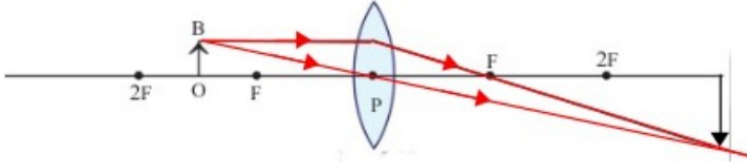


SSLC MODEL EXAMINATION, MARCH-2022
PHYSICS ANSWER KEY - EM

Sl.No	Answers	Score
1	Split ring commutator	1
2	30°	1
3	4	1
4	Fig.3	1
5	Concave mirror	1
6	When the size of the particle is greater than the wavelength of red light	1
7	LED	1
8	Fleming's right hand rule	1
9	$n = 360/60 - 1=5$	1
10	(1)High melting point (2) High resistivity (3)Ability to remain red hot condition without oxidation (any two)	2
11	Energy consumption in one day=Power in wattXtime in hour/1000 =100X10/1000=1 unit Energy consumption in one month= 1unit x30=30 unit	2
12	Discharge lamps are glass tubes fitted with two electrodes. They emit light as a result of discharge of electricity through the gases filled in tubes. When a high potential difference is applied the gas molecules get excited. Excited atoms come back to their original states for attaining stability. During this process the energy stored in them will be radiated as light	2
13	(a) $u = -30$. $v = -20$ $f = uv/u+v = -30 \times -20 / -30 + -20$ $= +600 / -50 = -12\text{cm}$ (b) $m = -v/u = -(-20/-30) = -2/3\text{cm}$	2 1
14	(a)South (b) Increase the number of turns of the solenoid Increase the intensity of electric current c)Increase the area of cross-section of soft iron core	1 2
15	a.(A) Diaphragm. (B)Voice coil (b)The voice coil is situated in a magnetic field. The diaphragm connected to the voice coil vibrates in accordance with the sound waves falling on it. As a result electrical signals corresponding to the sound waves are generated in the voice coil	1 2
16	(a)Moves away from the normal (b) Refraction of light (c) Increases	1 1 1
17	(a)Figure(b)	1

	(b) Self induction-The change in magnetic flux due to the flow of an AC in a solenoid will generate a back emf in the same solenoid in a direction opposite to that applied to it. This phenomenon is known as the self induction.	2
18	(a)Anthracite, bituminous coal (b)Based on the carbon content (c) Ammonia,coal gas,coal tar,coke	1 1 2
19	(a)  (b)Real, inverted,magnified (c) $f=+50\text{cm}=+0.5\text{m}$ $P=1/f=1/0.5=+2\text{D}$	2 1 1
20	(a)Near-sightedness or myopia (b)1.size of Eyeball may be long 2.Power of the lens may be more (c)Use concave lens of suitable power	1 2 1
21	(a)Tungsten (b) High resistivity High melting point High ductility Ability to emit white light in the white hot condition (c)To reduce vaporisation	1 2 1
22	(a)The ratio of the sine of the angle of incidence to the sine of the angle of refraction will always be a constant (b) refractive index (n)= speed of light in air/speed of light in glass $n=3 \times 10^8 / 2 \times 10^8 = 1.5$	2 2
23	(a)Step down transformer (b) Mutual induction (c)(I) $N_p=2000, N_s=500$ $V_s=50\text{V}$ $V_p=?$ $V_s N_p = N_s V_p = 50 \times 2000 = 500 \times V_p$ $V_p = 200\text{V}$ (ii) input power=output power $V_p I_p = 10$ $I_p = 10 / V_p = 10 / 200 = 0.05\text{A}$	1 1 2 1

24	<p>(a) Parallel</p> <p>(b) $R=100+100=200.\text{ohm}$</p> <p>$V=250\text{V}$. $t=2\text{s}$</p> <p>$H=V^2 t/R=250^2 \times 2/200=625 \text{ J}$</p> <p>(c) When resistors are connected in parallel the effective resistance decreases .Hence the current increases ,as current increases heat produced also increases</p>	<p>1</p> <p>2</p> <p>2</p>
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