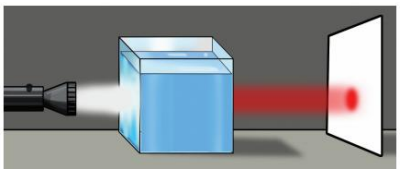
SSLC MODEL EXAMINATION 2017 FEBRUARY

PHYSICS

Max.score:40

Time: 1 ½ hr

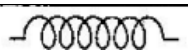
1	**Radio waves**	**Score: 1**
2	**(a) Nitrogen : Red** **(b) Frequency: 50 Hz**	**Score: ½** **Score: ½**
3	**Advantages** • **Hydrogen has more calorific value** • **It does not causes pollution** **Disadvantages** • **Explosive in nature** • **It cannot be stored easily, and difficult to transport.**	**Score: 1** **Score: 1**
4	**(a)** • **Bandages that heals wound easily** • **Manufacturing of batteries of increased efficiency** • **Producing paints, varnish** • **Creating display screen of low weights** • **Long lasting tennis ball** **(any four usage)** **(b)** • **When particles are converted to nano size the ratio between their surface area and volume increases comparatively, thereby improving their physical properties.**	**Score: 2** **Score: 1**

5	**(a) Voltage , V= 240 V** **Power P= 40 W** **Resistance , R** $= \frac{V^2}{P} = \frac{240 \times 240}{40} =$ **1440** Ω **(b)** • **High melting point** • **High ductility** • **High resistivity** • **Ability to emit white light in the white hot condition**	**Score: 2** **Score: 2**
6	**(A)** **(a) Different colors have different wavelength and different rate of scattering** **(b) Experiment with sodium thiosulphate and HCl**  **(c) When the size of particle is greater than the wave length of light , all the colors will scatter equally** **(B)** **(a) Scattering :** **It is the phenomenon of irregular or partial reflection of light is called scattering.** **(b) Tyndal effect: the scattering of light beam on colloidal solution(particle size less than 1 nm)** **(c)** • **High wavelength so they can travel more distance** • **Scattering loss is minimum and can visible in night**	**Score: 1** **Score: 2** **Score: 1** **Score: 1** **Score: 1** **Score: 1**

	(d) Dark , because in moon there is no atmosphere so there is no scattering of light occurs	**Score: 1**
7	**(a) If the natural frequency of the body undergoing vibration is the same as that of the influencing body, the vibration is maximum and is called resonance** **(b) Resonance column** **(c) High pressures are experienced in places where the air particles are close. Such regions are called compression (C). Region of low pressure are rarefaction (R) , here air particle are not close.**  **Particles vibrate in a direction parallel to direction of propagation of wave.**	**Score: 1** **Score: 1** **Score: 2**
8	**(a) Sound coming out from the source gets reflected repeatedly from many parts of the building and reaches us. so many sound waves reaching our ears at the same time causes a boom sound called reverberation** **(b)** • **Make the floor rough** • **Used folded curtains** • **Use carpet on floor** • **Construction of more windows and doors** • **Cushioning the seats** • **Avoid curved walls (any two methods)**	**Score: 1** **Score: 1**

<table>
<tr><td></td><td></td><td></td></tr>
<tr><td>9</td><td>(a) 0.6 A because in fig A bulbs are connected in series so current is same
(b) Fig. B
(c)
• Same voltage can obtain for each device
• Can control each device individually</td><td>Score: 1

Score: 1

Score: 2</td></tr>
<tr><td>10</td><td><table>
<tr><th>A</th><th>B</th><th>C</th></tr>
<tr><td>Green color</td><td>Complementary color</td><td>Magenta</td></tr>
<tr><td>Inductor</td><td>  </td><td>Henry</td></tr>
<tr><td>Nuclear energy</td><td>Non conventional</td><td>Brown energy</td></tr>
</table></td><td>Score: 3</td></tr>
<tr><td>11</td><td><u>Evaporation</u>
It is the process by which a liquid changes into vapour by absorbing heat from surroundings. This is a normal process that takes place in the surface of liquid at all temperature. it is a slow process
<u>Vapourisation</u>
Vapourisation is the process by which a liquid changes into its gaseous state at its boiling point.
• The temperature dependence of both are different</td><td>Score: 2</td></tr>
</table>

12	**(a) No: of Primary turns, N_P =20,000** **No: of secondary turns, N_S = 30,000** **Voltage in the primary ,V_p= 160 V** **Voltage in the secondary, V_S = ?** $\frac{V_S}{V_P} = \frac{N_S}{N_P} \therefore V_S = \frac{V_P \times N_S}{N_P} = \frac{160 \times 30000}{20000} = 240$ **V** **(b) As no.of turn's increases in the secondary the flux linked with secondary increases thereby increases the induced emf in the secondary.** **(c) 500 W. Because power in the primary and secondary are equal.**	**Score: 2** **Score: 1** **Score: 1**
13	**(A)** **(a) Mass , m = 5 Kg** **Change in temperature , θ = 313K -303K = 10 K** **Quantity of heat , Q = 209300 J** **Q = mcθ** **C =** $\frac{Q}{m\theta} = \frac{209300}{5 \times 10} =$ **4186 J/Kg K** **(b)** • **The change in atmospheric temperature do not affect our body temperature quickly** • **Water is used as a coolant in radiators of engines** • **Land breeze and sea breeze** **(B)** **(a) J / Kg** **(b) It is the quantity of heat absorbed by 1 Kg of solid to change into liquid state at its melting point without change in temperature**	**Score: 2** **Score: 2** **Score: 1** **Score: 1**

	(c) • **Glaciers do not melt as a whole at the same time** • **Ice creams does not melt fast**	**Score: 2**
14	**c. 55000 Kj / Kg**	**Score: 1**

Chapter no	Chapter name	No of questions (optional)	Marks	% weight
1	Wave motion	5	6	15%
2	Effects of electric current	3	5	12.5%
3	Electromagnetic induction	2	4	10%
4	Power transmission and distribution	4	5	12.5%
5	Heat	3(3)	6	15%
6	Colours of light	5(4)	6	15%
7	Electronics and modern technology	3	4	10%
8	Energy management	3	4	10%
		Total	40	100%

❖ ***NB: % weight of score for each chapter may vary***