

SSLC EXAMINATION, MARCH - 2019

PHYSICS

(English)

Time : 1½ Hours

Total Score : 40

GENERAL INSTRUCTIONS :

- The first 15 minutes is the cool off time. You may use the time to read and plan your answers.
- Answer the questions only after reading the instructions and questions thoroughly.
- Questions with marks series 1, 2, 3 and 4 are categorised as sections A, B, C and D respectively.
- Five questions are given in each section. Answer any four from each section.
- Answer each question by keeping the time.

SECTION - A

Score

(Answer any four questions. Each question carries 1 score.)

1. What is the relationship between frequency and wavelength of a wave in a medium ? 1
2. Name the colour of light emitted when nitrogen is used in a discharge tube. 1
3. What is the use of watt hour meter in a household circuit ? 1
4. Write any one reason for global warming. 1
5. Fill in the blanks. 1
Magenta + → white

SECTION - B

(Answer any four questions. Each question carries 2 scores.)

6. Complete the table using the given statements associated with waves. 2
 - (i) Particles vibrate in a direction parallel to the direction of propagation of the wave.
 - (ii) Formed on the surface of solids and liquids.
 - (iii) Crests and troughs are formed.
 - (iv) Compressions and rarefactions are formed.

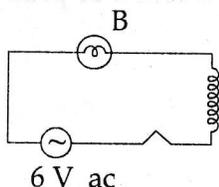
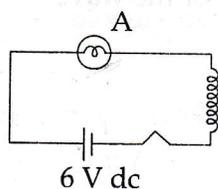
Longitudinal waves	Transverse waves

7. Correct the following statements by modifying the **underlined words** appropriately. If it is wrong.
- (a) Heating coils are made up of materials having high resistivity and low melting point. 1
- (b) In the incandescent lamps, vaporisation of filaments can be reduced by using hydrogen or nitrogen at low pressure. 1
8. In house hold electrical appliances three pin plugs are used to ensure safety.
- (a) How is the earth pin different from the other pins? 1
- (b) Which part of the equipment is connected to the earth line? 1
9. Explain the following experiences in every day life on the basis of scientific principles involved.
- (a) Propylene glycol is added to water when used as a coolant in the radiators. 1
- (b) The blister caused by steam is said to be more severe than that caused by boiling water at the same temperature. 1
10. CNG and LNG are natural gases.
- (a) What are the main component of these gases? 1
- (b) Write any one merit of LNG over CNG. 1

SECTION - C

(Answer any four questions. Each question carries 3 scores.)

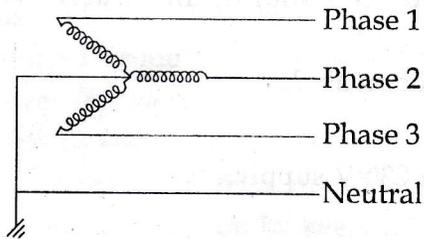
11. Observe the given circuit diagrams and answer the questions. Identical coils and identical bulbs are used.



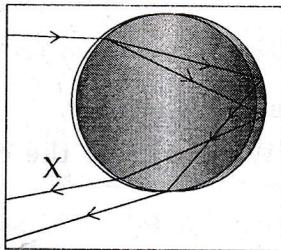
- (a) If switches are in ON position which bulb will be brighter? Why? 2
- (b) When a soft iron rod is inserted into the coils, what will be the change observed in the brightness of bulbs A and B? 1

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12. (a) The input voltage of a transformer is 240 V AC. There are 80 turns in the secondary coil and 800 turns in the primary. What is the output voltage of the transformer? Score 2
- (b) In which coil of the transformer thick wires are used? 1

13. The following figure represents the configuration of the output lines in a distribution transformer.



- (a) Give the name of this configuration. 1
- (b) What is the potential difference between 2 phase lines? 1
- (c) Why a person standing on the earth do not get electrocated when he comes in contact with the neutral line? 1
14. Describe an experiment to show the scattering of light according to the scheme given below.
- (a) List the materials to be used. 1
- (b) Write the procedure of the experiment. 2
15. A ray diagram of the dispersion of sunlight by a droplet of water is given below.



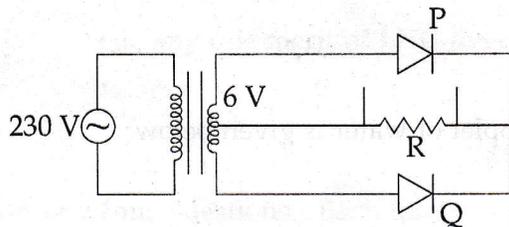
- (a) What is the colour represented by X? 1
- (b) How many times does a ray of light undergo refraction when it passes through a water droplet? 1
- (c) Give an instance in which a rainbow seen as a circle. 1

SECTION - D

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(Answer any four questions. Each question carries 4 scores.)

16. (a) What is the difference between reverberation and echo ? 1
 (b) Sound signal from a ship floating in water hits at the bottom of the sea and reflects back to the ship after 6 seconds. Speed of sound in water is 1500 m/s. Calculate the depth of the sea. 2
 (c) What is the minimum distance required to hear an echo in air ? 1
17. A heater coil bearing a label 920 W, 230 V is connected in a 230 V supply.
 (a) Find out the current flowing through the heater. 1
 (b) Calculate the quantity of heat generated in 5 minutes. 2
 (c) How the power of the heater can be changed without altering its resistance ? 1
18. In summer season melting of glaciers leads to floods.
 (a) Glaciers do not melt as a whole at the same instant. Why ? 2
 (b) What happens to the potential energy of the molecules of ice when ice melts. Explain why ? 2
19. Analyse the given circuit diagram of a full wave rectifier and answer the following questions.



- (a) Identify the component labelled as Q. 1
 (b) Draw the graphical representation of output voltage - time of this rectifier. 1
 (c) If the component 'Q' is removed from the circuit. What will be the output voltage - time graph ? Why ? 2
20. (a) Hydrogen having the highest calorific value but it is not used as a domestic fuel. Why ? 1
 (b) Give an instance where hydrogen is used as a fuel. 1
 (c) Write any four properties of a good fuel. 2