SSLC Model Exam 2020- PHYICS ANSWER KEY- ENGLISH MEDIUM
**Prepared by educationobserver.com**

| Qn No	Answer Indicators
1	Loud speaker
2	South pole
3	Refraction of light
4	coal
5	+25 cm
6	Direction of the electric current
7	Picture C
8	Methane
9	Loud Speaker, Mixie
10	Nichrome is usually used in heating coils because of its, strength, ductility, resistance to oxidation, stability at high temperatures, and resistance to the flow of electrons. (Any two point)
11	According to Joule's Law the heat generated due to the flow of current is $H=I^2Rt=V^2t/R$. When we increase the resistance, heat decreases because $H \propto R1$. So, wires with low resistance produce more heat
12	Split ring is used for reversing the direction of current in the armature coil. For the continuous rotation of the coil in the same direction, the current in the coil must be reversed. Therefore, after every half rotation of the coil the direction of the couple rotating the coil remains the same and the coil continues its rotation in the same direction.
13	b) $V_P V_S$ c) $N_P N_S$
14	The inductor works on the principle of changing electric flux. When DC is used in an inductor there will be no change in magnetic flux since DC does not have zero frequency. Therefore, the inductor is only used in AC circuits circuits because they can control the amount of current in AC circuit without any power loss
15	b. when a strong magnet is used the induced emf increases c. when the magnet or solenoid moved in fast the induced emf increases
16	a. The energy crisis is the concern that the world's demands on the limited natural resources that are used to power industrial society are diminishing as the demand rises. These natural resources are in limited supply.

	b. 1. Move Towards Renewable Resources 2. Buy Energy-Efficient Products 3. The use of hydro-electric energy, wind energy. Solar energy etc. should be given priority. 4. Minimise Water Usage 5. Using Public Transport 6. Ensuring maximum efficiency of machines
17	Distance of object, u = -20cm Distance of image, v = -30cm $f = \dfrac{u \times v}{u + v}$ = 600/-50=-12cm
18	a. Diamond b. Water< Glass< Diamond
19	b) even though the incident rays are parallel the reflected rays are not parallel c) after reflection no clear image is formed d) angle of incident and angle of reflection for each ray are not equal
20	➜Newton's colour disc appears white, when it rotated fast. ➜ A torch rotated rapidly appears as an illuminated circle. ➜ Raindrops appears like a glass rod. ➜ A fan appears like a disc, when it rotates fast. (Write any Two)
21	a. Joule's Law b. H = I^{2}Rt The **heat generated (H)** in a current carrying conductor is directly proportional to the product of the square of the **current (I)** in the conductor, the **resistance of the conductor (R)** and the **time (t)** of flow of current.
22	a. Parallel connection b. R= $\dfrac{R_1 R_2}{R_1 + R_2}$ = 10x15/10+15= 150/25=6Ω Current= I=12/6=2A I$_1$ =V/R1 = 12/10 = 1.2A
23	a. A- permanent magnet, B- voice coil

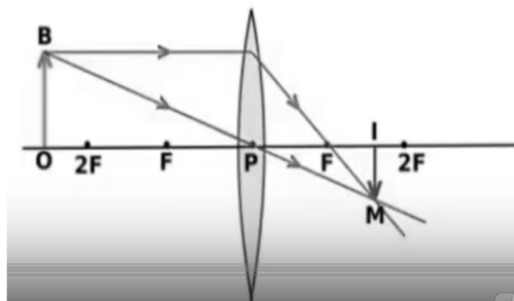|	
	b. A moving coil microphone has three main parts: a diaphragm, a moving coil and a permanent magnet. The diaphragm is a thin piece of metal, plastic or aluminum that vibrates when it is struck by sound waves. It is attached to the moving coil, which vibrates in response to the incoming sound waves. That is, the coil moves back and forth around the permanent magnet. This movement is converted into electrical signals, which are directed towards the loudspeaker through the wires.
24	a. by increasing the thickness of the conductor and reduce the loss due to resistance and by increasing the voltage of transmission b. phase line and neutral line
25	a. distance from mirror to object, U = -60cm b. focal length of the mirror, f = -15cm c. V= uf/u-f = (-60x-15)/ (-60-(-15)) = 900/-45 = -20cm
26	a. Image is having the same size of the object, Image is inverted and Image is real b. F= uv/u-v = (-40x40)/(-40-40) = -1600/-80 = +20cm
27	a. Violet b. During sunrise and sunset, the rays have to travel a larger part of the atmosphere because they are very close to the horizon. Therefore, light other than **red** is mostly scattered away. Most of the **red** light, which is the least scattered, enters our eyes. Hence, the **sun** appear **red**.
28	Green Energy- Sun, Wind, Biogas Brown Energy- Naphtha, Coal, CNG
29	a. R = R1 +R2 = 80+35= 115Ω b. Heat Generated= H=V^2t/R= 230x230x5x60/115= 138,000J c. The amount of heat generated is decreased
30	a. I=P/V =60/240= ¼ = 0.25A b. In series c. When the current that flows into the circuit exceeds the permissible limit, the heat generated becomes excessive. Because of it's low melting point the fuse wire melts and break the circuit.
31	a. AC Generator b. Electromagnetic induction - electromotive force -EMF or voltage – is generated in a current-carrying conductor that cuts a uniform magnetic field.
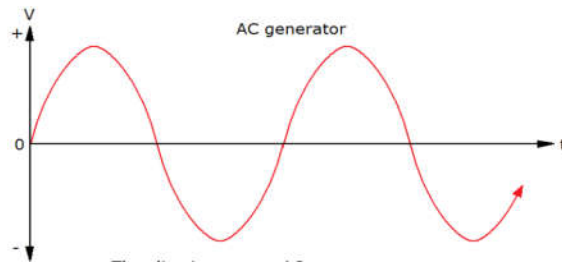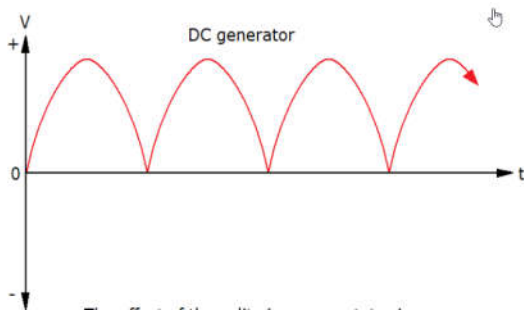
	c. d. The direction of current in DC generator is unidirectional (same direction)
32	a. A Figure A is step up transformer because number of turns in secondary coil is more than that in the primary and thicker wires are used in the primary coil b. The resistance of the wire leads to generation of heat and melting of wire. To prevent that thicker wires are used
33	a. b. Between F and 2F c. Real, inverted, diminished
34	a. Figure B, critical angle = 42^0

| | b. When a ray of light passes from a medium of higher optical density to a medium of lower optical density at an angle of incidence greater than the critical angle, the ray is reflected back to the same medium without undergoing refraction. This phenomenon is known as total internal reflection. |
| | c. Yes, the value of critical angle changes because the speed of light in that medium changes. when water is used the optical density increases as a result the bending of light varies.it can be found out that critical angle increases |