SSLC MODEL EXAMINATION—FEBRUARY, 2013

Physics

Time : 1½ hrs. Total Score : 40

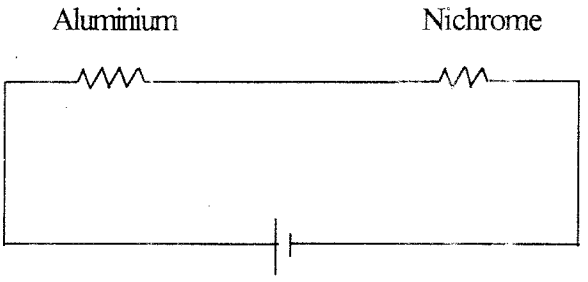
Instructions :

- 15 minutes are given as 'cool-off time'. This is to be used to read and understand the questions well.
- If a question contains choices, only one of them needs to be answered.
- The score of each question is given against the question.

Score

1. You know that in metals, the electrical conduction is due to Electrons. But in Electrolytes, what is it due to ? [1]

2.



The Aluminium and Nichrome wires shown in the circuit have the same length and same area of cross section.

(a) Which of them will have a greater resistance ? [1]

(b) Which of them will develop more heat ? [1]

3. Calculate the heat developed in 10 minutes when a current of 2A flows through an electric heater connected to 240V electric supply. [2]

4 A.(a) Name the important parts of an AC Generator. What is the function of each of them ? [2]

(b) Draw a line diagram of this generator and label the above parts. [2]

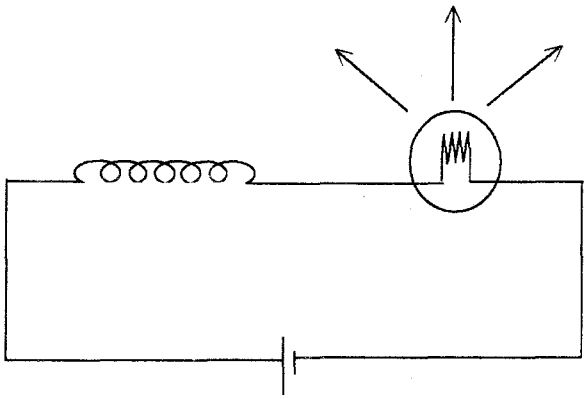
OR

4 B.(a) What is the principle of working of a transformer ? [1]

(b) In a transformer, the number of turns of the primary is N_P and that in the secondary is N_S. The Primary and the Secondary voltage are respectively V_P and V_S. Write down the relation between them. [1]

(c) A step down transformer has 7000 turns in the primary. When 240V was applied to its primary, the voltage in the secondary was found to be 12V. Calculate the number of turns in the secondary. [2]

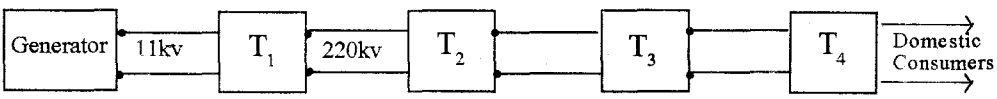
5. (a)



When the Cell in the above circuit is replaced by an AC of the same voltage what will happen to the intensity of light emitted by the bulb ? [1]

(b) Name the phenomenon responsible for this change. [1]

6.



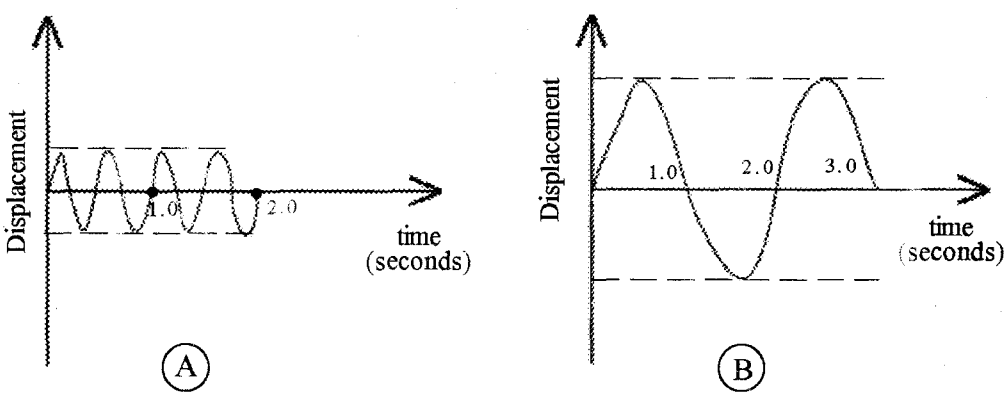
T_1, T_2, T_3, and T_4 are transformers used at various stages from generation to distribution in a transmission system. Observe the figure and write down the output voltage of the transformers T_2, T_3 and T_4. [2]

7. 25W, 60W and 100W bulbs are connected in parallel to a 230V, AC main supply. What is the voltage across each bulb ? Write a situation where this principle is applied in our daily life. [2]

8. The frequency of a sound wave is 'n', 'v' is its velocity and 'λ' is its wavelength. Then, what is the equation connecting v, n and λ ? [1]

9. (a) What are the four characteristics of sound ? [2]

(b)



Figures A and B depict sound waves from two different sources. Which one of the two is louder ? Which one has greater pitch ? [2]

(c) Given below are sound of frequencies 3000Hz., 100 Hz., 1500Hz. and 25000Hz. Which one of them is not audible ? [1]

10. (a) Which of the following is a correct statement ?

A composite light is passed through a prism. In the emergent ray,

(i) The shortest wavelength light is most deviated.

(ii) The longest wavelength light is most deviated. [1]

(b) Name the optical phenomenon responsible for the following:—

(i) Rainbow

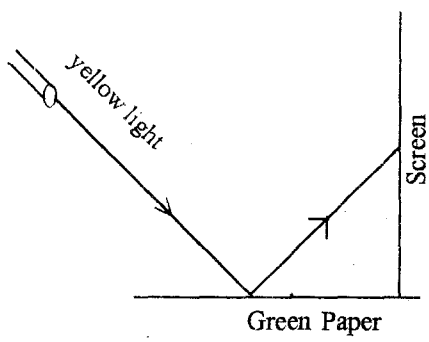
(ii) Red colour of the setting sun. [1]

11. Match the statements in columns (2) and (3) with those in the first.

Infrared	Vitamin D	High frequency
Ultra violet	Primary colour	Low frequency
Blue light	Photography of distant objects	Scattering

[2]

12.



Yellow light from a torch falls on a green paper and is reflected on to a white screen.

(a) What is the colour in which the screen is seen ? [1]

(b) Explain the reason in two or three sentences. [1]

13. (a) Certain transistor radios used in our home require 12Volt DC. List the electronic components required to get continuous DC from 230V AC mains in our home. Show also their symbols. [2]

(b) Using them draw the electronic circuit to get the required voltage. [2]

14. (a) Show by a structure diagram, the major zones of the Sun. [2]

(b) What are Sun spots? Which is the zone of the sun where they are found ? [2]

(c) What is the basis upon which Malayalam months are named ? [1]

15. (a) How do the decay and combustion of biowaste materials cause atmospheric pollution? [2]

(b) Suggest a method to minimise the above mentioned pollution. [1]

(c) Write any three qualities of a good fuel. [1]