Remain same	c) Half	✔d) Double

585) Helium Neon laser beam emitted from a discharge tube has a colour

a) Blue	b) White	c) Black	✔d) Red

586) If 10 A current passes through 100 mH inductor, then energy stored is.

a) 100 J	✔b) 5 J	c) 20 J	d) Zero

587) Transformer is used to change.

a) Electric power	b) Magnetic field	✔c) Alternating voltage	d) Phase of A.C

588) The materialization of energy takes place in the process of

a) Photoelectric effect	b) Compton effect	✔c) Pair production	d) Annihilation of matter

589) Which of the following series of hydrogen spectrum lies in ultra violet region?

✔a) Lyman series	b) Paschen series	c) Balmar series	d) Bracket series

590) GM Counter is use

a) Alcohol only	b) Bromine	✔c) Neon and bromine	d) Argon

591) Energy released by conversion of 1 amu is.

a) 1.6×10^{-19} MeV	b) 1.6×10^{-19} eV	c) 200 MeV	✔d) 931 MeV

592) Bohr's second postulate ($mvr=n\frac{h}{2\pi}$) was justified by

a) Bohr himself	✔b) de Broglie	c) Plan	d) Davission and Germer

593) Speed of β – particles is nearly equal to.

✔a) 1×10^{8} m/s	b) 1×10^{7} m/s	c) 3×10^{8} m/s	d) 1×10^{16} m/s

594) When current pass through a solenoid it behaves like a

a) Circular magnet	✔b) Bar Magnet	c) Compass	d) Wire

595) Rest mass energy of a positron is given by

a) 2 MeV	✔b) 0.51 MeV	c) 1.02 MeV	d) 5 MeV

596) A current carrying conductor experience maximum magnetic force in a uniform magnetic field when it is placed

✔a) Perpendicular to field	b) Parallel to field	c) Both of theses	d) None of these

597) A substance having the negative temperature coefficient of resistivity out of the following is

a) Iron	b) Tungsten	✔c) Silicon	d) Gold

598) The charge on the droplet in Millikan's experiment is calculated by using the formula:

a) q=md/V	✔b) q= mgd/V	c) q= V/d	d) q= E/V

599) X-rays photon moves with a velocity of

✔a) Light	b) Sound	c) Force	d) Power

600) The relation of emfs of two cells $\frac{E_1}{E_2}$ is.

✔a) $\frac{I_1}{I_2}$	b) $\frac{I_2}{I_1}$	c) $\frac{1}{I_1 I_2}$	d) $I_1 \times I_2$

601) For step down transformer.

a) $N_s > N_p$	✔b) $N_p > N_s$	c) $N_s = N_p$	d) $N_s >>> N_p$

602) Find the gain of inverting amplifier of external resistance R_1 = 10kΩ and R_2 = 100kΩ.

a) -5	✔b) -10	c) -2	d) 50

603) Farad is define as

✔a) Coulomb / volt	b) Ampere / volt	c) coulomb / joule	d) Coulomb / joule

604) In an electronic transition an atom cannot emit

✔a) γ-rays	b) Infared rays	c) UV- rays	d) X-rays

605) The inductiance of a coil can be increased by using

a) Air as core metrial	✔b) Iron as core material	c) Copper as core material	d) Bismith as core material

606) A sensor of light is

a) Transistor	b) LED	c) Diode	✔d) Light dependent resistor

607) The charge number of $^{141}_{56}Ba$ is.

a) 197	b) 141	c) 85	✔d) 56

608) Potentiometer can be used as

✔a) Potential divider	b) Ohmmeter	c) Ammeter	d) Both b and c

609) Numerical value of permittivity of free space is.

a) $9 \times 10^9\ Nm^2C^{-2}$	✔b) $8.85 \times 10^{-12}\ N^{-1}m^{-2}C^2$	c) $8.85 \times 10^{-12}\ Nm^2C^{-2}$	d) $9 \times 10^9\ N^{-1}m^{-2}C^2$

610) It is the converse process of magnetic effect of current

✔a) Electromagnetic induction	b) Laser effect	c) Superconduction	d) Electrolysis

611) A two inputs NANO gate with inputs A and B has an output 0 if

a) A is 0	b) B is 0	c) Both A and B are 0	d) Both A and B are 1

612) Absorbed Dose D is defined as

a) M/E	b) E/C	c) C/m	✔d) E/M

613) The inductance of coil is proportional to.

a) Its shape	✔b) The number of turns	c) The resistance of coil	d) The square of the number of turns

614) Geiger counter can be used to detect

a) Charge	b) Mass	✔c) Nuclear radiation	d) All of these

615) The absolute Electric potential at a point distant 20 cm from a charge of $2\mu C$ *is*

a) 9×10^2 V	b) 9×10^3 V	✔c) 9×10^4 V	d) 9×10^5 V

616) The number of neutron in $^{238}_{92}U$ is

a) 92	b) 238	✔c) 146	d) 145

617) The Boolean expression of NAND gate is.

a) X = A.B	b) X = A + B	c) $X = \overline{A - B}$	✔d) $X = \overline{A.B}$

618) The coercive current is

a) Magnetizing current	b) Current due to holes	✔c) Demagnetizing current	d) Current due to ions

619) Will capacitor store more energy with dielectric other than air?

a) No	✔b) Yes	c) May be or may be not	d) None of these

620) For rectification we use:

a) Transformer	b) Choke	✔c) Diode	d) Capacitor

621) The current flowing through each resistor of equal resistance in parallel combination is

✔a) Same	b) Zero	c) Different	d) Infinite

622) Another relation of uncertainity principle between energy and time is:

a) $\Delta E \approx \Delta t / h$	✔b) $\Delta E\, \Delta t \approx h$	c) $\Delta E \approx \Delta t\, h$	d) $\Delta E / \Delta t \approx h$

623) If both the magnitude of charges and distance between them is doubled, then coulomb's force will be.

a) Double	b) Half	✔c) Remain same	d) One fourth

624) The speed of electromagnetic waves is

✔a) 3×10^8 m/s	b) 9×10^9 m/s	c) 332 m/s	d) 340 m/s

625) A rheostat can be used as:

a) Capacitor	✔b) Potential divider	c) Transistor	d) Thermistor

626) The ratio of potential barrier of Ge and Si at room temperature is

a) 7:3	b) 1:3	c) 2:5	✔d) 3:7

627) The current through a resistance of 100 Ω when connecting across a source of 220V is.

a) 22000 A	b) 22 A	✔c) 2.2 A	d) 0.45 A

628) If transition of electron in hydrogen atom ends at third orbit then radiation emitted lies in.

a) Balmer	b) Lyman	✔c) Paschen	d) Bracket

629) If F_1 and F_2 are the magnetic forces acting on α - particle and electron respectively , when moving perpendicular to the magnetic field then.

a) $F_1 = F_2$	✔b) $F_1 > F_2$	c) $F_1 < F_2$	d) $F_1 = 4F_2$

630) The building blocks of protons and neutrons are called

a) Ions	✔b) Quarks	c) Positrons	d) Electrons

631) X-rays are similar in nature to

a) Alpha rays	b) Beta rays	c) Cathode rays	✔d) Gamma rays

632) Material having positive temperature co efficient is

a) Carbon	✔b) Copper	c) Silicone	d) Germanium

633) The types of quarks are.

a) 2	b) 3	c) 4	✔d) 6

634) At higher frequencies , which of the following plays a dominant role in RLC series circuit.

a) Resistor	✔b) Inductor	c) Capacitor	d) Transistor

635) The stress that produces change in shape in known as

a) Tensile stress	✔b) Shear stress	c) Volume stress	d) Longitudinal stress

636) Out of the following which material is brittle

✔a) High carbon steel	b) Aluminum	c) Copper	d) Tungsten

637) The particles equal in mass or greater than protons are called

a) Leptons	✔b) Baryons	c) Mesons	d) Mouns

638) Which nuclear reaction takes place in the sun and stars

a) Fission	b) Chemical	✔c) Fusion	d) None of these

639) The capacitance of capacitor depends upon

a) Thickness of plates	b) Charges of plates	✔c) Geometry of the capacitor	d) All of these

640) The value of shunt resistance is given by (R_s).

a) $\frac{I - I_o}{I_g}$	b) $\frac{I - V_g}{I_g}$	✔c) $\frac{IR_g}{I - I_g}$	d) $\frac{V_g}{I - I_g}$

641) The Lenz's Law fulfils.

✔a) Law of conservation of energy	b) Law of conservation of charge	c) Law of conservation of Momentum	d) Kirchhoff's Law

642) One electron volt is equal to.

✔a) 1.6×10^{-19} joule	b) 1.6×10^{-18} joule	c) 1.6×10^{-19} coulomb	d) 1.6×10^{12} N

643) The magnetic force is simply a.

a) Reflecting force	b) Restoring force	✔c) Deflecting force	d) Gravitational force

644) The Rest Mass Energy of an electrons pair is

a) 0.51 Mev	✔b) 1.02 Mev	c) 1.2 Mev	d) 1.00 Mev

645) If an electron jumps from nth orbit of energy E_n to pth orbit of energy E_p and a photon of frequency f is emitted then

✔a) $hf=E_n-E_p$	b) $hf=E_P.E_n$	c) $hf=E_P+E_n$	d) None of these

646) 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) 2 R	b) 4 R	c) 3 R	✔d) Same as R

647) 1kWh =

a) 3×10^5 Joule	✔b) 3.6×10^6 Joule	c) 3.5×10^7 Joule	d) 3.6×10^7 Joule

648) In velocity selector a charged particle will go undeflected if its velocity v is equal to

a) E+B	b) EB	✔c) E/B	d) B/E

649) Which one of the following is polymeric solids?

a) Glass	✔b) Nylon	c) Copper	d) Zinc

650) A proper combination of a galvanometer and a series of resistance acts as.

✔a) Voltmeter	b) Ammeter	c) Ohmmeter	d) Avometer

651) The band in atom containing conductive electrons , according to band theory of solid is

✔a) Conduction band	b) Forbidden band	c) Valance band	d) First conduction band then forbidden band

652) Absorbed Dose "D" is defined as.

a) m/E	b) E/C	c) C/m	✔d) E/m

653) A capacitor is perfect insulator for

a) Alternating current	b) Sparking current	c) Eddy current	✔d) Direct current

654) The Compton shift in wavelength will be maximum when angle of scattering is

a) 30^0	b) 45^0	c) 90^0	✔d) 180^0

655) Very weak magnetic field produced by brain can be detected by

a) Compass	b) Metallic needle	✔c) Squids	d) Liquids

656) Drift velocity of electrons is.

a) 10^{-1} m/s	b) 10^{-2} m/s	✔c) 10^{-3} m/s	d) 10^{-4} m/s

657) At high frequency the value of reactance of capacitor will be

✔a) Small	b) Zero	c) Large	d) Infinite

658) The electric field created by positive charge is

a) Radially inward	b) Zero	c) Circular	✔d) Radially outward

659) The size of the nucleus of an atom is of the order of

a) 10^{-10}m	✔b) 10^{-14}m	c) 10^{-16}m	d) 10^{-20}m

660) 1 Ohm multiply by 1 Farad is equal to

a) 1 Ampere	b) 1 Coulomb	c) 1 Farad	✔d) 1 Second

661) Leptons are particles do not experience.

✔a) Strong nuclear force	b) Electric force	c) Weak nuclear force	d) Magnetic force

662) An electric eye operates because of

a) Compton effect	b) Photon refraction	c) Photo electric effect	✔d) I-Radiations

663) Which one of the following radiation is extremely penetrating

✔a) Y- rays	b) X- rays	c) Alpha- rays	d) Gamma- rays

664) When charge particle enters perpendicular to magnetic field, it moves in

a) Straight path	✔b) Circular path	c) Parabolic path	d) Rectangular path

665) The magnetic field inside a current carrying long solenoid is

a) Non uniform	b) Weak	✔c) Uniform and Strong	d) Zero

666) 5A of current flows through a conductor in 2 minutes, charge in the wire is.

a) 500 C	✔b) 600 C	c) 400 C	d) 100 C

667) In 1905, the special theory of relativity was proposed by.

✔a) Einstein	b) Bohr	c) Maxwell	d) De-Broglie

668) Selenium is.

a) Insulator in light	b) Conductor in dark	✔c) Insulator in dark	d) Semiconductor in dark

669) The frequency of a microwave with wavelength 10 cm can be

a) 300 KHz	✔b) 3×10^{9} Hz	c) 300 Hz	d) 3 MHz

670) The voltage gain of an inverting operational amplifier is given by input and output is.

a) $G = 1 - \frac{R_2}{R_1}$	✔b) $G = -\frac{R_2}{R_1}$	c) $G = 1 - \frac{R_1}{R_2}$	d) $G = -\frac{R_1}{R_2}$

671) Magnetic effect of current is used in.

a) Toaster	b) Electric iron	✔c) Electric motor	d) D.C battery

672) 1 a.m.u is equal to

a) 1.66×10^{-10}kg	b) 1.66×10^{-11}kg	✔c) 1.66×10^{-27}kg	d) 1.66×10^{-31}kg

673) Which particle has larger range in air?

a) α-particle	b) β-particle	✔c) Neutron	d) Both a and b

674) The platinum wire becomes white at a temperature of

✔a) 1600^0 C	b) 1100^0 C	c) 1200^0 C	d) 1300^0 C

675) When some dielectric is inserted between the plates of a capacitor, then capacitance.

a) Decreases	✔b) Increases	c) Becomes zero	d) Becomes infinity

676) Momentum of moving photon is given by

a) hc / λ	✔b) h / λ	c) h / f	d) $h\lambda / c$

677) The unit of work function is

✔a) eV	b) Volt	c) Farad	d) Hertz

678) The value of e/m is smallest for

✔a) Proton	b) Electron	c) Neutron	d) Positron

679) By increasing the temperature of conductor, the flow rate of charges.

a) Increases	b) Remains Constant	c) Changes exponentially	✔d) Decreases

680) In R-C-L series circuit , the current at resonance frequency is

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

681) For computation of electric flux, the surface area should be.

a) Parallel	✔b) Flat	c) Curved	d) Spherical

682) The charging time of capacitor depends upon

a) R/C	b) C/R	✔c) RC	d) $\sqrt{RC}$

683) The line radiations emitted from hydrogen filled discharge tube can be analyzed into.

a) Band Spectrum	✔b) Line spectrum	c) Continuous spectrum	d) Absorption spectrum

684) The PN junction on forward biasing acts as

a) Capacitor	b) High resistor	c) Inductor	✔d) Low resistor

685) Capacitor will have a large reactance at

✔a) Low frequency	b) High frequency	c) Zero frequecny	d) Negative frequency

686) The units of decay constant is

a) s	✔b) s^{-1}	c) m	d) m^{-1}

687) The force independent of the medium is:

a) Electric force	✔b) Gravitational force	c) Frictional force	d) Coulomb force

688) One electron volt is equal to

✔a) 1.6×10^{-19} J	b) 1.6×10^{-19} C	c) 1.6×10^{-19} N	d) 1.6×10^{-19} F

689) A pentavelent impurity is

a) Boron	b) Aluminum	c) Indium	✔d) Phosphorous

690) Power dissipation is zero in a circuit of

a) Inductor	b) Capacitor	c) Resistor	✔d) Inductor and capacitor

691) The resistance of a 60 Watt bulb in a 120 V line is:

a) 20 ohm	b) 2 ohm	✔c) 240 ohm	d) 0.5 ohm

692) Induced emf in A.C. generator can be increased by

a) Decreasing area of coil	b) Decreasing magnetic field	✔c) Increasing area of coil	d) Slowing down speed of coil

693) Gauss's law can only be applied to:

a) A curved surface	b) A flat surface	✔c) A closed surface	d) Surface of any shape

694) The relation for Balmer series is written as .

✔a) $\frac{1}{\lambda} = R_H\left(\frac{1}{2^2} - \frac{1}{n^2}\right)$	b) $\frac{1}{\lambda} = R_H\left(\frac{1}{3^2} - \frac{1}{n^2}\right)$	c) $\frac{1}{\lambda} = R_H\left(\frac{1}{4^2} - \frac{1}{n^2}\right)$	d) $\frac{1}{\lambda} = R_H\left(\frac{1}{5^2} - \frac{1}{n^2}\right)$

695) In a comparator circuit, when intensity of light decreases , then resistance of LDR.

✔a) R_L increases	b) V_L increases	c) R_L decreases	d) V_R decreases

696) The principle of A.C generator is.

a) Mutual induction	✔b) Electromagnetic induction	c) Self induction	d) All of these

697) Terminal potential difference of a battery is equal to its emf when its internal resistance is

a) Very high	✔b) Zero	c) Equal to load resistance	d) Very low

698) The expression for energy stored in a capacitor is:

a) CV^2	✔b) $1/2\ CV^2$	c) 2 CV	d) $1/2$ CV

699) In A.C. generator , when plane of coil is perpendicular to magnetic field, then output of generator is.

a) $N\varepsilon AB$	b) $2\pi f$	c) Maximum	✔d) Zero

700) The function of three anodes in a C.R.O is.

a) To accelerate electrons only	b) To focus the electrons only	c) To control the brightness of spot on screen	✔d) To accelerate and focus the electrons

701) Electromagnetic waves are produced by

a) Rest charge	b) Uniformly moving charge	✔c) Accelerating charge	d) Positive charge

702) Presence of dielectric between two charges always.

✔a) Reduces the electric force	b) Enhances electric force	c) Does not effect force	d) Double electric force

703) Curie is unit of.

a) Conductivity	✔b) Radioactivity	c) Binding energy	d) Resistivity

704) Neutrons was discovered by

a) Rutherford	✔b) Chadwick	c) Becquerel	d) Curie

705) The value of Stefan's constant is

✔a) $5.67 \times 10^{-8}\ Wm^{-2}k^{-4}$	b) $5.67 \times 10^{-6}\ Wm^{-2}k^{-4}$	c) $5.67 \times 10^{-7}\ Wm^{-2}k^{-4}$	d) $5.67 \times 10^{-5}\ Wm^{-2}k^{-4}$

706) In modulation , low frequency signal is known as.

a) Carrier wave	b) Fluctuated signal	c) Modulated carrier signal	✔d) Modulation signal

707) Which consumes small power ?

✔a) Inductor	b) Resistor	c) Motor	d) All of them

708) Greater concentration of impurity is added in.

a) Base	✔b) Emitter	c) Collector	d) LED

709) The substances in which the atoms do not form magnetic dipoles are called.

a) Diamagnetic	b) Ferro magnetic	c) Para magnetic	✔d) Cryctal

710) The numerical value of green colour in colour code resistor is

a) 3	b) 4	✔c) 5

711) Electroretino graphy is used for the diagnosis of abnormality in the .

✔a) Eyes	b) Ears	c) Heart	d) None of these

712) In order to measure potential difference voltmeter is always connected in .

a) Series	✔b) Parallel	c) Both A & B	d) None of these

713) Dimensions of strain are

a) L^2	b) L^{-2}	c) $ML^{-1}T^{-2}$	✔d) No dimensions

714) Henry is SI unit of

a) Current	b) Resistance	c) Flux	✔d) Self induction

715) When magnetic field is parallel to the plane of the coil then torque on coil is:

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

716) Power factor in pure resistive circuit is

a) Large	b) Small	c) Infinite	✔d) One

717) A 50 mH coil carries a current of 2.0 A. Then energy stored in its magnetic field is.

✔a) 0.1 J	b) 10 J	c) 100 J	d) 1000 J

718) Substances which undergo plastic deformation until they break are known as

a) Brittle Substance	b) Non - Magnetic substance	✔c) Ductile Substance	d) Magnetic Substance

719) The potential difference between the head and tail of an electric eel is

✔a) 600 volts	b) 700 volts	c) 800 volts	d) 900 volts

720) The value of charge on 1.0 × 107 electrons is.

✔a) 1.6×10^{-12} C	b) 1.6×10^{-19} C	c) $1.6 \times 10^{+11}$ C	d) $1.6 \times 10^{+19}$ C

721) A device which converts low voltage(or current) to high voltage (or current) is called

a) Rectifier	✔b) Amplifier	c) Transistor	d) Diode

722) Special organ called Ampullae of lorenzini that are very sensitive to electric field are found in

a) Bats	b) Cats	c) Dog	✔d) Sharks

723) The emf produced by an alternation current generator is

✔a) NwAB sin θ	b) NwAB cos θ	c) NwAB sin2 θ	d) NwAB cos2 θ

724) In R-C series circuit the correct relation for the time constant is

a) R.t = C	b) C.t = R	✔c) R.C = t	d) C.V = Q

725) The force between two point charges separated by air in 4 N when separated by a medium of relative permittivity 2, the force between them become.

✔a) 2N	b) 4N	c) 8N	d) $\frac{1}{2}$N

726) The phenomena of induced emf was observed by Faraday and Henry in

a) 1631	b) 1731	✔c) 1831	d) 1931

727) The energy emitted from sun is due to

a) Fission reaction	✔b) Fusion reaction	c) Chemical reaction	d) All of these

728) X-rays are the electromagnetic radiations having the wavelength in range

✔a) 10^{-10}m	b) 10^{-8}m	c) 10^{-5}m	d) 10^{-3}m

729) In extrinsic semiconductors doping is of the order of

a) 1 atom to 10^4	b) 1 atom to 10^8	c) 1 atom to 10^3	✔d) 1 atom to 10^6

730) If an electron of charge " e" is accelerated through a potential difference V , it will acquire energy

✔a) Ve	b) Ve^2	c) V/e	d) V/E

731) Gain of non-inverting amplifier is given by:

a) $G = -R_2/R_1$	b) $G = R_1/R_2$	✔c) $G = 1 + R_2/R_1$	d) $G = 1 + R_1/R_2$

732) The device which is used as amplifier and works with negative feedback is

✔a) Operational amplifier	b) n-p-n transistor	c) p-n-p transistor	d) Transistor

733) 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 $\frac{\pi}{2}$	d) At angle of 120^0

734) The numerical value of violet colour in colour code resistor is

a) 6	b) 5	✔c) 7

735) Energy of black body radiations depends upon

a) Nature of surface of body	b) Nature of material	c) Shape and size of body	✔d) Temperature of the body

736) The basic element of a AC circuit is:

a) Resistor	b) Capacitor	c) Capacitor	✔d) All of these

737) AC can be converted into DC by

a) Transformer	✔b) Rectifier	c) Motor	d) Capacitor

738) Electrons are.

a) Hadrons	✔b) Leptons	c) Quarks	d) Baryons

739) For ohmic device the graph between V and I is.

✔a) A straight line	b) Curve	c) Hyperbola	d) Parabola

740) The most common source of alternating voltage is

a) Motor	b) Transformer	✔c) AC generator	d) All of these

741) If the frequency of AC supplied is halved then the capacitive reactance becomes

a) Half	✔b) Double	c) Four times	d) One fourth

742) In order to increase the K.E of ejected photo electron there should be an increase in

a) Intensity of radiation	b) Wavelength of radiation	✔c) Frequency of radiation	d) Both b and c

743) A transistor consists of:

✔a) Two junctions	b) Three junctions	c) Four junctions	d) Five junctions

744) The ratio of magnetic force (F_m) and electric force (F_e) acting on a charge moving undeflected through the filed is.

a) E/B	b) B/E	c) 1	✔d) $\frac{vB}{E}$

745) In a transistor r_{ie} is:

✔a) Base emitter resistance	b) Internal resistance	c) Collector base resistance	d) Collector emitter resistance

746) Which one of the following bulbs has the least resistance when connected across a constant potential difference?

a) 100 Watt	b) 200 Watt	c) 500 Watt	✔d) 1000 Watt

747) To get n-type material, the Ge is doped with

a) Aluminium	✔b) Arsenic	c) Boron	d) Indium

748) The sum of positive and negative peak values is called

a) Average value	b) rms value	c) Peak value	✔d) Peak to peak value

749) Laser can only be produced if an atom is in its

a) Normal state	✔b) Excited state	c) Ionized state	d) Water waves

750) The radius of first Bohr orbit in hydrogen atom is

a) 0.53 cm	b) 0.53 nm	✔c) 0.053 nm	d) 0.0053 nm

751) Closeness of the electric field lines is the measure of

a) Cirection of field	✔b) Strength of field	c) both of these	d) None of these

752) The critical temperature of aluminum is

a) 3.72 k	✔b) 1.18 k	c) 7.2 k	d) 8.2 k

753) Which diode works at reverse biasing?

a) LED	✔b) Photo diode	c) Photovoltaic cell	d) Silicon diode

754) The number of neutrons in ${}^{7}_{3}Li$ are.

a) 3	b) 7	✔c) 4	d) 2

755) Electric co - efficient is represented by.

✔a) ε_0	b) ε_i	c) μ_o	d) μ_r

756) A device which show the visible path of ionizing particle is called

✔a) Wilson cloud Chamber	b) Scalar	c) G.M counter	d) All of these

757) The magnitude of electric intensity between near an infinite sheet of charge is

a) $\frac{\varepsilon_o}{2\sigma}$	b) $\frac{\varepsilon_o}{\sigma}$	✔c) $\frac{\sigma}{2\varepsilon_o}$	d) $\frac{\sigma}{\varepsilon_o}$

758) Mutual induction has a practical role in the performance of the

a) Radio Choke	✔b) Transformer	c) A.C Generator	d) D.C Generator

759) A.C through inductor , the applied voltage

✔a) Leads the current by $\frac{\pi}{2}$	b) legs the current by $\frac{\pi}{2}$	c) And Current are in Phase	d) And Current is out of phase 180^0

760) Eddy current is one cause energy loss in.

a) A.C generator	✔b) Transformer	c) D.C motor	d) D.C generator

761) The self - inductance of solenoid is

a) $L = \mu_0 n\ Al$	b) $L = \mu_0 N^2\ Al$	✔c) $L = \mu_0 n^2\ Al$	d) $L = \mu_0 N\ Al$

762) Photo diode is used for detection of.

a) Heat	b) Magnet	c) Current	✔d) Light

763) Wheatstone bridge is an arrangement consisting of.....resistance

a) 2	b) 3	✔c) 4	d) 5

764) A diode characteristics curve is a plot between

✔a) Voltage and current	b) Current and time	c) Voltage and time	d) Forward and reverse voltage

765) Integrated amplifier is known as

a) Power amplifier	b) Pull-push amplifier	✔c) Perational amplifier	d) Current amplifier

766) The power dissipated in AC circuit is given by $P = I_{rms} V_{rms} \cos\theta$ in this relation $\cos\theta$ is called

a) Phase factor	b) Gain factor	c) Loss factor	✔d) Power factor

767) Write the SI unit of magnetic flux.

✔a) $N.mA^{-1}$	b) $Nm^{-1}A$	c) $Nm^{-1}A^{-1}$	d) NmA

768) When a metal is heated sufficiently electrons are given off by the metal This phenomenon is known as

a) Photoelectric effect	b) Piezoelectric effect	c) Secondary emission	✔d) Thermionic emission

769) The notation for Henry is

a) $V.s^{-1}A$	b) V.s.A	c) $V^{-1}.s.A$	✔d) $V.s.A^{-1}$

770) The energy releases by fusion of two deuterons into a Helium nucleus is about

✔a) 24 Mev	b) 204 Mev	c) 200Mev	d) 304 Mev

771) Metal detector work with the help of

a) RC circuit	b) RL circuit	✔c) LC circuit	d) RLC series circuit

772) The substance in which atoms co-operate 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

773) In RLC series circuit at resonance the phase difference between capacitor and inductor reactance is

a) 90^0	b) 270^0	c) 0^0	✔d) 180^0

774) Sensitivity of a galvanometer can be increased by.

✔a) Decreasing the value of tersional couple	b) Decreasing number of turns	c) Decreasing area of plane of coil	d) Decreasing magnetic field

775) LDR becomes necessary when op-amp is used as a.

a) Night switch	b) Rectifier	c) Inverter	✔d) Comparator

776) The total energy of electron in the state $n=\infty$ of the hydrogen atom is

✔a) Zero	b) 3.2 ev	c) 10.2 ev	d) 13.6 ev

777) A pair of quark and anti quark makes a.

✔a) Meson	b) Harden	c) Lepton	d) Baryon

778) If a charged body is moved against the electric field it will gain

a) P.E	b) K.E	c) M.E	✔d) Electrical potential energy

779) The wave length of emitted radiation of maximum intensity is inversely proportional to the absolute temperature. This is known as:

a) Faraday's law	b) Rayleigh Jean's law	✔c) Wein's displacement law	d) Stefan's law

780) The product of charge and potential difference is

a) Flux	b) Current	✔c) Energy	d) Power

781) Unit of Planck's constant is same as that of

a) Acceleration	✔b) Angular momentum	c) Linear momentum	d) Entropy

782) The numerical value of black colour in carbon resistors is

a) 1	b) 2	c) 3

783) Specific resistance of a material depends upon

a) Length	b) Area	✔c) Temperature	d) A & B

784) The input resistance of an op-amplifier is

a) Zero	b) Low	✔c) High	d) Equal to output resistance

785) Emf is induced due to change in.

a) Charge	b) Current	✔c) Magnetic flux	d) Electric field

786) LDR means:

a) Low degree resistor	✔b) Light dependent resistance	c) Light dependent radiation	d) Low degree rectification

787) In n-type materials , the minority carriers are

a) Free electrons	✔b) Holes	c) Protons	d) Mesons

788) The orbital angular momentum in the allowed stationary orbits of hydrogen atom is given by

a) $\frac{h}{2\pi}$	✔b) $\frac{nh}{2\pi}$	c) $\frac{h}{\pi}$	d) None of these

789) 1 rem is equal to.

a) 0.1 Sv	✔b) 0.01 Sv	c) 10 Sv	d) 100 Sv

790) Which pair belongs to hadrons?

✔a) Protons and Neutrons	b) Photons and electrons	c) Neutrons and electrons	d) Positrons and electrons

791) β particles in Wilson cloud chamber gave

✔a) Zigzag	b) Curved path	c) Circular path	d) None of these

792) The number of electrons accelerated by anodes in CRO is controlled by:

a) Anode	b) Cathode	c) Filament	✔d) Grid

793) The unit of the ratio of electric field to that of magnetic field is the same as that of

✔a) velocity	b) acceleration	c) mass	d) time

794) The unit of permeability of free space is

a) Wbm^{-2}	b) $WbmA^{-1}$	✔c) $WbA^{-1}m^{-1}$	d) $WbAm^{-1}$

795) When a metal detector comes close to a metal then its frequency.

a) Becomes double	b) Becomes half	✔c) Remains same	d) Increases

796) Which is not a basic logic operation?

a) NOT	b) AND	c) OR	✔d) NAND

797) In order to reduce uncertainty in momentum ,one must use light of

a) Short wavelength	✔b) Long wavelength	c) Intermediate wavelength	d) Infinite wavelength

798) The rod of unit length is moving at 30^0 through a magnetic field of 1 T . If velocity of rod is 1 m/s , then induced emf in the rod will be given by

a) 1 V	b) 0.2 V	✔c) 0.5 V	d) 0.6 V

799) The critical temperature (T_c) of lead is

✔a) 7.2 k	b) 3.72 k	c) 125 k	d) 77 k

800) Magnetic flux per unit area perpendicular to magnetic field is called

a) Self induction	b) energy density	✔c) flux density	d) flux area

801) Pulsating DC can be made smooth by using a circuit known as

✔a) Filter	b) Tank	c) Accepter	d) All of these

802) The ionizing power of β is

a) Equal to alpha particle	b) Equal to gamma particle	c) Equal to ultra particle	✔d) Less than alpha particle

803) Charge on electron is .

a) 1.6×10^{19} C	✔b) 1.6×10^{-19} C	c) 1.6×10^{-17} C	d) 1.6×10^{17} C

804) The number of electrons in one Coulomb charge is equal to.

a) 1.6×10^{-19}	✔b) 6.25×10^{18}	c) 6.25×10^{-19}	d) 6.25×10^{19}

805) Every particles has corresponding antiparticles with

a) Same mass	b) Different mass	c) Opposite mass	✔d) Opposite mass and Same mass

806) The particles equal or greater in mass than of protons are called.

✔a) Baryons	b) Leptons	c) Mesons	d) Quarks

807) The cell has emf E and internal resistance r, then maximum available power from the cell is

✔a) $E^2/4r$	b) $E^2/4r^2$	c) $E^2/4r^2$	d) $E/4r$

808) Which series lies in the ultraviolet region.

a) Ballmer series	b) Ptund series	c) Bracket series	✔d) Lyman series

809) An electron in H atom is excited from ground state on n=4 How many spectral lines are possible in this case

✔a) 6	b) 5	c) 4	d) 3

810) The electric potential at a mid point in an electric dipole is

✔a) 0V	b) 0.5V	c) 1V	d) 1.5V

811) The particles equal in mass but greater than proton are.

a) Mesons	✔b) Baryons	c) Leptons	d) Hadrons

812) Three arms of a balanced Wheatstone bridge are of 25 ohms resistance each. What is the resistance of the fourth arms?

a) 15 ohm	✔b) 25 ohm	c) 50 ohm	d) 40 ohm

813) The amount of energy required to break the nucleus is called its

a) Mass defect	b) Breaking energy	✔c) Binding energy	d) Potential energy

814) Total flux through a closed surface depends on

a) Shape of surface	b) Charge enclosed only	✔c) Charge and medium	d) Medium only

815) Compton 's effect is associated with

a) Gamma rays	b) Beta rays	✔c) x-rays	d) Positive rays

816) The reactance of an inductor is

a) $\frac{1}{\omega L}$	b) $\frac{\omega}{L}$	c) $\frac{L}{\omega}$	✔d) ωL

817) The reverse process of photo electric effect is called

a) Pair production	b) Compton effect	✔c) X- rays	d) All of these

818) The minimum energy required for pair production is

a) 0.51 MeV	✔b) 1.02 MeV	c) 2. 52 MeV	d) 3.2 MeV

819) When ohm meter gives full scale deflection it indicates.

✔a) Zero resistance	b) Small resistance	c) Infinite resistance	d) Very high resistance

820) The bombardment of nitrogen with alpha particle will produce

a) Neutron	✔b) Proton	c) Positron	d) Electron

821) In choke of inductance L and resistance R

✔a) L is large and R is small	b) L is small R is large	c) Both L and R are large	d) Both L and R are small

822) Charge to mass ratio of Neutron is

a) 1.75 x 10^{-11} C/kg	b) 9.58 x 10^{-11} C/kg	c) 1.758 x 10^{-11} C/kg	✔d) Zero

823) The basic circuit element in a D.C circuit is

✔a) Resistor	b) Inductor	c) Capacitor	d) Transistor

824) In a glass , molecules are irregularly arranged so it is known as.

a) Solid	b) Liquid	✔c) Solid liquid	d) Gas

825) When a p-n junction is reverse biased the depletion region is

✔a) Widened	b) Narrowed	c) Normal	d) None of these

826) Balmer series lies in.

✔a) Visible region	b) Invisible region	c) Ultraviolet region	d) Infrared region

827) The relation $\frac{\Delta v}{\Delta r}$ represents

a) Gauss's law	b) Electric flux	✔c) Electric intensity	d) Potential difference

828) Paschen series lies in the .

a) Far-ultraviolet region	✔b) Infred region	c) Visible region	d) Ultravoilet region

830) The mutual inductance of the coils depends upon.

a) Stiffness of the coils	b) Material of coils	✔c) Density of coils	d) Geometry of the coils

831) Fission chain reaction is controlled by.

✔a) Cadmium rods	b) Iron rods	c) Platinum rods	d) Steel rods

832) Three phae AC supply machine has

a) No terminal	b) 2 terminal	✔c) 4 terminal	d) 6 terminal

833) Which one pair belongs to accepter impurity ?

a) Arsenic , Phosphorus	b) Antimony , Indium	✔c) Boron , Gallium	d) Arsenic , Antimony

834) The crystalline structure of NaCl is.

✔a) Cubical	b) Hexagonal	c) Trigonal	d) Tetragonal

835) The direction of induced current is always so as to oppose the change which causes the current is.

a) Faraday's Law	b) Ohm's Law	✔c) Lenz's Law	d) Kirchhoff's 1st rule

836) The fact that electric field exist in space around an electrical charge is.

a) Electrical property	b) Gravitational property	✔c) Instrinsic property of nature	d) Extrinsic property of nature

837) During each cycle AC voltage reaches a peak value

a) Once	✔b) Twice	c) Thrice	d) Four times

838) For Holography we use

a) X-rays	b) Y-rays	✔c) Laser	d) None of these

839) The electric field lines are closer where the field is

✔a) Strong	b) Weak	c) Uniform	d) All of these

840) Wave length λ associated with the particle of mass m and moving with the velocity v is

✔a) $\frac{h}{mv}$	b) $\frac{2h}{mv}$	c) $\frac{mv}{h}$	d) None of these

841) If a closed surface contains two equal and opposite charges, the net electric flux from the surface will be:

a) Positive	b) Negative	✔c) Zero	d) Both a and b

842) The net charge on a capacitor is

a) Infinity	b) 2 q	c) q/ 2	✔d) Zero

843) In pn junction the n region is also known as:

a) LED	b) Cell	✔c) Cathode	d) Anode

844) Relative permittivity (ε_r) for air is.

a) 1.06	b) 1.006	✔c) 1.0006	d) 1.6

845) A finally focused beam of laser used to destroy

a) Cancerous cell	b) Pre cancerous cells	c) Living cells	✔d) Both A and B

846) An electron can never be found:

✔a) inside the nucleus	b) outside the nucleus	c) inside the atom	d) None of these

847) Electric flux does not depend upon.

a) Medium	✔b) Shape of closed surface	c) Charge enclosed	d) Medium and charge enclosed

848) The number of crystal system are.

a) Three	b) Five	✔c) Seven	d) Fifteen

849) Number of neutrons in $^{235}_{92}U$:

a) 92	b) 235	✔c) 143	d) 327

850) The charge on β^- particle is.

a) +e	✔b) -e	c) -2e	d) None of these

851) A detector can count fast and operate low voltage is

a) G.M counter	✔b) Solid state detector	c) Bubble chamber	d) All of these

852) Which of t he following are not hadrons?

✔a) Muons	b) Mesons	c) Protons	d) Neutrons

853) Conductivity of metals is of the order of

a) $10^{-4}\ \Omega^{-1}\ m^{-1}$	b) $10^{-10}\ \Omega^{-1}\ m^{-1}$	c) $10^{-20}\ \Omega^{-1}\ m^{-1}$	✔d) $10^{7}\ \Omega^{-1}\ m^{-1}$

854) Heat generated by a 50 watt bulb in one hour is.

a) 36000 J	b) 48000 J	c) 18000 J	✔d) 180000 J

855) Substances which break just after the elastic limit is reached area called as

a) Ductile Substances	b) Hard Substances	✔c) Brittle Substances	d) Soft Substances

856) The condition of resonance in R-L-C series circuit is

✔a) $X_L = X_C$	b) $X_L > X_C$	c) $X_L < X_C$	d) All of these

857) A light emitting diode (LED) emits light only when.

a) Reverse biased	b) Unbiased	✔c) Forward biased	d) None of these

858) The electric flux through closed surface depends upon.

a) Charge	b) Geometry	c) Medium	✔d) Charge and medium

859) The heat produced by the passage of current through a resistor is.

✔a) $H = I^2Rt$	b) $H = IR^2t$	c) $H = \frac{I}{Rt}$	d) $H = \frac{I^2}{Rt}$

860) A well - known example of an intrinsic semi - conductor is

✔a) Germanium	b) Phosphorus	c) Aluminium	d) Cobalt

861) The peak value of A.C source is 20 A, and then its rms value will be

✔a) 14.1 A	b) 10 A	c) 20 A	d) 28.2 A

862) If speed to rotation of a generator is doubled the output voltage will be.

a) Remain same	b) Four time	✔c) Double	d) One half

863) SI unit of absorbed dose is.

✔a) Gray	b) Roentgen	c) Curie	d) Rem

864) Best hard magnetic material is made up of

✔a) Alnico V	b) Iron	c) Nickel	d) Cobalt

865) Maximum kinetic energy of photoelectrons depend upon of incident light

✔a) Frequency	b) Intensity	c) Brightness	d) Power

866) The charge moving perpendicular to magnetic field experience force

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

867) The unit of Electricity intensity other than NC^{-1}

a) VA^{-1}	✔b) Vm^{-1}	c) VC^{-1}	d) All of these

868) Coulomb per volt is called

✔a) Farad	b) Ampere	c) Joule	d) Henry

869) A battery of 50 volts is attached to a series combination of 5 Ω, 0 Ω and 10 Ω The current in the circuit is

a) 5.1 A	b) 10.3 A	✔c) 3.34 A	d) 2.56 A

870) The capacitance of a parallel plate capacitor in vacuum is.

✔a) $C_{vdc} = \frac{A\varepsilon_0}{d}$	b) $C_{vdc} = \frac{A\varepsilon_0\varepsilon_r}{d}$	c) $C_{vdc} = \frac{\varepsilon_{0A}}{d}$	d) $C_{vdc} = \frac{A\varepsilon_0\varepsilon_r d}{d}$

871) One ohm is equal to.

a) VC^{-1}	b) CV^{-1}	c) AC^{-1}	✔d) VA^{-1}

872) An ECG records the _____ between points on human skin generated by electric process in the heart.

a) Heart beat	b) Pulse rate	c) Pressure	✔d) Voltage

873) Identify the practical application of electrostatic force.

✔a) Inkjet printer	b) Laser	c) X-rays	d) A.C generator

874) How many times the α- particle is more massive than electron

a) 5000	✔b) 7000	c) 9000	d) 1100

875) The instantaneous value of current is

a) $I_0 \sin(2\pi f)$	b) $I_0 \sin(2\pi)$	c) $I_0 \sin(2\pi fL)$	✔d) $I_0 \sin(2\pi ft)$

876) The magnetic force is simply a

a) Reflecting force	✔b) Deflecting force	c) Restoring force	d) Gravitational force

877) Who explained the photo electric effect

✔a) Max plank	b) Einstein	c) Henry	d) Rutherford

878) The force between two charges is 28 N. If paraffin wax of relative permittivity 2.8 is introduced between the charges as medium , then the force reduces to.

a) 25 N	b) 20 N	c) 15 N	✔d) 10 N

879) When the back emf is zero, its draws.

✔a) Zero current	b) Minimum current	c) Maximum current	d) Steady current

880) An A.C Voltmeter reads 220 V , its peak value will be

a) 225 V	b) 340 V	✔c) 311.12 V	d) 300 V

881) Shunt resistance is.

✔a) Low resistance	b) High resistance	c) Zero resistance	d) Impendance

882) Mass of proton is.

✔a) 1.66×10^{-27} kg	b) 1.67×10^{-19} kg	c) 1.67×10^{-31} kg	d) 9.1×10^{-31} kg

883) The velocity of an oscillating charge as it moves to and fro along the wire is

✔a) Changing	b) Constant	c) Infinite	d) Zero

884) The output of a two inputs OR gate in 0 only when its

a) Both inputs are 0	b) Both inputs are 1	c) Either input is 1	d) Either input is 0

885) Various types of cancer are treated by.

a) Carbon-14	b) Nickel-63	✔c) Cobalt-60	d) Strontium-90

886) The total electric flux through any closed surface depends upon.

a) Charge	b) Medium	c) Geometry of closed surface	✔d) Both A & B

887) Hydrogen atom spectrum does not lie in

a) Ultra violet region	b) Visible region	c) Infra and region	✔d) X-ray region

888) In meta stable state atom can reside_____ than normal excited sate

✔a) 10^{-5} times longer	b) 10^{-4} times longer	c) 10^{-3} times longer	d) 10^{-2} times longer

889) Which material should be inserted between the plates of a capacitor in order to increase its capacitance

a) Copper	b) Tin	✔c) Mica	d) Iron

890) In CRO the gird is at.....potential with respect to cathode

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

891) Balmer series lies in region of electromagnetic spectrum.

a) Infrared	✔b) Visible	c) Ultraviolet	d) Fra infrared

892) The mass of β^- particle is equal to the mass.

a) Proton	b) Neutron	✔c) Electron	d) Photon

893) Commutators are used in.

✔a) D.C. generators	b) A.C. generators	c) A.C. motor	d) A.C. rotator

894) Which of the following waves do not travel at the speed of light?

a) Radio waves	✔b) Sound waves	c) X-rays	d) Heat waves

895) The gain of transistor amplifier depends upon

✔a) R_c	b) R_B	c) V_{in}	d) V_o

896) Nuclear fission chain reaction is controlled by using

a) Steel rods	b) Graphite rods	✔c) Cadimum rods	d) None of these

897) A charge of 10^{-10} C between two parallel plates 1 cm apart experience a force of 10^{-5} N.

a) 10 V	b) 10^2 V	✔c) 10^3 V	d) 10^4 V

898) To make n-type substance , antimony is mixed with

a) Boron	b) Indium	✔c) Germanium	d) Arsenic

899) According to Heisenberg's first uncertainty principle ,the product of momentum and position of a particle is approximatly equal to

a) Stepahn's constant	b) Rydberg's constant	✔c) Planck's constant	d) Wein's constant

900) Platinum wire becomes yellow at temperature of

a) 900^{o} C	✔b) 1300^{o} C	c) 1600^{o} C	d) 500^{o} C

901) Baryons with combination of up ,up and up quark has charge.

a) 1 e	✔b) 2 e	c) -1 e	d) -2 e

902) The velocity of X-rays is equal to that of:

a) Cathode rays	✔b) Gamma rays	c) Alpha rays	d) Beta rays

903) The product of resistance and capacitance is :

a) velocity	b) force	c) acceleration	✔d) time

904) In case of non-inverting op. amplifier is of the order of.

✔a) $V_{out} = 3V_{in}$	b) $V_{in} = 3V_{out}$	c) $V_{out} = 2V_{in}$	d) $V_{in} = 2V_{out}$

905) Shear modulus is expressed as

a) $G = \frac{\tan\theta}{F/A}$	b) $G = \frac{\tan\theta}{A}$	✔c) $G = \frac{F/A}{\tan\theta}$	d) $G = \frac{F}{\tan\theta}$

906) Iodine-131 is used for the treatment of.

a) Bones	b) Eyes	✔c) Thyroid glands	d) Lungs

907) When an inductor comes close to a metallic object , its inductance is

✔a) Decreased	b) Increased	c) Becomes half	d) Becomes 4 items

908) A device that allows only the flow of DC through a circuit is

✔a) Inductor	b) Capacitor	c) AC generator	d) Transformer

909) At 0 K piece of " Ge " or " Si " is a perfect

a) Conductor	✔b) Insulator	c) Semi - conductor	d) Paramagnetic

910) γ - rays emitted from radioactive element have speed.

a) $1 \times 10^{7}\ ms^{-1}$	b) $1 \times 10^{18}\ ms^{-1}$	✔c) $3 \times 10^{8}\ ms^{-1}$	d) $4 \times 10^{19}\ ms^{-1}$

911) In pure capacitor AC circuit , the current I and charge q are

a) In phase	✔b) Out of phase	c) Parallel to each other	d) None of these

912) Marie curie and pierre curie discovered

a) Uranium	✔b) Polonium and radium	c) Uranium and radium	d) All of these

913) α-particles carry a charge

a) -e	✔b) +2e	c) -2e	d) no charge

914) Life time of excited state is

a) 10^{-2} s	✔b) 10^{-3} s	c) 10^{-4} s	d) 10^{-5} s

915) A billion electrons are added to pith ball. Its charge is.

a) -1.6×10^{-10} C	b) -1.6×10^{-12} C	c) -1.6×10^{-14} C	✔d) -1.6×10^{-7} C

916) The number of Neutron in $^{238}_{92}U$ is.

a) 92	b) 238	✔c) 146	d) 330

917) If the coil is wound on iron core , the flux through it.

a) Decrease	b) Becomes zero	✔c) Increases	d) Remains constant

918) The temperature below which resistivity of some materials becomes zero is called

a) Kelvin temperature	b) Absolute zero temperature	✔c) Critical temperature	d) Limiting temperature

919) Inductive reactance of an inductor is

a) $X_L = \pi f L$	b) $X_L = 4\pi f L$	✔c) $X_L = 2\pi f L$	d) $X_L = 2\pi L$

920) The dimensions of time constant is:

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

921) Transistors are made from:

a) Superconductors	b) Metals	c) Insulators	✔d) Doped semiconductors

922) The place for storing the nuclear waste is.

a) Ocean	b) Damping in earth	c) Damping in desert	✔d) Bottom of old salt mines

923) The voltage gain of the common emitter npn-transister is derived using:

a) Lenz's law	✔b) Kirchhoff's law	c) Coulomb's law	d) Faraday's law

924) Special organ called ampullae of lorenzini that are very sensitive to electric field are found in.

a) Bats	b) Cats	c) Dogs	✔d) Sharks

925) Thermistor with high negative temperature coefficient are very accurate for measuring low temperature near

✔a) 10K	b) 10 °F	c) 10 °C	d) -10 °C

926) The sum of electric and magnetic force is called

a) Maxwell force	✔b) Lorentz force	c) Newton's force	d) Centripetal force

927) Binding energy for deuteron nucleus is given by.

a) 2.8 MeV	✔b) 2.23 MeV	c) 2.28 MeV	d) 2.25 MeV

928) If velocity of a body becomes equal to "c" , then its mass becomes.

a) 0 kg	b) $m = m_0$	✔c) $m \rightarrow \infty$	d) $m = \frac{m_0}{2}$

929) Domains contain atoms

a) 10^3 to 10^6	b) 10^6 to 10^9	c) 10^9 to 10^{12}	✔d) 10^{12} to 10^{16}

930) Helium Neon laser discharge tube contains neon

a) 82 %	b) 25 %	✔c) 15 %	d) 85 %

931) A rod of length 20 m is moving with 20 m/s in a direction perpendicular to magnetic field of 20 T what is the value of emf.

a) 2000 V	b) 4000 V	c) 6000 V	✔d) 8000 V

932) Filament in C.R.O

✔a) Conductors	b) Insulators	c) Perfect conductors	d) Perfect insulators

933) Which type of impurity is to be added to a pure semi conductor crystal to provide holes

a) Monovalent	b) Trivalent	✔c) Tetravalent	d) Pentavalent

934) Which nature of light is revealed by photoelectric effect?

a) Dual	✔b) Corpuscular	c) Wave	d) Elecromagnetic

935) The resistance between the inverting (-) and non-inverting inputs is called input resistance and is the order of.

a) Ohms	✔b) Kilo ohms	c) Thounds ohms	d) Mega ohms

936) The factor h/ m_oc in Compton equation has the dimension of

a) Pressure	✔b) Length	c) Mass	d) Momentum

937) Lenz's law deals with.

a) Direction of emf	b) Magnitude of emf	✔c) Direction of induced current	d) Resistance

938) Which expression for mutual inductance is correct?

✔a) $M = \frac{N_s \emptyset_s}{I_p}$	b) $M = \frac{\emptyset_s}{N_s I_p}$	c) $M = \frac{I_p}{N_s \emptyset_s}$	d) $M = \frac{N_s}{I_p \emptyset_s}$

939) A pair of quark and anti quark make a

✔a) Meson	b) Harden	c) Lepton	d) Baryon

940) When op-amp is used as inverting amplifier, which of the terminal is grounded:

a) Inverting	✔b) Non inverting	c) Output	d) Both b and c

941) Hydrogen atom spectrum does not lie in.

a) Ultraviolet region	b) Infrared region	c) Visible region	✔d) X-ray region

942) The element formed by radioactive decay is called

a) Father element	b) Mother element	c) Parent element	✔d) Daughter element

943) If fourth band is missing on resistance its tolerance is

a) ± 5	b) ± 6	c) ± 7	✔d) $\pm 20\%$

944) Current passing through the coil of galvanometer is.

✔a) $\frac{C\theta}{BAN}$	b) $\frac{C\theta N}{BA}$	c) $\frac{NAB}{C\theta}$	d) $\frac{AN}{BC\theta}$

945) The basic circuit element in a D.C circuit is

✔a) Resistor	b) Capacitor	c) Inductor	d) Transistor

946) The first superconductor was discovered in:

✔a) 1911	b) 1932	c) 1954	d) 1963

947) Which group belong to Hadrons

✔a) Protons and neutrons	b) Photons and electrons	c) Photons and neutrons	d) Protons and electrons

948) One of the source of an A.C voltage is

✔a) A.C generator	b) Battery	c) UPS	d) Solar cell

949) Which one is more energetic

✔a) γ-rays	b) x-rays	c) Ultra violet rays	d) None of these

950) Using relativistic effects the location of an air craft after an hour fight can be predicated about.

a) 20 m	✔b) 50 m	c) 760 m	d) 780 m

951) Minority carries in P-type substance are

a) Protons	b) Neutrons	✔c) Electrons	d) Positrons

952) When an area is held perpendicular to the field lines then the magnitude of electric flux is

a) Negative	b) Positive	✔c) Maximum	d) All of these

953) In A.C., inductor behaves are.

✔a) Capacitor	b) Resistor	c) Commutator	d) Transistor

954) Galvanometer is sensitive when $\frac{C}{BAN}$ is.

✔a) Small	b) Zero	c) Large	d) Negative

955) Laser is the beam of light which is

a) Monochromatic	b) Coherent	c) Unidirectional	✔d) All of these

956) The junction potential for Silicon is

a) 3 V	b) 0.3 V	c) 7 V	✔d) 0.7 V

957) A device which opposes the flow of A.C is

a) Resistor	b) Capacitor	✔c) Inductor	d) None of these

958) The number of isotopes of cesium are.

a) 4	b) 32	c) 22	✔d) 36

959) In e/m experiment, the path of the electron can be made visible by filling glass tube with hydrogen gas at

✔a) Low pressure	b) High pressure	c) Zero pressure	d) Infinite pressure

960) Photos emitted in inner shell transition are

a) Continuous X-rays	b) Discontinuous X-rays	✔c) Characteristics X-rays	d) None of these

961) If a low resistance is connected parallel to a galvanometer then galvanometer is converted into.

✔a) Ammeter	b) Voltmeter	c) Ohmmeter	d) Multimeter

962) In nuclear fission reaction, which the products are ^{140}X , and ^{94}Sr , the number of neutrons emitted are.

a) 1	✔b) 2	c) 3	d) 4

963) In the capacitive circuit connected to AC source, when q = 0 the slope of q-t curve is

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

964) Equation $\emptyset = \vec{E}.\vec{A}$ is applicable to the surface

a) Conical	✔b) Flat	c) Spherical	d) All of these

965) In AVO meter the current is measure when number of low resistance are connected with galvanometer in

a) Series	✔b) Parallel	c) Series and parallel	d) Perpendicular

966) The term transistors stands for

✔a) Transfer resistance	b) Transfer current	c) Transfer voltage	d) Transfer charge

967) What is the resistance of a carbon resistor which has bands brown black and brown

✔a) 100 ohm	b) 1000 ohm	c) 10 ohm	d) 1.0 ohm

968) Photo diode detects.

✔a) Visible light	b) Radio waves	c) X-rays	d) All of these

969) In order to increase sensitivity of galvanometer the value of C may be.

a) Increase	✔b) Decrease	c) Neither increase nor decearse	d) Remain same

970) In a three phase AC generator the phase difference between each pair of coil is

a) 45^0	b) 60^0	c) 90^0	✔d) 120^0

971) Self inductance does not depend upon

a) Number of turns of the coil	b) Area of cross - section of the core	c) Natural of material of the core	✔d) Current through inductor

972) The maximum uncertainty in the measurement of position of an electron inside nucleus is of the order of:

a) 10^{-8}m	b) 10^{-10}m	c) 10^{-11}m	✔d) 10^{-14}m

973) The mass of an object will be doubled at speed.

✔a) 2.6×10^8 m/s	b) 2.6×10^7 m/s	c) 1.6×10^8 m/s	d) 3.6×10^7 m/s

974) The length of a rod will becomes half at the speed.

a) $\frac{1}{2}c$	b) $\frac{3}{2}c$	c) $\frac{1}{\sqrt{2}}c$	✔d) $\frac{\sqrt{3}}{2}c$

975) The aplitude modulated transmission waves have .

a) 540 kHz to 1600 kHz	b) 88 kHz to 10.8 kHz	✔c) 88 kHz to 108 kHz	d) 540 kHz to 1600 kHz

976) Photo voltaic cell is formed from.

✔a) Arsenic	b) Carbon	c) Germanium	d) Silicon

977) The operational amplifier, when works as inverting amplifier. The phase change between its input and output is.

a) 90^0	b) 120^0	c) 150^0	✔d) 180^0

978) The relation for the gain of an inverting amplifier is.

a) $G = \frac{R_1}{R_2}$	b) $G = \frac{R_2}{R_1}$	✔c) $G = \frac{-R_2}{R_1}$	d) $G = \frac{-R_1}{R_2}$

979) A high potential difference of is used in G.M counter

✔a) 400 volts	b) 40000 volts	c) 5000 volts	d) 4400 volts

980) Truth table of logic function

a) Summarizes its output values	b) Tabulates all its input conditions only	c) Is not base don logical algebra	d) Display all its Input/output possibilities

981) The half life of radioactive elements depends upon.

a) Temperature	b) Nature of element	✔c) Amount of the radioactive substance	d) Pressure