S.S.L.C. MODEL EXAMINATION 2014

PHYSICS

Time : 1½ hours *Total Score : 40*

Instructions:

- Fifteen minutes are given as 'cool off time'.
- This time is given to read and understand the questions well.
- For choice questions only one of them need to be answered.
- The score of each question is given along with it.

SCORE

1. Analyse the first pair and then complete the second pair 1

   inductance : Henry :: sound level: _____

2. Which of the following should be an essential property for a coil to be used as heating element in an electric device? 1

   (i) Low melting point (ii) high resistivity

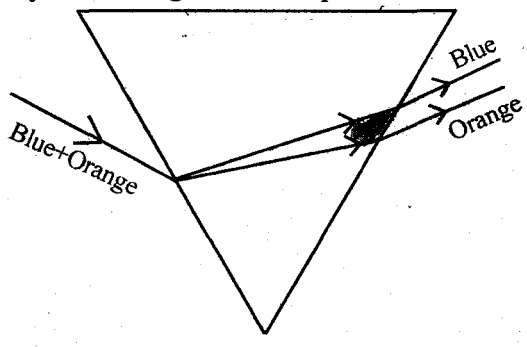
   (iii) large area of cross section (iv) low resistance

3. Select the one that does not belong to the group. Give reason for your answer. 1

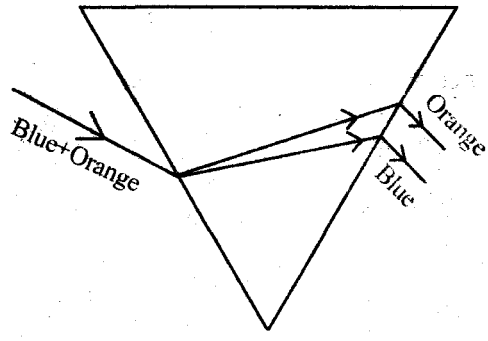
   Coal, Petroleum, Natural gas, Biogas

4. Name the regions that can be considered as the atmosphere of Sun. 1

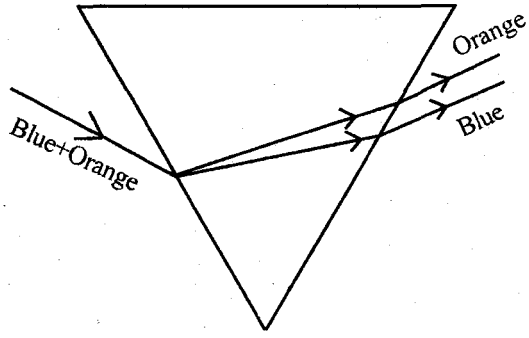
5. Composite light consisting of blue and orange are passed obliquely through a prism as shown in the figures given below. Select the figure which shows the correct way in which the ray will emerge from the prism 1



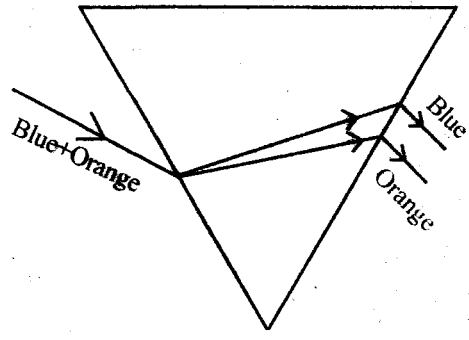
(a)



(b)

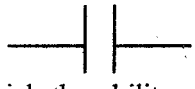


(c)



(d)

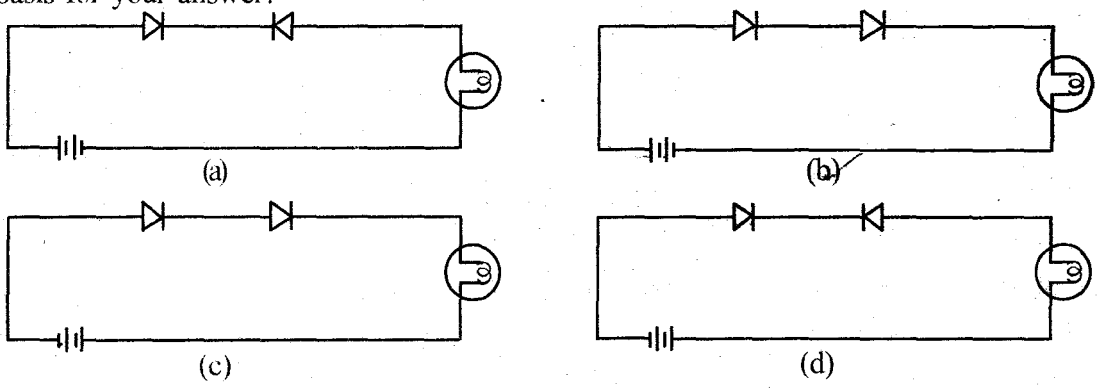
6. Given below is a symbol of an electronic component. 1



What is the unit in which the ability of this component is expressed?

SCORE

7. Given below are four circuit diagrams consisting of diodes, battery and bulb. Study the circuits and find out in which circuit (a), (b), (c) or (d), the bulb will glow. What is the basis for your answer? 2



8. (a) Name the vitamin that is produced when our body is exposed to mild rays of the sun in the morning and evening. 2

(b) Which is the radiation that produces this vitamin?

9. The wave length of sound travelling in air with the velocity 330 m/s was found to be 66 m. If so. 2

(a) Find the frequency of sound.

(b) By what name are sounds of such frequency known as?

10. When the lines of a household circuit becomes short circuited, 2

(a) What is the change in the flow of current in the circuit?

(b) Name a device other than safety fuse which can be used to protect the devices in the circuit, in such situations.

Attempt only 11 A OR 11 B

11A. The stem of an excited tuning fork was pressed on an empty box. The box was found to vibrate. 2

(a) What is the vibration of the box known as?

(b) Under what condition, can resonance occur in these objects?

OR

11B. State what change happens to the loudness of sound in the following situations:

(a) Amplitude of vibration decreases.

(b) The distance between source and receiver decreases.

12. Even though an alternating current (AC) is produced in the armature of a DC generator, the flow of current in its external circuit is in the same direction (DC). Explain how this is made possible? 2

SCORE

13. Even though many equitorial satellites revolve round the earth, all of them are not Geostationary Satellites. 2

(a) When does an equitorial satellite become a Geostationary Satellite?

(b) Name the vehicle developed by India to launch Geostationary Satellites.

14. One of the characteristics of a good fuel is its calorific value. 2

(a) What is meant by calorific value?

(b) Name any other two properties the substance must have in order to be considered as a good fuel.

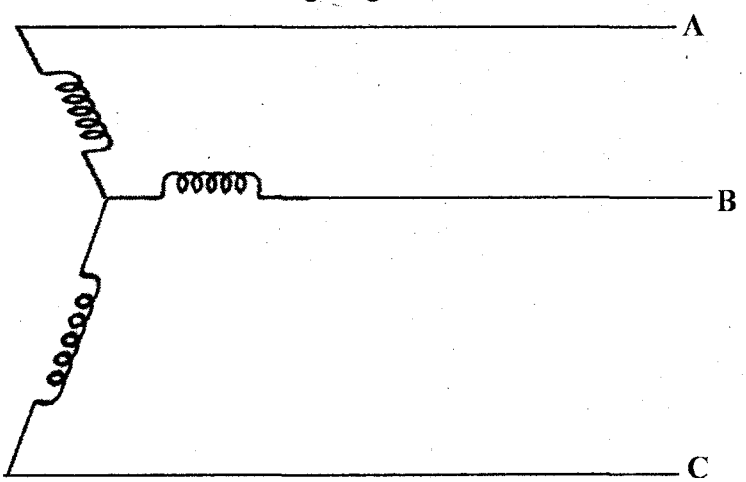
15. (a) What is the advantage of setting up telescopes operating in space for the purpose of space research? 2

(b) Name any one such telescopes, operating in space.

16. Match the items in columns A, B and C suitably: 3

A	B	C
Tungsten	w/m^2	Solar panel
Intensity of sound	Low melting point	High resistivity
Photo voltaic effect	High melting point	**Solar cooker**
	Solar Cell	Low resistance
		Sound energy

17. The three phase lines connected in the star connection mode in the secondary of a distribution transformer is shown in the figure given below : 3



If a connection has to be given to a house that requires 230V, and a factory that requires 400V, complete the diagram suitably by indicating the lines that are needed for the connection.

SCORE

18. (a) A CF Lamp (Compact Fluorescent Lamp) comprises of two units. Which are they? 3

(b) How are the electrons emitted from the electrodes of CF Lamp?

(c) What are the threats posed by discarded CF Lamp to the environment?

19. (a) Name the complementary colour that can be combined with blue to get white light. 3

(b) A flag is made by stiching together pieces of yellow cloth, white cloth and cyan cloth. In which colour of light should you place this flag so that it appears totally in one colour alone. Give reasons for your answer.

Attempt only 20 A OR 20 B

20A. The number of turns in the primary coil of the transformer is 400 and the number of turns in its secondary is 200. 4

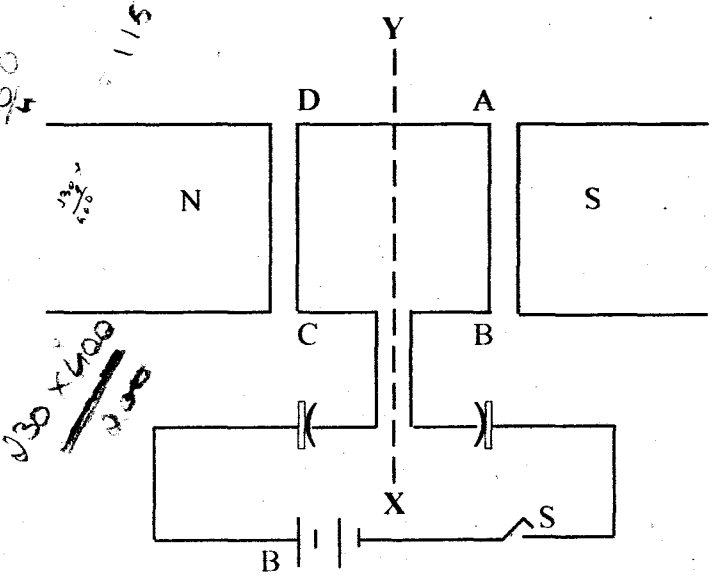
(a) What type of transformer is this? In which coil is the thicker wire used?

(b) If 230V is applied to its primary, what is the voltage obtained in the secondary?

(c) If 2A current flows in the primary, what is the current that can be drawn from the secondary?

OR

20B. ABCD is a conducting coil placed along XY axis in between the poles of a magnet NS as in the figure.



(a) What is the direction in which coil ABCD will turn, when the circuit is on? (Clock wise/Anticlock wise)

(b) On what basis did you reach at this conclusion?

(c) Write the name of any two equipments that make use of this principle.

(d) Write the energy change that occurs in the examples given by you.