Everwin Matric. Hr. Sec. School

XII (A-E)

Physics

2 Marks & 3 Marks:

Ln.1

- 1. Basic properties of charge Pg.no:3
- 2. Define coulomb's law. Pg.5
- 3. Difference between coulomb's law and gravitational law. Pg.5
- 4. Define super position principle. pg. 9
- 5. Important aspects of electric field. Pg.12
- 6. Properties of electric field lines. Pg.18
- 7. Define electric dipole. Pg.21
- 8. Torque experienced by an electric dipole in the uniform electric field. Pg.25
- 9. Electrostatic potential due to a point charge. Pg.28
- 10. Define equi potential due to a point charge. Pg.32
- 11. Properties of equi potential. Pg.33
- 12. Relation between electric field and potential. Pg.33
- 13. Define electric flux. Pg. 38
- 14. Define Gauss law. Pg.40
- 15. Why it is safer to sit inside the bus than under a tree during lightning or thunder? Pg.51
- 16. Define electrostatic induction. Pg.51
- 17. Define electrostatic shielding. Pg.50
- 18. Difference between non-polar and polar molecules. Pg.53
- 19. Define dielectric strength. Pg.55
- 20. Define capacitance. Pg.56
- 21. Capacitance of a parallel plate capacitor. Pg.56
- 22. Energy stored in a capacitor. Pg.58
- 23. Applications of capacitor. Pg.58
- 24. Define action at points. Pg.67
- 25. What is the principle based on Vande graft generator. Pg.69

Ln.2

- 1. Difference between drift velocity and mobility. Pg.85
- 2. Microscopic model of current. Pg.87
- 3. Macroscopic scopic form of Ohms law. Pg.89
- 4. Difference between ohmic and non-ohmic material. Pg.89
- 5. Why current density is a vector but current is a scalar. PG.88
- 6. Define electrical resistivity of the material. Pg.90
- 7. Define Ohms law. Pg.88
- 8. Define temperature co-efficient of resistance. Pg.97
- 9. Express the various equations for power. Pg.100
- 10. State Kirchoff's current law and voltage law. Pg.107, 108

- 11. State Joules law of heating. Pg.115
- 12. Explain the applications of Joules heating effect. Pg.115
- 13. Why Nichrome is used as an electric heating device. Pg. 115
- 14. Define seebeck effect. Pg.117
- 15. Applications of seebeck effect. Pg.117
- 16. Define Peltier effect. Pg.118
- 17. Define Thomas effects and its types. Pg.118

Ln.3

- 1. Basic properties of magnet. Pg.132
- 2. Properties of magnetic field lines. Pg.136
- 3. Coulomb's inverse square law of magnetism. Pg.140
- 4. Torque acting on a bar magnet in uniform magnetic field. Pg.143
- 5. Potential energy of a bar magnet in a uniform magnetic field. Pg.145
- 6. Define Tangent law. Pg.147
- 7. Write down the precautions to be followed in Tangent Galvanometer.
- 8. Explain magnetic properties. (Definitions only) Pg. 149
- 9. Compare para, dia, ferro magnetism (properties). Pg.152
- 10. Define curies law. Pg.153
- 11. Define curie-weiss law. Pg.155
- 12. Define hysteresis. Pg.157
- 13. Difference between soft and hard ferro magnetic materials. Pg.158
- 14. Applications of hysteresis loop. Pg.158
- 15. Define right hand thumb rule. Pg.161
- 16. Define Maxwell's right hand cork screw rule. Pg.161
- 17. Explain Biot-Savart law. Pg. 162
- 18. Difference between Coulomb's law and Biot-savart law? Pg.163
- 19. Define end rule / polarity rule. Pg. 167
- 20. Define Ampere's circuited law. Pg.169
- 21. Explain Magnetic Lorentz force. Pg.175
- 22. Limitations of cyclotron. Pg.183
- 23. Fleming's left hand rule. Pg.184
- 24. Define one ampere. Pg.186
- 25. Why phosphor bronze wire is used as a suspension wire. Pg.192
- 26. Conversion of galvanometer into ammeter. Pg.193
- 27. Conversion of galvanometer into voltmeter. Pg.194

Ln.4

- 1. Define magnetic flux. Pg.207
- 2. Define electromagnetic induction. Pg.210
- 3. State the faraday's law of electromagnetic induction. Pg.212
- 4. Define Lenz's law. Pg.214
- 5. Define generator rule Flemings right hand rule. Pg.216
- 6. Write a short note on Eddy current. Pg.221
- 7. Application of Eddy currents. Pg.223
- 8. Energy stored in an Inductor. Pg.228
- 9. What is the principle of AC generator? Pg.237
- 10. Advantages of stationary armature rotating field alternator. Pg.240
- 11. Advantages of three-phase alternator. Pg.243
- 12. Energy losses in a transformer. Pg.245
- 13. AC circuit containing pure resistor. Pg.254
- 14. AC circuit containing only a inductor. Pg.256
- 15. AC circuit containing only a capacitor. Pg.256
- 16. Define Q-factor. Pg.262
- 17. Difference between wattless and wattful current. Pg.265
- 18. Conservation of energy in LC oscillations. Pg.269

Ln.5

- 1. Define displacement current. Pg.286
- 2. Maxwell's equation in integral form. Pg.287
- 3. Define electromagnetic waves. Pg.288
- 4. Properties of electromagnetic waves. Pg.289
- 5. Define Fraunhofer lines. Pg.296

Ln.7

- 1. Types of electron emission. Pg.107
- 2. Define work functions of a metal. Pg.106
- 3. Define photoelectric effect. Pg.109
- 4. Define stopping potential. Pg.112
- 5. Define threshold frequency. Pg.113
- 6. Laws of photoelectric effect. Pg.113
- 7. Characteristics of photons. Pg.116
- 8. Types of photoelectric cells. Pg.118
- 9. Construction and working of photo emissive cell. Pg.118
- 10. Applications of photo cells. Pg.119
- 11. Define De Broglie wave length. Pg.121
- 12. Define De Broglie wave length of electrons. Pg.121
- 13. Applications of X-rays. Pg.129

Ln.8

- 1. Properties of cathode rays. Pg.140
- 2. Define distance of closest approach? Pg.147
- 3. Define Impact parameter. Pg.147
- 4. Postulates of Bohr atom model. Pg.148
- 5. Define excitations is excitation potential. Pg.155
- 6. Define Ionization & Ionization potential. Pg.155
- 7. Limitations of Bohr atom model. Pg.160
- 8. Define Isotopes, Isobars and isotones with examples. Pg.161
- 9. Define one atomic mass unit. Pg.161
- 10. Write a short note on binding energy curve. Pg.164
- 11. Properties of Nuclear force. Pg.165
- 12. Define radioactivity. Pg. 166
- 13. Explain about carbon dating. Pg.174
- 14. Define Nuclear fission. Pg.176
- 15. What are the moderators used in Nuclear reactor? Pg.179
- 16. Define Nuclear fusion. Pg.181
- 17. What are called fundamental forces of nature? Pg.182

Ln.9

- 1. Difference between intrinsic and extrinsic semiconductor. Pg.195, 197
- 2. Define doping. Pg.197
- 3. Difference between n-type and p-type semiconductor. Pg.197
- 4. What is meant by biasing a diode? Pg.201
- 5. Explain the characteristics of forward junction diode. Pg.202
- 6. Define rectification. Pg.204
- 7. Difference between breakdown mechanism. Pg.206
- 8. Applications of Zener diode. Pg.208
- 9. Define photodiodes. Pg.210
- 10. Applications of photo diode. Pg.211
- 11. Application of solar cell. Pg.212
- 12. Different modes of transistor biasing. Pg.213
- 13. Define forward current gain. Pg.215
- 14. Relation between \propto and β . Pg.218
- 15. Transistor as a switch. Pg.219
- 16. Need of feedback network in a transistor. Pg.222
- 17. Bark hausen conditions for sustained oscillations. Pg.223
- 18. Applications of oscillators. Pg.223
- 19. State and explain De Morgan's theorem. Pg.228

Ln.10

- 1. Define modulation. Pg.239
- 2. Comparison between FM and PM. Pg.241
- 3. Define Bandwidth. Pg.243
- 4. Types of wave propagation. Pg.245
- 5. Bandwidth of transmission system. Pg.244
- 6. Define skip distance and skip zone. Pg.246
- 7. Applications of satellite communication. Pg.248
- 8. Applications of optical fibre. Pg.251
- 9. Define fibre optic communication. Pg.248
- 10. Applications of RADAR. Pg.249
- 11. Applications of mobile communication. Pg.250
- 12. Applications of Internet. Pg.251
- 13. Short note on GPS. Pg.251
- 14. Applications of GPS. Pg.251
- 15. Applications of ICT in agriculture, fisheries and mining. Pg.251 Ln.11 Fully

5 Marks: (Vol.I)

Ln.1

- 1. Electric field due to an electric dipole at points on the axial line. Pg.23
- 2. Electric field due to an electric dipole at a point on the equatorial plane. Pg.24
- 3. Electrostatic potential at a point due to an electric dipole. Pg.30
- 4. Applications of Gauss law:
- (i) Electric field due to an infinitely long charged wire. Pg.43
- (ii) Electric field due to charged infinite plane sheet. Pg.44
- (iii) Electric field due to two parallel charged infinite sheets. Pg.45
- (iv) Electric field due to a uniformly charged spherical shell. Pg.46
- 5. Effect of dielectrics in capacitors. Pg.59
- 6. Capacitor in series and parallel. Pg.62-64
- 7. Vande graff generator construction and working. Pg.68

Ln.2

- 1. Resistors in series and parallel. Pg.92-93
- 2. Cells in series and parallel. Pg.104-107
- 3. Wheat stone's bridge. Pg.109
- 4. Meter bridge. Pg.111
- 5. Comparison of emf of two cells with a potentiometer. Pg.113
- 6. Measurement of internal resistance of a cell by potentiometer. Pg.114

Ln.3

- 1. Magnetic field at a point along the axial line of the magnetic dipole. Pg.140
- 2. Magnetic field at a point along the equatorial line due to a magnetic dipole. Pg.141
- 3. Tangent Galvanometer. Pg.147
- 4. Magnetic field due to long straight conductor carrying current. Pg.14
- 5. Magnetic field produced along the axis of the current carrying circular coil. Pg.166
- 6. Magnetic dipole moment of revolving electron. Pg.168
- 7. Magnetic field due to the current carrying wire of infinite length using Ampere's law. Pg.169
- 8. Magnetic field due to a long current carrying solenoid. Pg.171
- 9. Explain the construction working and limitations of cyclotron. Pg.181
- 10. Force on a current carrying conductor placed in a magnetic field. Pg.183
- 11. Force between two long parallel current carrying conductors. Pg.185

Ln.4

- 1. Methods of producing induced EMF. Pg.23-236
- 2. Single phase AC generator. Pg.240
- 3. Three phase AC generator. Pg.242
- 4. Principle, construction and working of a transformer. Pg.244
- 5. Derive an expression for the RMs value of AC? Pg.250
- 6. Derive an expression for:
- (i) AC circuit containing pure resistor. Pg.254
- (ii) AC circuit containing only an inductor. Pg.255
- (iii) AC circuit containing only a capacitor. Pg.256
- 7. AC circuit containing a resistor, an inductor and a capacitor in series series RLC circuit. Pg.260

Ln.5

- 1. Discuss the sources of electromagnetic waves. Pg.291
- 2. Explain the types of electromagnetic waves. Pg.292
- 3. Explain the types of electromagnetic spectrum. Pg.295