

ANSWER KEY

Second YEAR HIGHER SECONDARY EXAMINATION March.. 2024

PART-I/II/III

SUBJECT: PHYSICS.....

CODE NO: SY.524

VERSION:.....T.....

..60.. SCORES

....2... HOURS

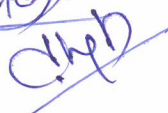
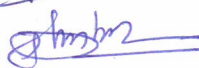
Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
		Section - A		
1		(C) Nm^2c^{-1}		1
2		(a) Zero		1
3		(d) D		1
4		True		1
5		$\lambda = \frac{h}{p} = \frac{h}{mv}$ or $\lambda = \frac{h}{12mk} = \frac{h}{12mE}$		1
6		Iron or Fe or $^{56}_{26}Fe$ or $^{56}_{26}Fe$		1
7		Semiconductor in it's pure form		1
		Section - B		
8		A surface which has same potential everywhere. (1 Score) eg:- Any suitable example/figure/equation (1 Score)		2
9		Definition (1 Score) $V_d = \frac{eE}{m} \tau$ (1 Score) or $V_d = \frac{I}{nAe}$ or $\frac{j}{ne}$ or $I = nA V_d e$		2

Qr. No	Sub Qns	Answer Key/Value Points	Score	Total Score
10		Statement / equation		2
11		Definition or equation		2
12		$V_{rms} = \frac{V_m}{\sqrt{2}} = \frac{V_0}{\sqrt{2}}$ $V_m = V_{rms} \times \sqrt{2} \quad (1 \text{ Score})$ $V_m = 220 \times 1.414 = 311 \text{ V} \quad (1 \text{ Score})$		2
13		Definition / explanation / correct graph		2
14		Definition / explanation (1 Score) Suitable example (1 Score)		2
15		Section - C Statement of Coulomb's law (2 Score) Equation (1 Score) or Like charges repel and unlike charges attract (1½ Score)		3
16		Derivation of $F = \frac{\mu_0}{4\pi} \frac{2 i_1 i_2 L}{d}$ $= \frac{\mu_0 i_1 i_2 L}{2\pi d}$ or		3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
		Equation of magnetic field (1 Score) Equation of force (1 Score) Final equation (1 Score)		
17.		Comparison or figure with one example each		3
18.		Definition of Self Induction (1½ Score) Definition of self Inductance or equation (1½ Score)		3
19		Explanation or electromagnetic waves in an order		3
20		Three Postulates (1 Score each)		3
21		Explanation/Definition (1 Score) Circuit Diagram (1 Score) Input & Output wave (1 Score)		3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
22	a. Proper marking of direction b. Derivation of $E = \frac{\lambda}{2\pi\epsilon_0 r}$ or figure (1 Score) Equation of Gauss's law (1 Score) final equation (1 Score)	Section - D	1 3	4
23	a. Statement / $V = IR$ b. Derivation of $\frac{R_1}{R_2} = \frac{R_3}{R_4}$ or figure (1 Score) final equation (1 Score)	OGY Academy Outstanding Guidance for Youth	1 3	4
24	a. Statement or equation $\frac{\sin i}{\sin r} = n$ b. Explanation of Critical angle (1½ Score) Explanation of total Internal reflection (1½ Score) or figure (1 Score) Conditions for TIR (1+1 Score)		1 3	4

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
25	a.	Definition	1	4
	b.	$\beta = \frac{D\lambda}{d}, d = \frac{D\lambda}{\beta}$ $d = \frac{5 \times 10^{-7} \times 5 \times 10^{-2}}{1 \times 10^{-3}} = 0.025 \text{ mm}$ or Attempt for (a) or (b) or both give full score for part (b) (3 score) For part (a) eligible score only	3	
26	a.	Principle / $C = \frac{Q}{V}$ / figure	1	5
	b.	Derivation of $C = \frac{\epsilon_0 A}{d}$	2	
	c.	$U = \frac{1}{2} C V^2$ (1 Score) $= \frac{1}{2} \times 12 \times 10^{-12} \times 50^2$ $U = 1.5 \times 10^{-8} \text{ J}$ (1 Score)	2	
27.	a.	Right hand Thumb rule / grip rule / right hand screw rule	1	5
	b.	Statement or equation	1	
	c.	Derivation of $B = \frac{\mu_0 I R^2}{2(x^2 + R^2)^{3/2}}$ or	3	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
	b.	Diagram of image formation	1	5
	c.	$D \approx 25 \text{ cm}$	1	
1.	Sebastian Mathew			
2.	MUHAMMED IRSHAD P			
3.	VINIL KUMAR .T			
4.	Rajeev K. Nair			
5.	Sametha. P.S			
6.	Abdul Hameed			
7.	PHOYIB ABOOBACKER.TP			
8.	HARIPRASAD .K			
9.	LEENA PHILIP			
10.	Paregza Sreedharan			
11.	Dr. Augustine Jose. Y.F			
12.	JOSE WILFRED			
13.	Kavitha. V.G.			