

Sample Question Paper

Physics

STANDARD - X



**General Education Department
Government of Kerala**

SCERT - 2006

STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING (SCERT)
Poojappura, Thiruvananthapuram-12
Kerala

ചോദ്യപേപ്പറിന്റെ ഡിസൈൻ

A. Weightage to C.O/ Units

| C.O | Unit | Score | Score % |
|------------|---------------------------------|-----------|------------|
| 1,2 | താപം | 7 | 14 |
| 2,3,6 | വൈദ്യുതിയുടെ താപ പ്രകാശ ഫലങ്ങൾ | 7 | 14 |
| 4,5 | വൈദ്യുത കാന്തിക പ്രേരണം | 8 | 16 |
| 1,2 | വൈദ്യുത പവർ ഉല്പാദനവും വിതരണവും | 8 | 16 |
| 2,3 | പ്രകാശം | 6 | 12 |
| 1,5 | ന്യൂക്ലിയർ ഫിസിക്സ് | 8 | 12 |
| 1 or 4 | ഇലക്ട്രോണിക്സ് | 3 | 6 |
| 3 | നമ്മുടെ പ്രപഞ്ചം | 3 | 6 |
| 2 | ഊർജ്ജസ്രോതസ്സുകൾ | 2 | 4 |
| ആകെ | | 50 | 100 |

B. Weightage to Type of Questions

| No | Question type | Score | Percentage |
|------------|----------------|-----------|------------|
| 1 | Objective type | 6 | 12 |
| 2 | Short Answer | 41 | 82 |
| 3 | Essay | 3 | 6 |
| ആകെ | | 50 | 100 |

Blue Print

| Unit/CO | Type of Questions | | | | Total Score |
|--------------|-------------------|------------|----------|----------|-------------|
| | Objective | S.A | Essay | Others | |
| 1 | 1 | 7 | | | 7 |
| 2 | 3½ | 3½ | -- | | 7 |
| 3 | - | 8 | - | | 8 |
| 4 | | 8 | - | | 8 |
| 5 | | 6 | - | | 6 |
| 6 | | 6 | -- | | 6 |
| 7 | 1 | 2 | -- | | 3 |
| 8 | 3 | | | | 3 |
| 9 | 1 | 1 | | | 2 |
| Total | 19½ | 22½ | 8 | - | 50 |

SSLC Sample Question Paper

Physics

Score: 50
Time: 1 1/2 Hours

General Instructions

The total number of questions given is 18.

All questions are to be answered

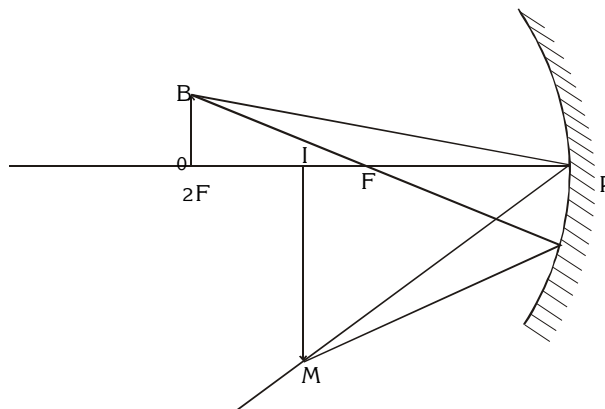
Fifteen minutes are given as cool off time. This time is to be used for reading and understanding the questions

Start answering the questions after they are fully read and understood

Try to keep time while answering questions

The score to each question is given along with it

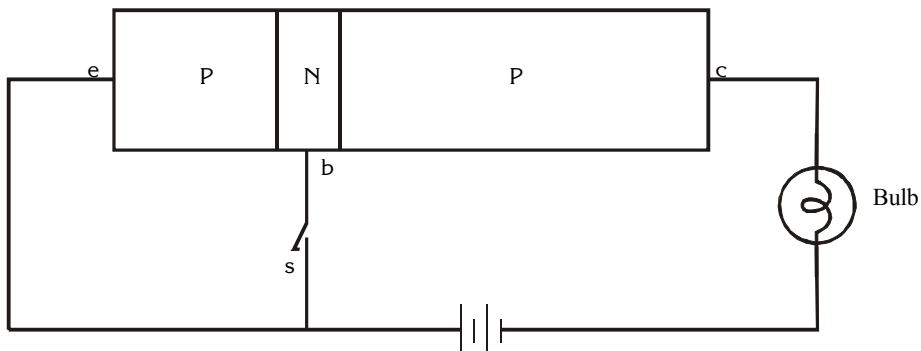
- From the following statements write down that which is applicable to a discharge lamp.
 - Nichrome is used as electrodes
 - The Color of light emitted from it depends upon the nature of the gas filled in it.
 - The light is produced due to the heating effect of electric current(1)
- Fill in the blanks
Filament lamp : Tungsten, then; fuse wire : alloy of (1)
- The substances noted below are given as the products of destructive distillation of coal. But some of them are not. List out the wrong ones (1)
Bitumen, Coaltar, Paraffin Wax, Ammonia
- Correct the mistakes, if any, in the following statements
 - The number of turns in the armature coil of a three phase generator is in the ratio 1 : 2 : 3
 - At the same instant the voltage in the three coils of a three phase generator is the same(2)
- Geothermal energy is obtained from the high pressure steam trapped inside the rocks under the earth, The production of this steam is related to hot spots. What do you mean by the term hotspot? (1)
- The ray diagram shown below is introduced to show how a concave mirror forms an image IM of an object OB placed at $2F$.
 - Identify the mistakes and draw the correct ray diagram
 - Write the justification for your corrections(3)



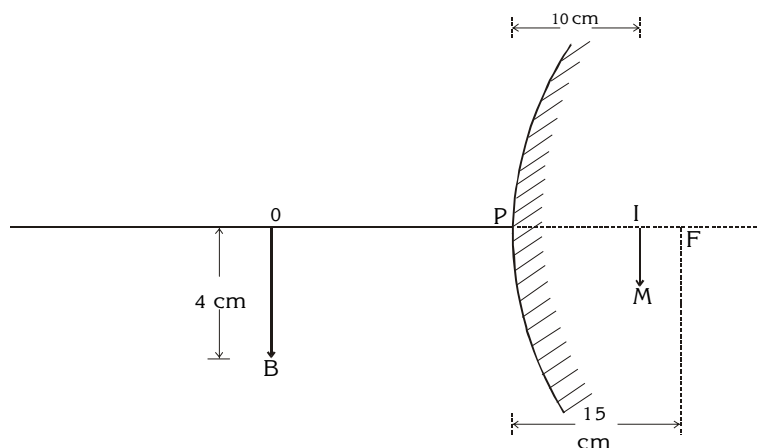
7. You know that γ rays are harmful radiations emitted by naturally radio active substances
- Which are the other radiations from such substances?
 - Tabulate the following statements as applicable to each of the above radiations
 They are electromagnetic radiations
 They have high penetrating power
 They are electrons
 They contain neutrons
- (3)
- 8A Germanium doped with antimony gives crystals having excess of free electrons. You know that at ordinary at temperatures holes are also present in them,.
- Considering this write down the names in which the following are known.
 - The semiconductor doped with antimony
 - The minority charge carries in the crystal
 - What change will occur in the number of charge carriers, when the temperature of these crystals is brought down to zero kelvin
- (3)

OR

- 8B Observe the circuit given below and answer the following
- When will the bulb glow, either when the switch is on or off.



- Justify your answer based on your experiences in the class room
 - Will the bulb glow when the polarity of the cell in the emitter base circuit is interchanged, keeping the switch ON
- (3)
9. Observe the figure and write down the following quantities using Cartesian sign convention



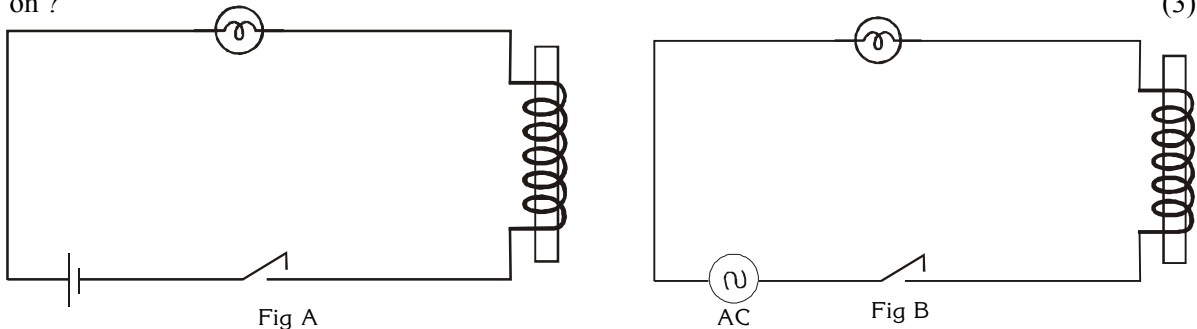
1. The length of the object OB
2. The distance to the image
3. The focal length of the spherical mirror (3)

10. Raju and Venu made electric heaters using nichrome wires of same length but of different thickness as heating elements and used them for experiments.

- a) Which of the wires has higher resistance?
- b) For a fixed interval of time which will produce greater amount of heat ? Why? (2)

11. A and B are two electrical circuits. Note the solenoid with soft iron rode in each of the circuits.

Analyse the circuits and note down in which circuit the bulb will burn more brightly when switched on ? (3)



12. Electric power is transmitted to different places from power stations using metal wires
 - a) What are the problems faced during the transmission of power.
 - b) Explain how transmission loss is minimised when super conductors of zero resistance are used for power transmission (3)

13. Harmful radiations originate from a nuclear reactor. Precautions are taken to see that they do not become a threat to living beings.

- a) what are these precautions?
- b) What are the functions of control rods and moderators in these nuclear reactors
- c) What are the substances used as the source of neutrons in nuclear reactors (3)

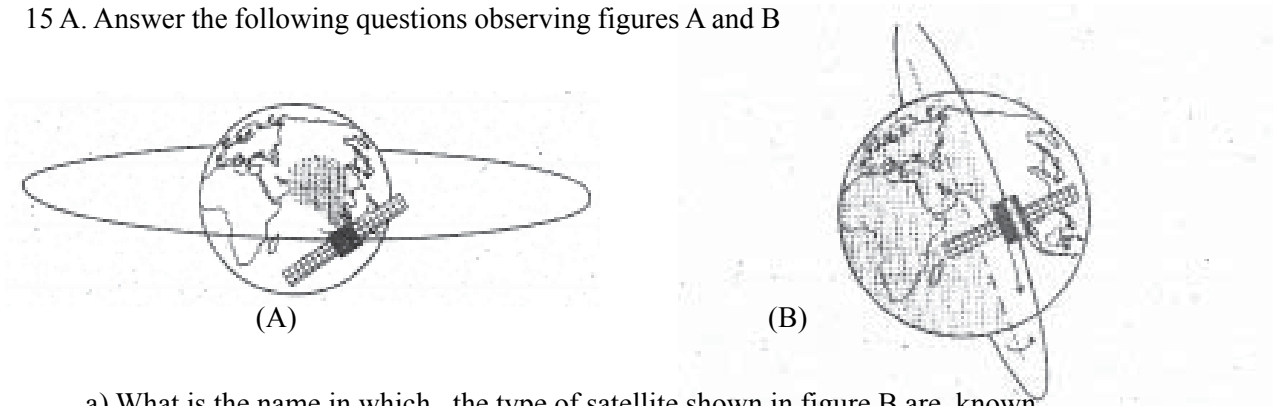
14. Complete the table choosing the right terms from with in the brackets

| | | | |
|----|------------|------------------------------|--------------------------|
| a) | Kayamkulam | thermal power station | A |
| b) | B | hydro electric power station | Water stored at a height |
| c) | Tarapur | C | Uranium |

((Pallivasal, Nuclear Power station, thermal power station, Neyveli, Brahmapuram, Naphtha)

3

15 A. Answer the following questions observing figures A and B

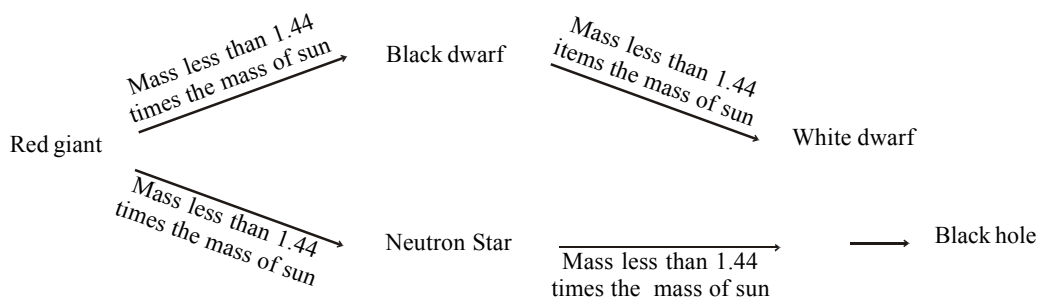


a) What is the name in which, the type of satellite shown in figure B are known.

(3)

OR

15B. The flow chart given below is related to the death of stars.



Analyse the chart and answer as instructed

a) Find out the errors, if any and correct the chart

b) write down any one similarity between a black dwarf and a black hole

(3)

16A The evaporation of a liquid causes cooling of its surroundings is the principal employed in a refrigerator.

If so

a. which is the gas used in a refrigerator?

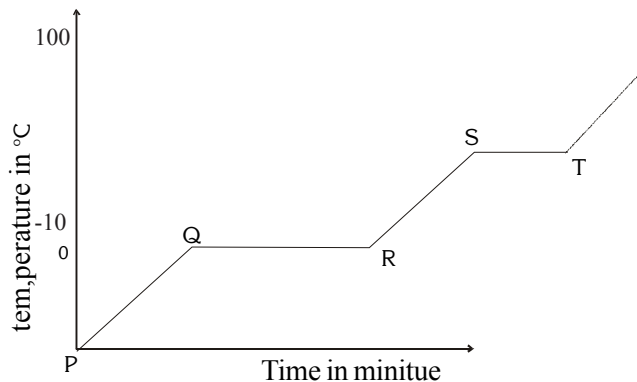
b. How is it converted back to liquid state after evaporation?

c. Why do we feel hot when we touch the tubes or sheet at the back of a refrigerator when it works. (4)

OR

16B The graph shown below is drawn using the data obtained by the continuous heating of 2 kg of ice.

Analyzing the graph answer the following questions.

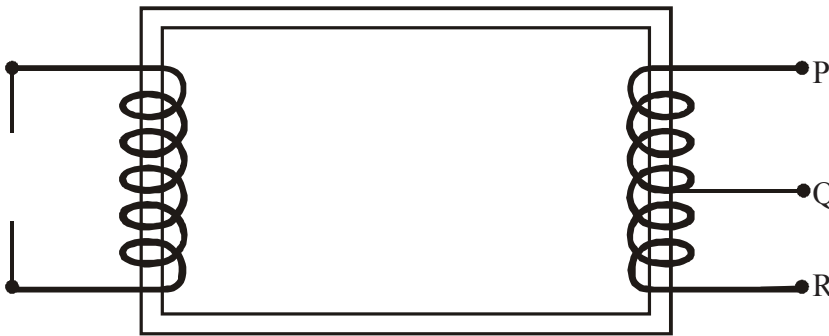


(The specific heat capacity of ice = 2300 J/kgK , The latent heat of vaporisation of water $226 \times 10^4 \text{ J/kg}$)

a. How much heat is absorbed by ice.

b. At T the water is completely converted into vapour. If so what the heat absorbed during the time represented by ST (4)

17. The figure shows a transformer which has 200 turns in its primary. Between P and Q in the out put, there are 40 turns and between Q and R 60 turns. Analyse the figure and answer the following questions



- a) What is the potential difference between P and Q
b) What is the potential difference between P and R
c) If the power in the primary is 1250W, What is the power available between P and R (5)
18. Linzy designed an experiment to find the specific heat capacity of water. She found that the temperature of 2kg of water in a vessel rose by 4.5° C when heated for 7 minutes using an immersing heater of power 100 W. If so
- a) What are the factors on which the quantity of heat developed in the immersing heater depend
b) What is the quantity of heat produced by the heater
c) What is the specific heat capacity of water obtained on the basis of the experiment?
d) Do you think that the answer got to Linzy will be the exact value of the specific heat capacity of water? If not, write down the reasons. (6)