CLASS-10-PS- PHYSICS - IMPORTANT QUESTIONS - for MARCH-2015

01. HEAT

1 MARK Questions:

1. Convert 40^{o}C into Kelvin scale.
2. What role does specific heat play in keeping a watermelon cool for a long time after removing it from a fridge on a hot day?
3. What is thermal equilibrium state?
4. Write the differences between heat and temperature.
5. Define internal energy.
6. Samosa is seemed to be cool at out side but it is hot inside. Why?
7. Write the differences between mist and fog.

2 MARKS Questions:

8. What would be the final temperature of a mixture of 50 g of water at 20^{o}C temperature and 50 g of water at 40^{o}C temperature?
9. Explain why dogs pant during hot summer days ?
10. Why do we get dew on the surface of a cold soft drink bottle kept in open air?
11. Write the differences between evaporation and boiling.
12. Your friend is asked to differentiate between evaporation and boiling. What questions could you ask to make him to know the differences between evaporation and boiling?
13. If you are chilly outside the shower stall, why do you feel warm after the bath if you stay in the bathroom?
14. Define specific heat. What are the units in C.G.S. and M.K.S. sysyems?

4 MARKS Questions:

15. Explain the procedure of finding specific heat of a solid experimentally.
16. Suggest an experiment to prove that the rate of evaporation of a liquid depends on its surface area and vapour already present in surrounding area.
17. Define the following terms.
(i) Melting (ii) Freezing
(iii) Solidification (iv) Sublimation
18. How do you perform an experiment that shows the rise in temperature depends upon the nature of the substance?

07. HUMAN EYE

1 MARK Questions:

1. If a white sheet of paper is stained with oil, the paper turns transparent. Why?
2. The focal length of a lens suggested to a person with Hypermetropia is 100cm. Find the distance of near point and power of the lens.
3. What is optical power?
4. Doctor advised to use 4D lens. What is its focal length?
5. What is the least distance of distinct vision?
6. Define dispersion.
7. Can you imagine the shape of rainbow when observed during travel in an airplane?

2 MARKS Questions:

8. Explain the formation of rainbow.
9. Explain briefly the reason for the blue of the sky.
10. Explain two activities for the formation of artificial rainbow.
11. How do you appreciate the working of Ciliary muscles in the eye?
12. Why does the sky sometimes appear white?
13. A prism with angle A=60^{o} produces an angle of minimum deviation of 30^{o}. Find the refractive index of the prism.
14. What is the reason for red colour of sun during sunrise and sunset?

4 MARKS Questions:

15. How do you find experimentally the refractive index of material of a prism.
16. What are eye defects? How can we correct them? Explain.
17. Derive an expression for the refractive index of the material of a prism.
18. Explain the structure of Human eye.

5 MARKS Questions:

19. Draw a neat labeled diagram of human eye.

11. ELECTRIC CURRENT

1 MARK Questions:

1. What is a value of 1 KWH in Joules?
2. Why do we use fuses in household circuits?

3. Silver is a better conductor of electricity than copper. Why do we use copper wire for conduction of electricity?

4. Why don't we use series arrangement of electrical appliances like bulb, Television, fan and others in domestic circuits?

5. Why do we consider tungsten as a suitable material for making the filament of a bulb?

6. Why should we connect electric appliances in parallel in a household circuit?

7. Draw the symbols of the following.
   (a) battery (b) fuse

2 MARKS Questions:

8. Write the difference between potential difference and emf.

9. How can you verify that the resistance of a conductor is temperature dependent?

10. What do you mean by electric shock? Explain how it takes place.

11. Explain overloading of household circuit.

12. Write the differences between ohmic and non ohmic conductors.

13. A uniform wire of resistance 100Ω is melted and recast into wire of length double that of the original. What would be the resistance of the new wire formed?

14. How can you appreciate the role of a small fuse in house wiring circuit in preventing damage to various electrical appliances connected in the circuit?

4 MARKS Questions:

15. Derive $R = \rho l/A$.

16. Explain Kirchhoff's laws with examples.

17. Deduce the expression for the equivalent resistance of three resistors connected in series.

18. A house has 3 tube lights, two fans and a Television. Each tube light draws 40W. The fan draws 80W and the Television draws 60W. On the average, all the tube lights are kept on for five hours, two fans for 12 hours and the television for five hours every day. Find the cost of electric energy used in 30 days at the rate of Rs. 3.00 per KWH.

19. Deduce the expression for the equivalent resistance of three resistors connected in parallel.

20. State Ohm's law. Suggest an experiment to verify it and explain the procedure.

03. REFLECTION OF LIGHT

1 MARK Questions:

1. The magnification produced by a plane mirror is +1. What does this mean?

2. To form the image on the object itself, how should we place the object in front of a concave mirror?

3. Define magnification.

4. Write Fermat principle.

5. Write mirror formula. explain the terms.

6. What are the properties of image formed by a plane mirror?

7. Where do you use convex mirror?

2 MARKS Questions:

8. State the laws of reflection of light.

9. How do you find the focal length of a concave mirror?

10. Distinguish between real and virtual images.

11. By observing steel vessels and different images in them; Surya, a third class student, asked his elder sister Vidya some questions. What may be those questions?

12. How do you appreciate the use of reflection of light by a concave mirror in making of TV antenna dishes?

13. Write the rules for sign convention.

14. Why do we prefer a convex mirror as a rear-view mirror in the vehicles?

4 MARKS Questions:

15. How do you appreciate the role of spherical mirrors in daily life?

16. Draw suitable rays by which we can guess the position of the image formed by a concave mirror.

17. An object is placed at a distance of 10cm from a convex mirror of focal length 15cm. Find the position and nature of the image.

18. What do you know about the terms given below related to spherical mirrors? a) Pole b) Centre of curvature c) Focus d) Radius of curvature e) Focal length f) Principal axis g) Object distance h) Image distance i) Magnification

19. Explain the process of making a solar heater/cooker.

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5 MARKS Questions:

20. Show the formation of image with a ray diagram when an object is placed on the principal axis of a concave mirror away from the centre of curvature. (This type questions)

05. REFRACTION OF LIGHT AT PLANE SURFACES

1 MARK Questions:

1. The speed of the light in a diamond is 1, 24, 000 km/s. Find the refractive index of diamond if the speed of light in air is 3,00,000 km/s.

2. Refractive index of glass relative to water is 9/8. What is the refractive index of water relative to glass?

3. Why do stars appear twinkling?

4. How do you appreciate the role of Fermat principle in drawing ray diagrams.

5. Define relative refractive index.

6. Write Snell's law.

7. What is a critical angle?

2 MARKS Questions:

8. Why is it difficult to shoot a fish swimming in water?

9. The absolute refractive index of water is 4/3. What is the critical angle?

10. Determine the refractive index of benzene if the critical angle is 42^0.

11. What is the reason behind the shining of diamonds and how do you appreciate it?

12. When we sit at a camp fire, objects beyond the fire are seen swaying. Give the reason for it.

13. Why does a diamond shine more than a glass piece cut to the same shape?

14. Take a bright metal ball and make it black with soot in a candle flame. Immerse it in water. How does it appear and why?

4 MARKS Questions:

15. What is total internal reflection? Explain the formation of mirage.

16. How do you verify experimentally that sin i /sin r is a constant?

17. Explain the refraction of light through a glass slab with a neat ray diagram.

18. Write the applications of total internal reflection in various fields.

06. REFRACTION OF LIGHT AT CURVED SURFACES

1 MARK Questions:

1. Can a virtual image be photographed by a camera?

2. What happened when a lemon is dipped in water?

3. Write lens formula.

4. A convex lens is made up of three different materials as shown in the figure. How many of images does it form?

5. Two converging lenses are to be placed in the path of parallel rays so that the rays remain parallel after passing through both lenses. How should the lenses be arranged?

6. How does an air bubble behaves inside water?

7. If we want to form erect image by a convex lens, where can we keep the object ?

2 MARKS Questions:

8. A man wants to get a picture of a zebra. He photographed a white donkey after fitting a glass, with black stripes on to the lens of his camera. What photo will he get? Explain.

9. Write the lens maker's formula and explain the terms in it.

10. How do you verify experimentally that the focal length of a convex lens is increased when it is kept in water?

11. Find the radii of curvature of a convexo –concave convergent lens made of glass with refractive index n=1.5 having focal length of 24cm. One of the radii of curvature is double the other.

12. The distance between two point sources of light is 24cm .Where should a convergent lens with a focal length of f=9cm be placed between them to obtain the images of both sources at the same point?

13. Suppose you are inside the water in a swimming pool near an edge. A friend is standing on the edge. Do you find your friend taller or shorter? Why?

14. What is the focal length of double concave lens kept in air with two spherical surfaces of radii R_1= 30cm and R_2= 60cm. Take refractive index of lens as n=1.5.

4 MARKS Questions:

15. Draw ray diagrams for the following positions and explain the nature and position of image. nagamurthy.weebly.com
i) Object is placed at C_2
ii) Object is placed between F_2 and P.

16. The focal length of a converging lens is 20cm. An object is 60cm from the lens. Where will the image be formed and what kind of image is it?

17. How do you find the focal length of a lens experimentally?

18. Derive the lens formula.

5 MARKS Questions:

19. Show the formation of image with a ray diagram when an object is placed on the principal axis of a convex lens away from the centre of curvature. (This type questions)

20. Draw the diagrams for which the rays are useful to draw ray diagrams for lenses.

12. ELECTRO MAGNETISM

1 MARK Questions:

1. State oersted law.
2. What is faraday's law?

3. Write Lenz's rule.

4. Define flux density.

5. What is the use of electric motor?

6. What is the use of generator?

7. What do you know about magnetic field?

2 MARKS Questions:

8. Are the magnetic field lines closed? Explain.
9. Why does the picture appear distorted when a bar magnet is brought close to the screen of a television? Explain
10. How do you verify experimentally that the current carrying conductor experiences a force when it is kept in magnetic field? nagamurthy.weebly.com
11. How can you verify that a current carrying wire produces a magnetic field with the help of an experiment?
12. How do you appreciate the relation between magnetic field and electricity that changed the life style of mankind?

13. Give a few applications of Faraday's law of induction in daily life.

14. Which of the various methods of current generation protects nature well? Give examples to support your answer.

4 MARKS Questions:

15. Explain the working of electric motor with a neat diagram.

16. Derive Faraday's law of induction from law of conservation of energy.
17. Explain Faraday's law of induction with the help of activity.

18. Explain the working of AC electric generator with a neat diagram.

19. Explain the working of DC generator with a neat diagram.

5 MARKS Questions:

20. Draw a neat diagram of electric motor. Name the parts.

21. Draw a neat diagram of an AC generator.

MY EXPECTATION – MAY NOT BE RELIABLE

MAXIMUM CHANCES

Chapter	5M	4M	2M	1M
1		4	2	1
3	5	4	2	
5		4		1
6			2	
7	5	4		1
11		4	2	1
12	5		2	

MAXIMUM CHANCES FOR GOOD SCORE

Chapters 1, 3, 7, 11

May get 2 x 4 Marks = 8 Marks
2 x 2 Marks = 4 Marks
2 x 1 Marks = 2 Marks

Chapters 7, 12, Ray diagrams

Diagram 1 x 5 Marks = 5 Marks
Bits 7 x ½ Mark = 3½Marks
(Average)

If you get 2½ Marks from Chemistry part or from bit paper. (There is probability)

Total = 25 Marks

Only from Physics

50%
100%

The numbers of most important questions are underlined for slow learners.

ALL THE BEST

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