B

SECOND TERMINAL EVALUATION 2016
PHYSICS

Standard : X

Score : 40
Time : 1½ hour

Instructions

1. 15 minute is given as cool off time. This time is to be used for reading and understanding the questions.
2. Write down answers for all questions.
3. For questions having choices, only one need to be answered.
4. The score for each question is given along with the question.

1. Which of the following does not belong to the group? Justify your answer.
   (a) fahrenheit, celsius, joule, kelvin
   (b) yellow, red, magenta, cyan (2)

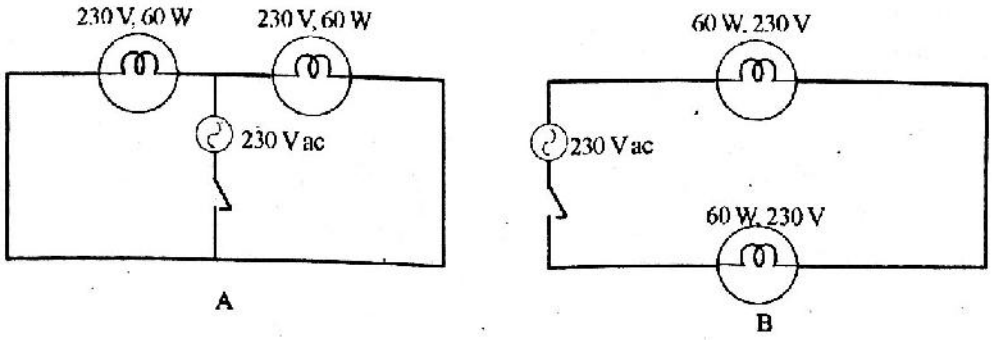
2. Find out the relation from the first pair and complete the other.
   (a) Kayamkulam – Thermal power station
   Koodamkulam – .....
   (b) Transformer – mutual induction
   Inductor – ..... (2)

3. Choose the correct ideas from the brackets that are related to the statements given below.
   (a) Sending electricity from the power station to the distribution centre.
   (b) Interconnects different power generating centres and distribution centres
   (c) The voltage of AC is increased without change in power.
   (d) Neutral point is made by connecting three phase lines.
   [Power grid, step up transformer, star connection, power transmission, inductor] (2)

4. Give scientific explanation for the following daily life situations.
   (a) The chillness felt on placing ice cubes at 0°C in mouth is much more than that while drinking water at 0°C.
   (b) Water kept in earthen pot gets cooled very well.
   (c) The variations in atmospheric temperature do not affect our body instantly. (3)

Answer any one of the questions, 5 A or 5 B.

5A. The figure shows different ways in which two 60 W bulbs are connected.

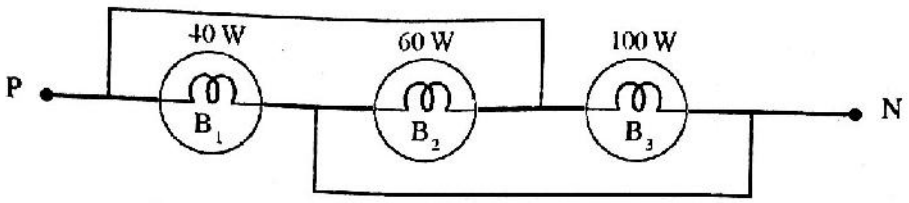


(a) In which circuit are the bulbs connected in series? (1)

(b) In which circuit do the bulbs glow with power 60 W? Why? (2)

(OR)

5B. The figure shows three lamps connected in a house hold circuit. Observe the figure and answer the following.



(a) In which mode are the lamps B_1, B_2 and B_3 connected? (1)

(b) Which bulb glows with maximum brightness in the circuit? Why? (2)

6. 5 V is available in one turn of a transformer with 100 turns of coil in the primary and 200 in the secondary. Write down the answers for the following questions.

(a) Which type of transformer is this? (step up/ step down) (1)

(b) What is the voltage applied to the primary? How is it calculated? (1)

(c) What is the secondary voltage? (1)

(d) Calculate the current and power of secondary if the power of primary is 1000 W. (1)

7. 2 kg of coconut oil and 2 kg of water which are at 30° C are taken in two identical vessels

Specific heat capacity of water = 4200 J/kgK

Specific heat capacity of coconut oil = 2100 J/kgK

(a) You know the specific heat capacity of water and coconut oil are in the ratio 2:1. If a definite quantity of heat is supplied to both, what is the ratio of rise in temperature in both? (1)

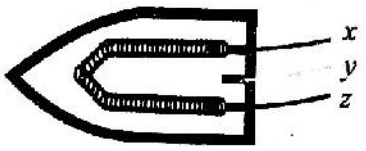
(b) Calculate the quantity of heat required to raise the temperature of water to 40° C (1)

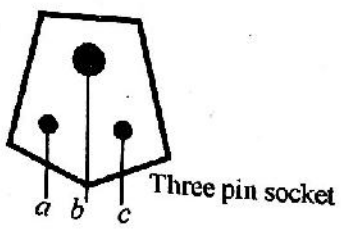
8. The first aid to be given to a person who suffers from electric shock is rubbing and massaging the body.

(a) What is the scientific base behind it? (1)

(b) What are the other first aids to be given for a person who suffers from electric shock? (1)

9. Observe the figure and answer the following questions.





(a) To which terminals of a three pin socket should you connect terminals x, y and z in the electric iron box? (1)

(b) How does a three pin plug ensure better safety? (2)

10. In a step up transformer the primary voltage and secondary voltage are in the ratio 2:3 If so what is the ratio of current available in them? Why? (2)

Answer any one of the questions, 11 A or 11 B.

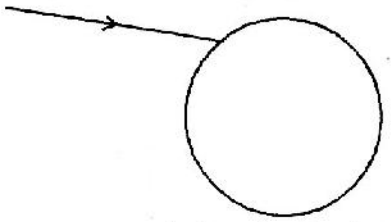
11A. When sunlight is passed through a prism it splits up into its component colours.

(a) In which name is this phenomenon known as? Write down one example for this phenomenon that takes place in nature. (2)

(b) Write down the colours in the increasing order of frequency. (1)

OR

11B. The figure shows a ray of light falling obliquely on a drop of water in atmosphere.



(a) Copy the diagram and complete it showing the internal reflection and refractions. (1)

(b) How does the sunlight appears as rainbow in water droplets? (2)

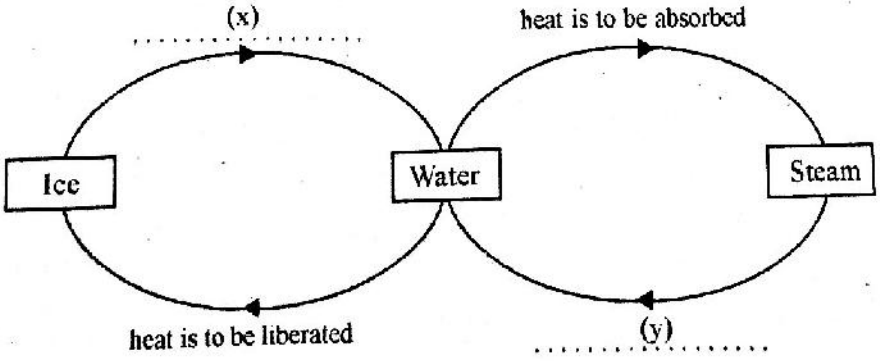
12. The table shows observations based on the combination of colours of light. Fill in the blanks *x* and *y*.

Colour of light (A)	Colour of light (B)	Colour obtained by the combination.
Green	Red	..x..
..y..	Blue	White light
Red	Cyan	White light

(a) Complete the missing parts x and y (1)

(b) Find out one pair of complementary colours form the table. (1)

13 A flow chart regarding the change of state of water is given.



(a) Fill in the blanks x and y in the figure. (1)

(b) Which are the change of states that involve release of heat as indicated by the flow chart? (1)

(c) If the latent heat of fusion of ice is 335×10^3 J/kg and the latent heat of vaporisation of water is 226×10^4 J/kg, in which stage is more heat released? Explain. (2)

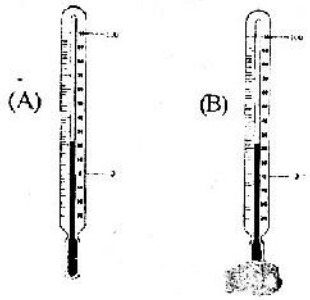
14. Global warming is a matter of worldwide discussion in relation to environment protection.

a. Explain the concept of global warming. (1)

b. Write down any two environmental problems due to global warming. (1)

c. What are the ways and means you will adopt to prevent global warming? (2)

15. Of the two thermometers depicted one is kept exposed to air and the other is wrapped with cotton dipped in spirit.



(a) Will the temperatures shown by both be the same if observed after some time? Why? (1)

(b) Write down two factors affecting the rate of evaporation. (1)