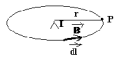
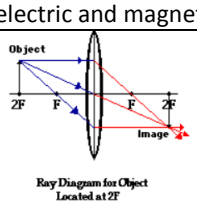
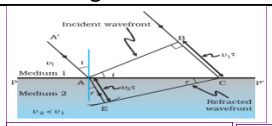
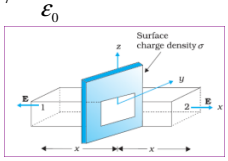
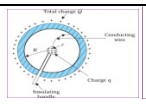
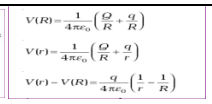
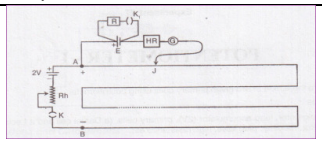
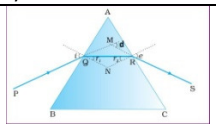
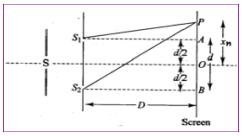
SECOND YEAR HIGHER SECONDARY SECOND TERMINAL EXAM DEC 2019 – PHYSICS

ANSWER KEY

(Prepared by AYYAPPAN C, HSST ,GMRHSS Kasaragod)

Qn	Value points	Score
1	Aluminium	1
2	Induced emf	1
3	polarization	1
4	F=R/2 = 10 cm	1
5	Quantum theory	1
6	 $B \times 2\pi r = \mu_0 I$, $B = \frac{\mu_0 I}{2\pi r}$	2
7	a) Deflection produced per unit voltage b) Increase in number of turns increases resistance. Thus voltage sensitivity remains constant.	1 1
8	a) $I_{rms} = i_m/\sqrt{2}$, $V_{rms} = v_m/\sqrt{2}$ b) v_m = 230 V	1 1
9	Moves perpendicular to electric and magnetic field, shows transverse wave nature, no material medium required, not deflected in electric and magnetic field	2
10	 Ray Diagram for Object Located at 2F u=-2F,v=2F	2
11	$\lambda = \frac{h}{p} = \frac{h}{mv}$ = 2.608x10^{-34} m	2
12	m=fo/fe =100 tube length =fo+fe =101c m	2
13	 $\sin i = \frac{BC}{AC} = \frac{v_1 \tau}{AC}$ $\sin r = \frac{AE}{AC} = \frac{v_2 \tau}{AC}$ $n_1 \sin i = n_2 \sin r$	2
14	Micro wave : radar system , microwave oven X – ray: To study structure of atoms, detect hidden materials	
15	a) $\phi = \frac{q}{\varepsilon_0}$ b)  $E \times (2A) = \frac{\sigma A}{\varepsilon_0}$	1 2
16	  working	3
17	a)Zero	1
	b) Derivation of P/Q =R/S	2
18	a)Current due to time varying electric field b)λ=2π/k = 0.01256 m f=w/2 π =0.238x10^{11} Hz	1 1 1
19	 $r = \frac{R(l_1 - l_2)}{l_2}$ explanation	3
20	a)statement of laws of refraction b)n=c/v =1.5	2 1
21	a)ability resolve two very close neighboring objects b)resolving power is inversely proportional to the limit of resolution c)to get larger resolving power	1 1
22	a)derivation of $B = \frac{\mu_0}{4\pi}\frac{2m}{r^3}$ b) $\vec{E} = \frac{1}{4\pi\varepsilon_0}\left[\frac{2p}{r^3}\right]\hat{p}$	3 1
23	a)LCR Resonace b) derivation of f= 1/(2π√LC) c)calculation of f	1 2 1
24	 Ray diagram of prism , derivation	4
25	a)sources must be coherent b)  c)derivation of fringe width	1 1 2
26	a)anticlockwise b)derivation of E=1/2 (Li^2) c) calculation E = 200x10^{-3} J	1 2 2
27	a)LCR phasor diagram and derivation b)calculation	3 2
28	a)Derivation of curved surface formula b)derivation- lens makers formula	3 2
29	$\tan i_B = \mu$ a) b)proof c) θ=tan^{-1}1.5 , calculation	1 3 1