1004-E(A)

A

SECOND TERMINAL EXAMINATION - 2012
PHYSICS

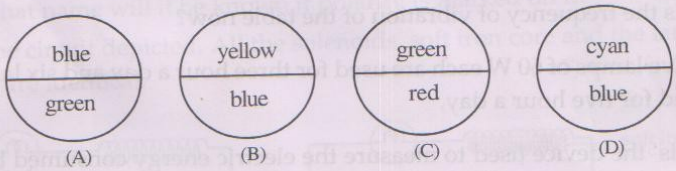
Standard : X

Score : 40
Time : 1½ hour

Instructions

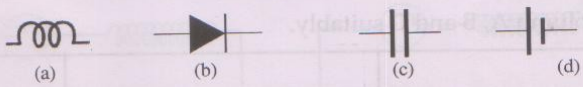
1. 15 minute is given as cool off time. This time is to be used for reading and understanding the questions
2. Write answers for all questions
3. For questions having choices, only one need be answered.
4. The score for each question is given along with the question

1) Observe the colours given on the discs A, B, C and D (1)



Which of these discs will appear white if rotated fast?

2) Which of the following is the symbol of a diode? (1)



3) Fill in the blank suitably by taking the hint from the first pair

Between phase and neutral: 230 V
Between phase and phase: . . . . . (1)

4) Which of the following does not belong to the group?

(loudness, velocity of sound, pitch, quality) (1)

5) Classify the following as those related to fluorescent lamp and those related to incandescent lamp. (2)

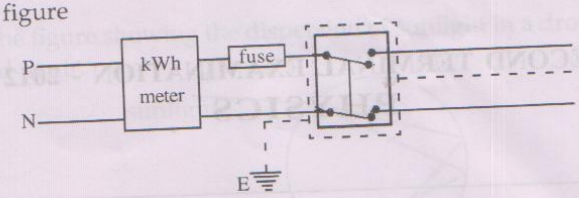
- The inconvenience due to shadow is minimum.
- The loss of energy in the form of heat is higher
- Tungsten filament is used
- Light is produced due to ultraviolet rays

6) Though power is generated in India at 11 kV it is transmitted at a very high voltage.

a) What is the need for this? (1)

b) Explain the part played by a transformer in this process. (1)

7) Observe the figure



Complete the given house hold circuit by adding a branch circuit having a bulb and a three pin socket. (2)

8) The natural frequency of a table is 400 Hz. A tuning fork of natural frequency 512 Hz is excited and its stem is pressed on the table.

a) What change is felt in the loudness of sound? Why? (1)

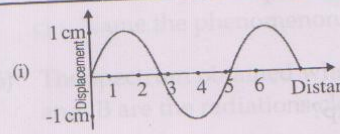
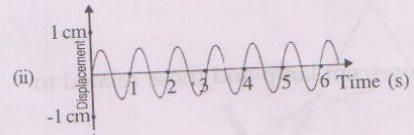
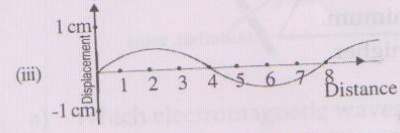
b) What is the frequency of vibration of the table now? (1)

9) In a house five lamps of 60 W each are used for three hour a day and six lamps of 40 W each are used for five hour a day.

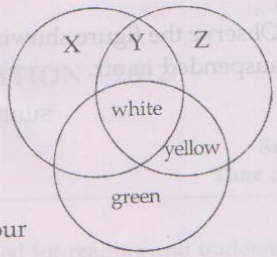
a) Which is the device used to measure the electric energy consumed by these? (1)

b) Calculate the electric energy consumed in 30 days in this house. (2)

10) Match the items in column A, B and C suitably. (3)

(A)	(B)	(C)
(i) 	Frequency	W/m^2
(ii) 	Amplitude	8 m
(iii) 	Wavelength	1 Hz
	Higher speed	1 cm

11) The partial overlapping of coloured lights from three sources falling on a white wall is depicted in the figure.



a) Which colours are X and Y? (1)

b) What is the complementary colour of the colour Z? (1)

c) If a red shirt is hung in a room having the light of colour X only, in which colour will the shirt appear to you? (1)

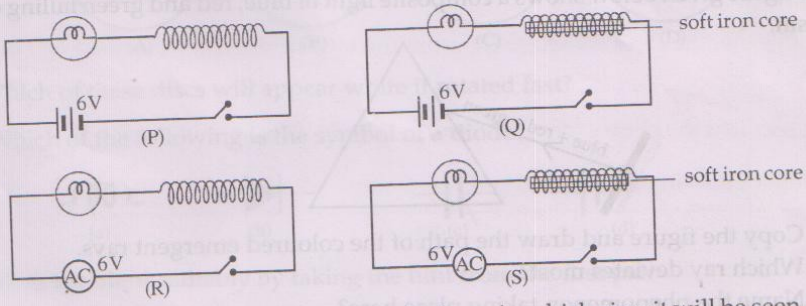
12) The labelling 16 V, 1000 μF was seen on a component in an electronic circuit board

a) Identify this component and write it down (1)

b) What is the use of this component? (1)

c) By what name will it be known if polarity is marked on it? (1)

13) Observe the circuit depicted. All the solenoids, soft iron core and the lamps shown in the circuit are identical.



a) If the circuits are kept switched on, the lamp in which circuit will be seen glowing with the lowest intensity? (1)

b) Justify your answer. (2)

c) A soft iron cored solenoid connected to a sensitive voltmeter is kept near the solenoid in each circuit which is kept switched on. If so in which of the cases will the voltmeter needle show a deflection? (1)

14) The audience in a newly constructed hall complained that the lecture in the hall could not be heard with clarity due to the boom of the sound.

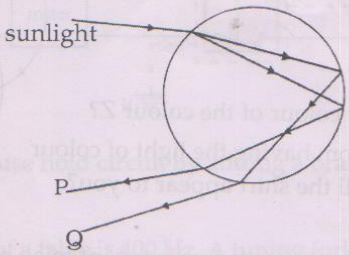
a) What is the reason for the boom in the hall? (1)

b) Write four methods to correct this problem. (2)

c) Write the name of the branch of science that deals with the study of requisites of a good hall to hear sound clearly. (1)

15) A

Observe the figure showing the dispersion of sunlight in a drop of water that remains suspended in air.



a) Which are the phenomena that the light undergoes within the drop? (1)

b) Identify the colours P and Q if they are at the two ends of the spectrum (1)

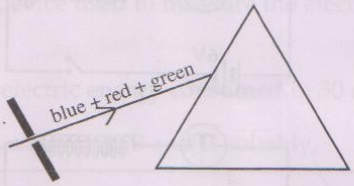
c) What are the positions of these colours in the rainbow? (1)

d) Explain the reason to see the rainbow in the form of an arc? (1)

OR

15) B

The figure given below shows a composite light of blue, red and green falling on a glass prism.

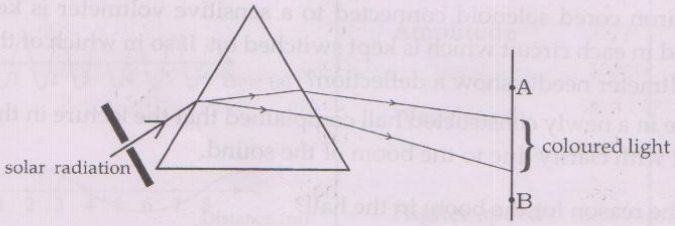


a) Copy the figure and draw the path of the coloured emergent rays. (2)

b) Which ray deviates most? (1)

c) Name the phenomenon taking place here? (1)

16) The spectrum obtained when solar radiation is passed through a prism is depicted. A and B are the radiations closest to the visible light.



a) Which electromagnetic waves are indicated by A and B? (1)

b) How will you detect the presence of B in the sunlight? (1)

c) Write one advantage of the radiation B (1)

d) Which of these radiations is most suitable for taking photographs of distant objects? Why? (1)