

INTERMEDIATE PART-II (12th CLASS)**PHYSICS PAPER-II (NEW SCHEME)**

TIME ALLOWED: 3.10 Hours

GROUP-I**SUBJECTIVE**

MAXIMUM MARKS: 83

**NOTE: - Write same question number and its part number on answer book,
as given in the question paper.****SECTION-I****2. Attempt any Eight parts.****8 × 2 = 16**

- (i) Electric lines of force never cross. Why?
- (ii) Do electrons tend to go to region of high potential or of low potential? Explain.
- (iii) Give the relation between Electron Volt and Joule.
- (iv) What is the difference between Electric and Gravitational Force?
- (v) What is Time Base Generator?
- (vi) Why the voltmeter should have a very high resistance?
- (vii) Is it possible to orient a current loop in a uniform magnetic field such that the loop will not tend to rotate? Explain.
- (viii) How can a current loop be used to determine the presence of a magnetic field in a given region of space?
- (ix) Define Energy density and give its equation.
- (x) How would you position a flat loop of wire in a changing magnetic field so that there is no emf induced in the loop?
- (xi) Can a D.C motor be turned into D.C generator? What changes are required to be done?
- (xii) In a transformer, there is no transfer of charge from the primary to the secondary. How is, then the power transferred?

3. Attempt any Eight parts.**8 × 2 = 16**

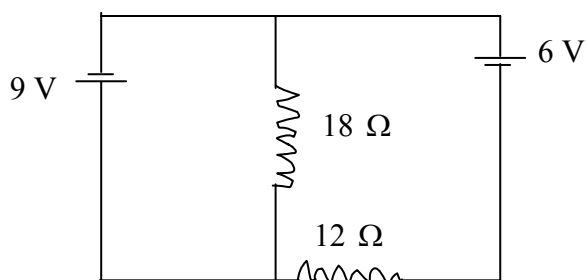
- (i) Is the filament resistance lower or higher in a 500W, 220V light bulb than in a 100W, 220V bulb?
- (ii) What is Wheatstone bridge? How can it be used to determine an unknown resistance?
- (iii) Define temperature coefficient of resistivity.
- (iv) In a R-L circuit, will the current lag or lead the voltage? Illustrate your answer by a diagram.
- (v) What is meant by A.M and F.M?
- (vi) Explain Choke.
- (vii) What is meant by Hysteresis Loss? How is it used in the construction of a transformer?
- (viii) Distinguish between Intrinsic and Extrinsic Semi-conductors.
- (ix) Define UTS of a material.
- (x) What is the Net Charge on a n -type and p -type substance?
- (xi) Why is the base current in a transistor very small?
- (xii) Define Open Loop gain of operational amplifier. Also give its formula.

4. Attempt any Six parts.**6 × 2 = 12**

- (i) What happens to total radiation from a black body if its absolute temperature is doubled?
- (ii) What advantages an electron microscope has over an optical microscope?
- (iii) Define Stopping potential and Threshold frequency.
- (iv) Define Characteristic X -rays and Continuous X -rays.
- (v) Is energy conserved when an atom emits a photon of light?
- (vi) What do we mean by Critical Mass and Critical Volume?
- (vii) If you swallow an α -source and β -source, which would be more dangerous to you? Explain why?
- (viii) What are Hadrons? Give one example.
- (ix) Define fluorescence. Name two fluorescence substances.

SECTION-II (Essay Type)**NOTE: - Attempt any three questions.****8 × 3 = 24**

- 5.(a) Define Electric Flux. Find Electric Flux through a closed surface when a point charge is placed at its centre. 5
- (b) Find the current which flows in all the resistances of the circuit of figure given below:- 3



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- 6.(a) State Ampere's Law and apply it to calculate the magnetic field due to a current flowing through Solenoid. 5
- (b) A pair of adjacent coil has mutual inductance of 0.75 H. If the current in the primary changes from 0 to 10A in 0.025 sec, what is the average induced emf in the secondary? 3
What is the change in flux in it if the secondary has 500 turns?
- 7.(a) Discuss the behaviour of R-C series circuit with an A.C. source. Calculate the impedance by drawing its impedance diagram. 5
- (b) A 1.0m long Copper wire is subjected to stretching force and its length increases by 20 cm. Calculate the tensile strain and the percent elongation which the wire undergoes. 3
- 8.(a) Discuss Photoelectric Effect on the basis of classical and quantum theory. 5
- (b) The current flowing into the base of a transistor is $100 \mu A$. Find its collector current I_C its emitter current I_E , if the value of current gain $\beta = 100$.
- 9.(a) Explain the Mass Defect and Binding Energy. 5
- (b) Calculate the longest wavelength of radiation for the Paschen Series. 3

SECTION-III (PRACTICAL)

10. (a) Give answers to any Four.

4 × 2 = 8

- (i) How will you check whether the connections of slide wire bridge are correct?
- (ii) Write down the equation to find the value of R_S & R_H .
- (iii) In Half Deflection Method value of $R = 5400\Omega$ and $S = 120\Omega$, find the resistance of galvanometer.
- (iv) Draw the circuit diagram of Half-Deflection Method.
- (v) What do you mean by Forward and Reverse Bias?
- (vi) State Ohm's Law and give two examples of non-ohmic devices.
- (vii) Draw the symbol and Truth table of AND Gate.
- (viii) What is Neon Flash Lamp?

(b) Write down the brief procedure to study the variation of Photoelectric Current with intensity of light using a Photocell. **OR**

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Write down the brief procedure to find the value of Resistance of Galvanometer by Half-Deflection Method.

- (c) (i) Find the slope of the graph.
- (ii) What do you infer from the graph?

2 + 2 = 4

Graph-A

OR

Graph-B

