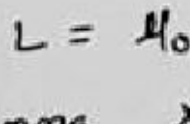
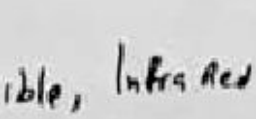
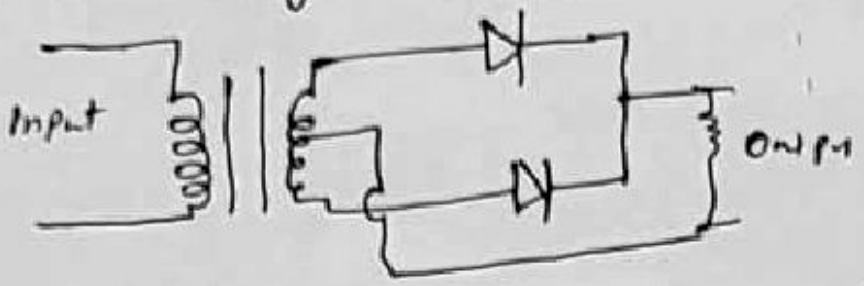
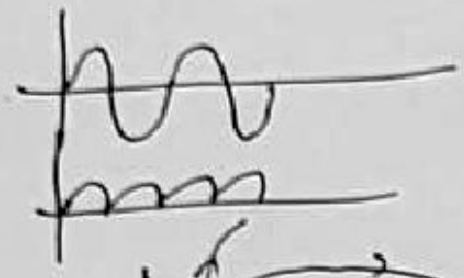
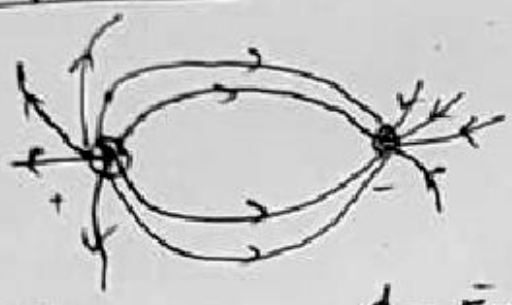
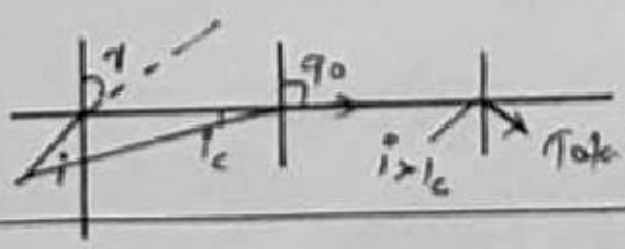
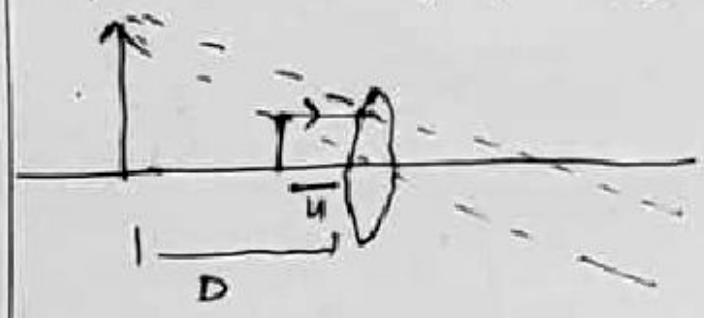
Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
1		c. Nm^2C^{-1}	1	
2		a. Zero	1	
3		d. D	1	5
4		True	1	
5		$\lambda = \frac{h}{mv}$	1	
6		^{56}Fe		
7		Pure Semi Conductor are Called Intrinsic Semico	1	
8		Potential is Constant at all point on the Surface For a single point charge (a)	2	
9		The Average Velocity attained by electron in a Conductor due to an electric field (-1) $V_d = -\frac{eE}{m}\tau$ -(1)	2	
10		The Net magnetic flux through any Closed Surface is zero $\phi = \oint B \cdot ds = 0$	2	
11		The total magnetic field which passes through a given area $\phi = B \cdot ds$		2
12		$V_{RMS} = \frac{V_m}{\sqrt{2}} = 1.414 \times \sqrt{2}\ 220 = 311\ V$		2
13		The minimum negative potential for which Photo current become zero. $eV_0 = \frac{1}{2}mv^2$		2
14		nuclear fission a heavy nuclear split into lighter nuclei with the release of larger amount of energy. $_0n^1 + {}_{92}U^{235} \longrightarrow {}_{56}Ba^{144} + {}_{36}Kr^{89} + 3\,{}_0n^1$	1 1	2
15		The force of attraction or repulsion b/w two stationary charges is directly proportional to the Product of the charges and inversely Proportional to the Square of the distance b/w them $F \propto q_1 q_2$ $F \propto \frac{1}{r^2}$ $F = \frac{1}{4\pi\varepsilon}\frac{q_1 q_2}{r^2}$ $F = K\frac{q_1 q_2}{r^2}$		3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
16		$F = ILB$ $F_{ba} = I_b L B_a$ $F_{ba} = I_b L \frac{\mu_0 I_a}{2\pi d}$ $F_{ba} = \frac{\mu_0 I_a I_b}{2\pi d}$		3
17		Paramagnetic | Ferromagnetic | Diamagnetic E_g: Aluminium, Sodium | Iron, Cobalt | water, gold Parallel to B | Parallel | $\perp^r$ magnetic moment of atom small | small | does not  | |  weaker & stronger | weaker & stronger | Stronger & weaker $\mu_r > 1$ | $\mu_r > \mu_r$(Para) | $\mu_r < 1$ χ +ve small | χ +ve larger | χ -ve small $\chi \propto \frac{1}{T}$ | $\chi = C \frac{\mu_0}{T}$ | Does not loss magnetism | Soft, strong | Lose magnetism		3
18		The phenomenon of production of induced emf in a coil when the current through the same coil changes is called self induction $\phi \propto I \quad \phi = LI$ $\phi = NBA$ $\phi = nL \mu_0 n I A$ $\phi = \mu_0 n^2 A L I$ —① $\phi = LI$ —② $L = \mu_0 n^2 A L$		3
19		Gamma, X-ray, Ultra Violet, Visible, Infra Red, micro, Radio wave. (Highest wave length, Lowest frequency) Explanation		3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
20		postulates of Bohr's atom model		3
21		The process of Conversion of ac Voltage to dc voltage is called rectification.	1	
			1	3
			1	
22	a	 Figure	1	4
	b	$E = \frac{r}{4\pi\varepsilon_0}$ $\phi = \vec{E}\cdot d\vec{s} = \frac{q}{\varepsilon_0}$ $E \cdot 2\pi rL = \frac{\lambda L}{\varepsilon_0}$ $E = \frac{\lambda}{2\pi\varepsilon_0 r}$	3	
23	a.	$V \propto I$	1	4
	b	When Wheatstone Bridge is balanced, $I_g = 0$ $I_2 = I_4$ $I_1 = I_3$ $I_1R_1 = I_2R_2$ —① $I_2R_3 = I_4R_4$ —②  $\frac{①}{②}$ $\frac{R_2}{R_1} = \frac{R_4}{R_3}$	3	
24	a	The ratio of sine of the angle of incidence to the sine of the angle of refraction is a constant $\frac{\sin i}{\sin r} = \frac{n_2}{n_1}$	1½	4
	b	When light travel from Denser medium to rarer medium if increases $r = 90$ Total internal Reflection, $i > i_c$ OR 	1½	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
25	a.	light waves of same frequency and Same phase or Constant phase difference	1	4
	b.	$\beta = \frac{\lambda D}{d}$ $d =$	3	
26	a	principle - Deleted : The capacitance of a conductor increases appreciably when an earthed conductor is brought near it	1	
	b	$C = \frac{Q}{V}$ —①  $Q = \sigma A$ $V = Ed = \frac{\sigma}{\varepsilon} \cdot d$	2	5
		Substitute eqn ① $C = \frac{\sigma A}{\frac{\sigma d}{\varepsilon}}$ $C = \frac{A\varepsilon_0}{d}$		
	c	$U = \frac{1}{2} CV^2 = \frac{1}{2} \times 12\,pF \times (50)^2$	2	
27	a.	Maxwell Right hand thumb Rule	1	
	b	$dB = \frac{\mu_0}{4\pi} \frac{I dL \sin\theta}{r^2}$	1	
	c	Figure $dB = \frac{\mu_0}{4\pi} \frac{I dL \sin 90}{r^2}$ $B = \int dB \cos\theta$ $B = \int \frac{\mu_0}{4\pi} \frac{I dL}{x^2+R^2} \frac{R}{(x^2+R^2)^{1/2}}$ $B = \frac{\mu_0 I R^2}{2(x^2+R^2)^{3/2}}$	3 1	5
28	a.	$V = V_0 \sin\omega t$	1	
	b	A - Resistor, B - Inductor C - Capacitor	1	
	c	Phaser diagram. $Z = \sqrt{R^2+(X_c - X_L)^2}$ Z - Impendance. X_c = Capacitive Reactance X_L = Inductive Reactance R - Resistance.	3	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
29	a	DERIVATION $\frac{1}{F} = (n-1)\left[\frac{1}{R_1} - \frac{1}{R_2}\right]$	3	
	(b)		1	5
	c	D = 25 cm.	1	