

SECOND TERMINAL EVALUATION 2017
PHYSICS

Standard: X

Time : 1½ Hour
Total Score : 40

Instructions

- First 15 minutes is given as cool off time. This time is to be spent for reading and understanding the questions.
- Answer the questions based on instructions.
- Answer the questions according to score and time

Answer any **FOUR** questions from 1 to 5. Each question carries 1 score. (4 x 1 = 4)

1. Which of the following instrument is used in the experiment related to resonance in sound?
(Thermometer, Sonometer, Seismometer, Sonar)
2. Find the odd one out, and write down the reason for it.
(Red, Green, Magenta, Blue)
3. Which of the following is measured in $\text{Jkg}^{-1}\text{K}^{-1}$
 - a) Latent heat of fusion.
 - b) Latent heat of vaporisation.
 - c) Heat capacity.
 - d) Specific heat capacity.
4. Find out the relation in the first pair complete the second pair.
Inductor : Self Induction.
Transformer :
5. Write the name of system/arrangement that connects different power generating centres and distribution systems?

Answer any **FOUR** questions from 6 to 10. Each question carries 2 score. (4 x 2 = 8)

6. Domestic consumption of electrical energy is measured in kWh. (1)
 - a) Which instrument is used to measure the electrical energy consumed in our households? (1)
 - b) Calculate the energy consumed when a device of power 1000W is used for 1 hour. (1)
7. Two identical bed sheets one crumpled and the other stretched are kept for drying in the same sun light.
 - a) Which bed sheet will dry quickly? (1)
 - b) Explain the scientific reason for your answer. (1)

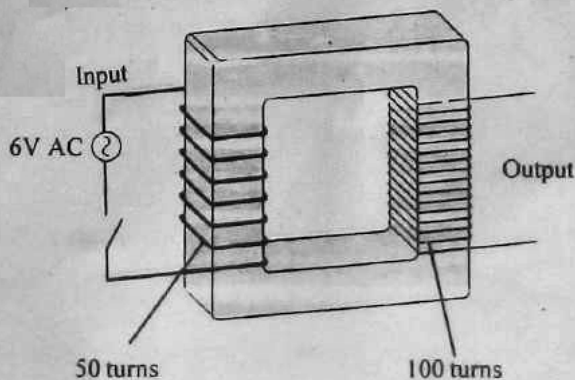
8. The maximum value of the induced emf is same in all the three armature coils of a three phase generator. Will the emf in each of the coil become maximum simultaneously? (2)
9. Choose the correct statements related with the household electric circuit from those given below. (2)
- Electrical appliances are connected in series.
 - All electrical appliances will get the same voltage.
 - Appliances cannot be controlled individually by using separate switches.
 - Electricity flows according to the power of the device.
10. Global warming is the phenomenon in which the temperature of the earth's surface and the atmosphere increases due to increase in the amount of greenhouse gases.
- a) Give two examples for greenhouse gases. (1)
- b) Name the radiation that causes global warming. (1)

Answer any **FOUR** questions from 11 to 15. Each question carries 3 score. (4 x 3 = 12)

11. Name of some devices are given in the box.

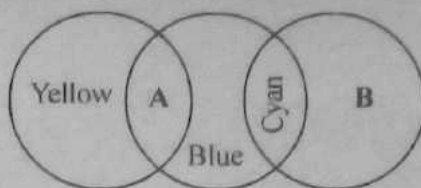
Generator, Filament lamp, Stethoscope, Moving coil microphone, LED lamp.

- a) Two devices in the box are working on the same principle. Which are they? (1)
- b) Write down the working principle of those two devices? State the principle. (1)
- c) Write down the energy change taking place in those two devices. (1)
12. Observe the given figure and answer the following questions.



- a) Calculate the output voltage in the above transformer. (1)
- b) What is the output voltage if 6V AC is replaced by 6V DC. Why? (2)
13. Boiling point of water in the normal atmospheric pressure is 100°C .
- a) What is the boiling point of water in Fahrenheit scale? (1)
- b) What are the methods used to increase the boiling point of water in pressure cooker and in the radiator of vehicles? (2)

14. Three different coloured lights are projected on a white wall as shown in the diagram.



a) Identify the colours in which the region A and region B appeared. (2)

b) Write down the complementary colours from these. (1)

15. Write down the reasons for the following.

a) Cooking of food is faster when it is done in the steam. (1)

b) Water kept in an earthen pot remains cool even in the summer. (1)

c) The temperature does not change even though heat is absorbed during change of state. (1)

Answer any **FOUR** questions from 16 to 20. Each question carries 4 score. ($4 \times 4 = 16$)

16. Drop in voltage and power loss are the problems that we encounter when power is transmitted to distant places.

a) At what voltage is electricity produced in our country? (1)

b) Why power loss is encountered in the transmission of electricity to distant places? (1)

c) Explain the role of transformer in overcoming these problems in long distant power transmission? (2)

17. 2 Kg of water at 273K is allowed to cool and convert to ice at the same temperature. Latent heat of fusion of ice is 335×10^3 J/kg

a) What is the freezing point of water in the Celsius scale? (1)

b) Calculate the heat liberated in the above process. (2)

c) Give any one instance where the high latent heat of fusion of ice is made use of. (1)

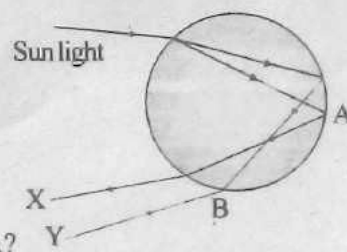
18. An electric appliance of 540 W power is working at 240V.

a) Calculate its amperage. (1)

b) How does the thickness of the wire and its amperage are related? (1)

c) Explain how does a fuse wire ensure safety in a circuit. (2)

19. Dispersion occurring to the ray of sunlight when it passes through a water droplet during the formation of a rainbow is shown in the diagram.

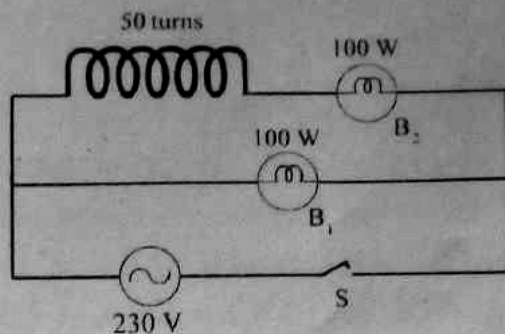


a) Identify the colours X and Y. (1)

b) Which phenomenon of light happens at the point A? (1)

c) Explain how dispersion occurs to a light ray inside a water droplet. (2)

20. The bulbs B_1 and B_2 in the circuit are of same power. Observe the circuit and answer the questions.



- a) Which bulb will glow more brightly when the switch is 'ON'? (1)
- b) What will happen to the brightness of bulb B_2 when a soft iron core is placed inside the coil? (1)
- c) What change can be noticed when DC of same voltage is given to the circuit instead of AC. Explain? (2)