SECTION – A [10X2=20M]

NOTE: (i) Answer all questions.

(ii) Each question carries two marks.

(iii) All are very short answer type questions.

1. What is Myopia? How can it be corrected?
2. What happens to the force between two charges if the distance between them is a)halved b)doubled ?
3. How do you convert a moving coil galvanometer into an ammeter?
4. What are the units of magnetic moment,magnetic induction and magnetic field?
5. State Faraday's law of electromagnetic induction.
6. State the expression for the reactance of i) an inductor ii) a capacitor.
7. What are the applications of microwaves?
8. Give two drawbacks of Rutherford atomic model.
9. Draw the circuit symbols of p-n-p, n-p-n transistors.
10. What is sky wave propagation?

SECTION – B [6X4=24M]

NOTE: (i) Answer any six of the following questions.

(ii) Each question carries four marks.

(iii) All are short answer type questions.

11. What is the position of the object for a simple microscope? What is the maximum magnification of a simple microscope for a realistic focal length?

12. Derive the expression for the intensity at a point where interference of light occurs. Arrive the conditions for maximum and zero intensity.

13. Derive an expresssion for the potential energy of an electric dipole placed in a uniform electric field.

14. A Current of 10A passess through two very long wires held parallel through two very long wires held parallel to each other and seperated by a distance of 2m. What is the force per unit length between them?

15. Derive the equation for couple acting on an electric dipole placed in an uniform electric field

16. State the principle on which a transformer works. Describe the working of a transformer with necessary theory.

17. Explain the distance of closest approach and impact parameter.

18. Explain the working of a solar cell and draw itsV- I characteristics.

SECTION – C [2X8=16M]

NOTE: (i) Answer any two of the following questions.

(ii) Each question carries eight marks.

(iii) All are long answer type questions.

19. What is Doppler shift? Obtain an expression for the apparent frequency of sound heard when the observer is in motion with respect to source at rest.

20. State the working principle of potentiometer. Explain with the help of circuit diagram how the potentiometer is used to determine the internal resistance of cell. A potentiometer wire is 5m long and a potential difference of 6V is maintained between its ends. Find the emf of a cell which balances against a length of 180cm of the potentiometer wire.

21. Explain the principle and working of a nuclear reactor with the help for a labeled diagram. 200 Mev energy is released by fission from 2 g of $_{92}{}^{u\,235}$ undergoes fission. Find the number of fissions per second required for producing a power of 1 mega watt.