

# Dr.K.K.R GOWTHAM E.M HIGH SCHOOL :: GUDIVADA

Class : X  
Sub : Physics


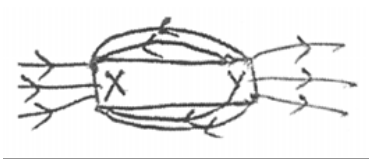
Time :  
Marks :

## Instructions:

1. There are four sections and 33 questions in the paper.
2. Answers should be written in a given answer booklet.
3. There is internal choice in Section-IV.
4. Write all the questions visible & legibly.
5. 15 minutes are given for reading the question paper and 2.30 hours given for answering questions.

## SECTION – I (12 × ½ = 6 M)

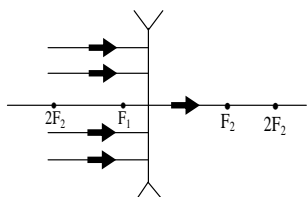
### I. Answer the following :

1. Write the amount of heat energy required to 1 gm of water convert to water vapour.
2. Assertion (A) : Mirages is an optical illusion.  
Reason (R) : Mirages are formed due to total internal reflection.  
Choose the correct one :  
A) A and R both correct  
B) A and R both incorrect  
C) A is correct and R is incorrect  
D) A is incorrect and R is correct.
3. Write the characteristics of image formed by the convex lens when the object is placed between focal point and optic centre.
4. Give the name of receptors present in retina which receives the light signals ?
5. How we can save the house holding wiring and devices from overloading ?
6. Name the rule showing following diagram. 
7. Why does water on floor disappear after some time ?
8. Which has greater refractive index among these :  
a. Cool air at the top.  
b. Hotter air just above the road.
9. Guess, on which factors that the focal length of a lens depends ?
10. What happens if the eye lens is not able to adjust its focal length ?
11. Write the material required to conduct an activity to show that resistance depends on length and cross sectional area of the conductor ?
12. From the given figure, find X and Y ? 

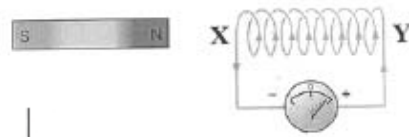
## SECTION – II(8 ×1 = 8 M)

### II. Answer the following :

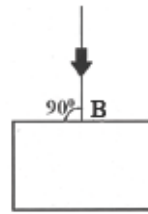
13. What type of lenses are used in correction of eye defects Hypermetropia and presbyopia ?
14. Complete the following ray diagram.



15. Write the magnetic poles formed at X and Y points of current carrying coil is the following diagram.



16. A ray of light AB is incident on a glass slab as shown in the following figure. Write the values of angle of incidence and angle of refraction for this ray of light.



17. What is meant by thermal equilibrium ?

18. A shooter finding difficult to shoot a fish swimming in a pond. Why ?

19. How a light ray is deviated, passing through the focus of a convex lens ?

20. What observation do you notice when a current carrying rectangular coil is placed in a magnetic field

### SECTION – III (8 × 2 = 16 M)

**III. Answer the following :**

21. Write the units for the quantities involved in the formula  $Q = ms\Delta T$

22. Write any two questions to ask your teacher to know the concept of refraction.

23. Write the applications of total internal reflection.

24. List the factors on which the resistance of a conductor depends. Write the expression to show the relation of resistance with these factors.

25. What is critical angle ? Find the refractive index of benzene, if its critical angle is  $42^\circ$  ?

26. Which question do you ask your teacher to understand the sign conventions for lens formula ?

27. Sky appears dark to passengers flying at very high altitudes. Why ?

28. In a combination of resistors, if you find the resultant resistance is less than the individual resistance, which type of combination it is ? Which quantity remains same in that circuit ?

### SECTION – IV (5 × 4 = 20M)

**IV. Answer the following :**

29. a) The liquid phase change to gaseous phase in two ways.

1. At any temperature and

2. At constant temperature. Write the differences between these two cases

(Or)

b) Current and time graph from two different sources as shown in the following diagrams.

Study the graph and answer the following questions.

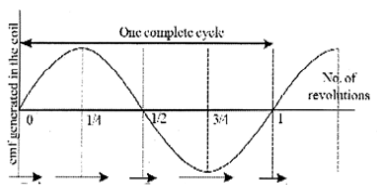
i) Name the type of current shown graph - A and graph - B.

ii) Name any sources of the current shown in graphs.

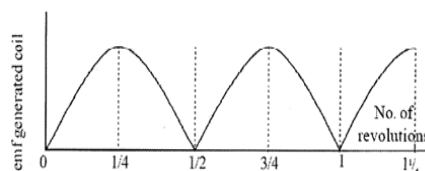
iii) What is principle involved in the production of these current ?

iv) Which energy is converted to these energy ?

**Graph - A**



**Graph – B**



30. a) Write an experiment to prove the current through a conductor is proportional to the potential difference applied between its ends, provided temperature is constant.

(Or)

b) Write an activity to conclude that the focal length of lens depends upon the surrounding medium in which it is kept. Write two precautions to be taken to this activity.

31. a) Explain the principle and procedure of finding specific heat of Aluminum shots experimentally.

(Or)

b) Explain the experimentally produces of finding that scattering occurs differently for different sizes of molecules.

32. a) Write an activity to determine the focal length of bi-convex lens using u-v method.

(Or)

b) Suggest an experiment to know the value of unknown resistance. Write the law involved in this activity ?

33. a) Draw the schematic diagram of the device which converts electric energy into mechanical energy. Name the parts.

(Or)

b) Draw the diagram to show the light ray refraction through equilateral triangular prism and label the angle of deviation.