Sr. No.	VALUE POINTS	Marks
1	Magnetic dipole moment	1
2	Microwave (any one use) Or speed	1
3	Because toroid has no ends	1
4	Flux= MI Change in flux=MdI M= 1.5 H I2 = 20A ; I1 =0A dI= 20-0= 20A Change in flux = 1.5*20 = 30Wb **OR** 0.637 Io	1 1
5	TE = -13.6/ n^2 = -3.4 eV KE = - TE , KE = 3.4 eV	½ ½
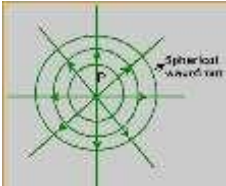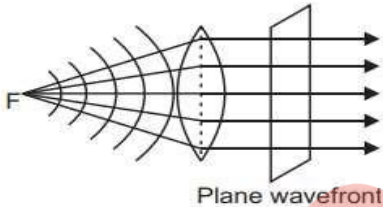
6	no change	1
		1
7	$R= R_o(A)^{1/3}$ $R1/R2 = 1/3$ Or electron	½ ½ Or 1
8	Energy gap should lie in the range 1.8-2.8 eV **OR** (i) Decreases (ii) increases	1
9	(i) energy gap beyween 1.8 eV to 1.1 eV (ii) high optical absorbtion 	½ + ½ 1
10	Zero in both cases	1
11	a)	1
12	c)	1
13	d)	1
14	d)	1
15	i) d) curved path ii) d) none of these iii) b) increases iv) d) 16:1 v) c) decreases (any 4 parts to be attempted)	4x1 = 4
16	i) C ii) C	4x1=4

		iii)	B	
		iv)	C	
		v)	C	
			(any 4 parts to be attempted)	

17	Voltmeter 0-6V will hve greater resistance Correct reason	1 1
18	Diagram Derivation **OR** **(i)** **(ii)** Plane wavefront	½ 1.5 1+1
19	Wab = q(Vb-Va) Va=Vb Wab = 0 Or Va-Vb = positive Va-Vb = negative(with reason)	1 1 1 1
20	Circuit Working V-I graph	½ 1 ½
21	e = Bvl —— put values e= 1 volt I =e/R I=0.2 A	½ ½ ½ ½
22	For central maxima at a point 'B' on screen SS1+ S1B = SS2+ S2B If OB=y SS1-SS2= S2B –S1B=dy/D λ/4 = dy/D y= D λ/4d = OB	1 1

23	Diagram Working	
24	Definition	1
	Max= poles	
	Min = equator	½+½
	Or	
	Formula	½
	Calculation	1
	Answer (60^0)	½
25	Diagram	1
	Any two advantages	
		½
		½
26	(i) Decreases with reason	½ + ½
	(ii) Decreases with reason	½ + ½
	(iii) Decreases with reason	½ + ½
27	(i) Shift towards B with reason	½ + ½
	(ii) No shift + reason	½ + ½
	(iii) No null point + reason	½ + ½
	Or	
	i2=7/ 13 A,	1
	i1=2/13 A	1
	i3= 9/13 A(with proper application of Kirchhoff laws)	1
28	(a)Statement	½
	Proof	1
	(b) formula	½
	Calculation	1
	Answer (2:1)	½
29	Correct calculation of value of n Correct calculation wavelength of first member of Lyman series= 122 nm Correct calculation wavelength of first member of Balmer series= 656 nm	
30	(a)formula	½
	Calculation of mass defect (delta m = 0.00456 u)	½
	Energy released = 4.25 MeV	1

| (b) mass no =182 | ½ |
| Atomic no = 72 | ½ |
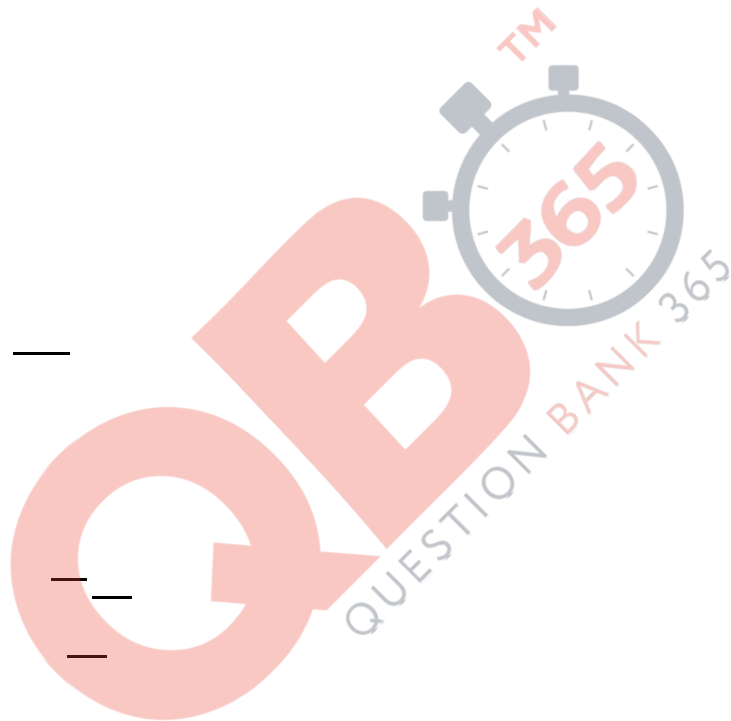
31	a)At point A, $\sigma/2\varepsilon_0$ towards plate A	1
	At point B, $3\sigma/2\varepsilon_0$ towards plate B	1
	b)Correct answer	1
	Correct <u>an</u>swer	1
	Correct answer	1
	OR	1.5
	Correct definition	
	Correct derivation	**1**
	Potential energy = -4J	**2**
		2
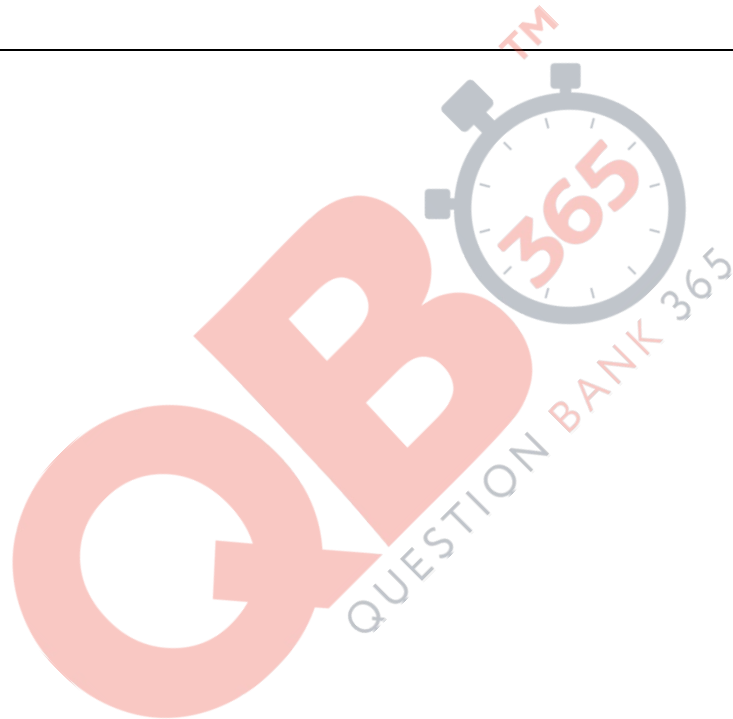
32	Diagram	1
	Derivation	2
	Graph	1
	Impedance at resonance	1
	Or	
	(a)Definition	**1**
	Derivation	**2**
	(b)correct derivation	**2**
33	(a) Ray diagram	1
	derivation	2
	(b) calculation for radius(22 cm)	2
	or	
	(a) Ray diagram	2
	Formula	1
	(b) Numerical (magnification =24, separation = 150 cm)	2