

**KENDRIYA VIDYALAYA B.S.F., POKARAN**  
**SECOND PRE-BOARD 2010**  
**SUBJECT- SCIENCE**  
**CLASS- X**

**TIME- 2:30 Hours**

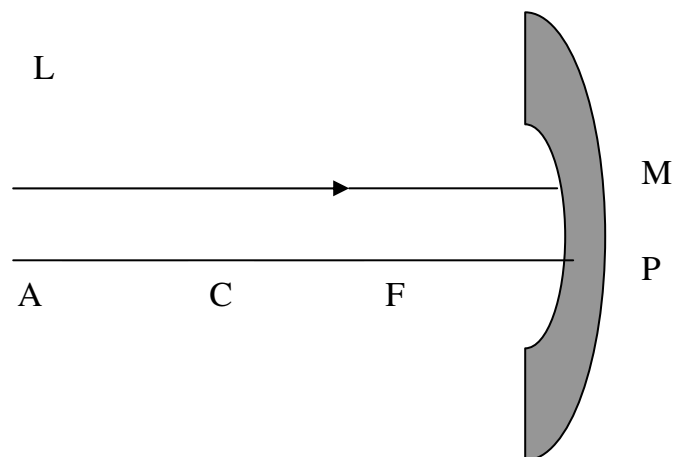
**M.M: 60**

General Instruction:-

1. The question paper comprises of two section A and B you are to attempt both the sections
2. All questions are compulsory
3. There is no overall choice. However internal choice has been provided in all the three questions of five marks category. Only one option in such question is to be attempted
4. All questions of Section A and all questions of Sections B are to be attempted separately.
5. Questions 1 to 6 in Section A and 17 to 19 in Section B are short answer type questions and carry one mark each.
6. Questions 7 to 10 in section A and 20 to 24 in Sections B are in short answer type questions and carry two marks each.
7. Questions 11 to 14 in Section A and 25 to 26 in Section B are also short answer type questions and carry three marks each.
8. Questions 15 to 16 in Section A and question 27 in Section B are long answer type question and carry five marks each.

**SECTION-A**

- Q1- A ray of light LM is incident on a mirror as shown in the figure. The angle of incident for the ray is the angle between it and the line joining two other points in the figure. Name these two points?



- Q2. Metals generally occur in solid state. Name and write symbol of metal that exists in liquid state at room Temperature.
- Q3. During summer season a milkman usually adds a very small amount of baking soda to fresh milk. Give on reason.

Q4. The following table gives the values of Refractive indices of a few media.

S. No.	1	2	3	4	5
Medium	Water	Crown glass	Rock Salt	Ruby	Diamond
Refractive index	1.33	1.52	1.54	1.71	2.42

Use this table to give an example of (i) a Medium pair so that light speeds up when it goes from one of these media to another,(ii) a medium pair so that light slows down when it goes from one of these media to another

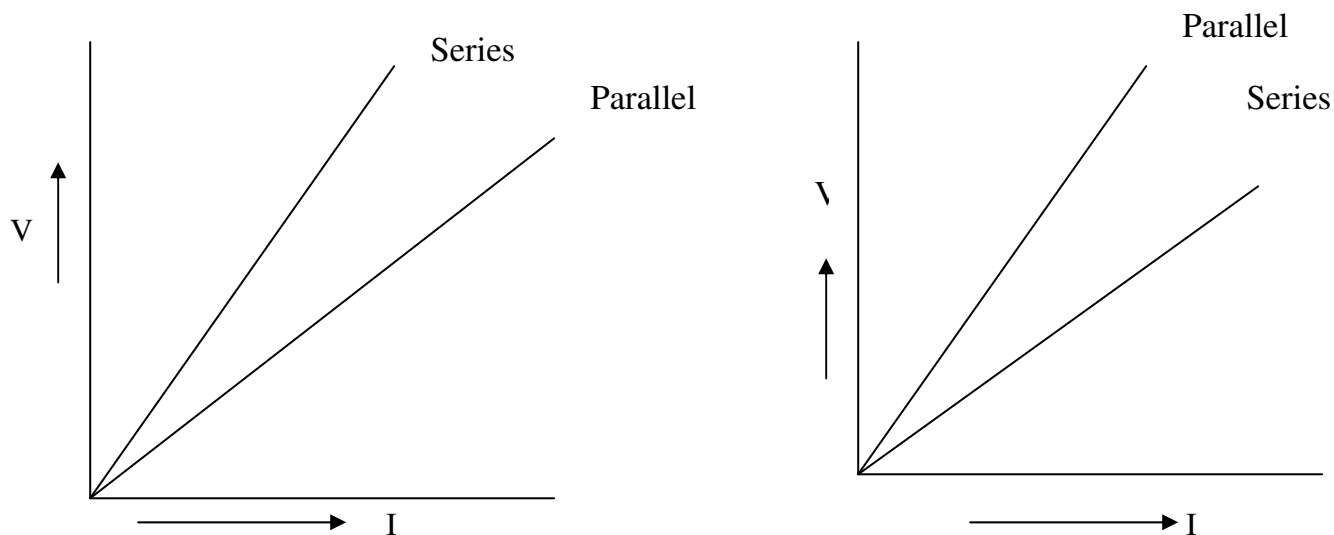
Q5 Why potato chips manufacturers fill the packet of chips with nitrogen gas?

Q6. Alloys are used in electrical heating devices rather than pure metals. Give one reason.

Q7. Tooth enamel is one of the hardest substances in our body. How does it undergo damage due to eating chocolates and sweets? What should we do to prevent it?

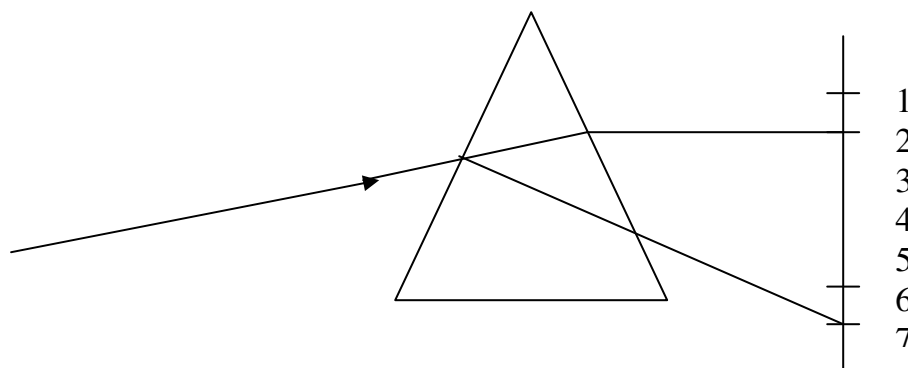
Q8 A student has been collecting silver coins and copper coins one day she observed a black coating on silver coins and a green coating on copper coins. Which chemical phenomenon is responsible for these coatings? Write the chemical name of black and green coatings?

Q9. Two students perform the experiments on series and parallel combinations of two given resistors  $R_1$  and  $R_2$  plot the following V-I graphs



Which of the graphs is (are) correctly labeled in terms of the words 'series' and parallel? Justify your answer

- Q10. Draw the pattern of magnetic field lines of a current carrying solenoid. What does the pattern of field lines inside the solenoid indicate? Write one application of magnetic field of current carrying solenoid?
- Q11. Two carbon compounds A and B have the molecular formula  $C_3H_8$  and  $C_3H_6$  respectively. Which one of the two is most likely to show addition reaction? Justify your answer. Explain with the help of a chemical equation how an addition reaction is useful in vegetable ghee industry.
- Q12. A beam of white light falling on a glass prism gets spilt up into seven colours marked 1 to 7 as shown in the diagram.



- A student makes the following statements about the spectrum observed on the screen.
- (a) The colours at positions marked 3 and 5 are similar to the colour of the sky and the core of a hard boiled egg respectively.
- Is the above statement made by the students correct or incorrect? Justify
- (b) Which two positions correspond closely to the colour of
- A solution of potassium Permanganate?
  - 'Danger' or 'Stop' signal light?
  -
- Q13. Baking sodas is used in small amount in making bread and cake. It helps to make these soft and spongy.

An aqueous solution of baking soda turns red litmus blue it is also used in soda acid fire extinguisher. Use this information to answer the following questions.

- How does Baking soda help to make cakes and bread soft and spongy?
  - How does it help in extinguishing fire?
  - Is the ph value of baking soda solution lesser than or greater than 7
  -
- Q14. A concave mirror produces three times enlarged image of an object placed at 10cm in front of it. Calculated the radius of curvature of the mirror.
- Q15. (a) What were the two major short coming of Mendeleev's Periodic Table? How have these been removed in the modern Periodic Table?

(b) Two elements X and Y have atomic numbers 12 and 16 respectively. Write the electronic configuration for these elements. To which period of the modern Periodic Table do these elements belong? What type of bond will be formed between them and why?

**OR**

- (a) What were the two achievements of Mendeleev's Periodic Table? What was the basis of classification of elements in it?
- (b) An element X (2, 8, 2) combines separately with  $(\text{NO}_3)^-$ ,  $(\text{SO}_4)^{2-}$ , and  $(\text{PO}_4)^{3-}$  radicals. Write the formulae of the three compounds so formed. To which group of the Periodic Table does the element 'X' belong? Will it form covalent or ionic compound? Why?

Q16. (a) The electric power consumed by a device may be calculated by using either of the two expressions  $P=I^2R$  or  $P=V^2/R$

The first expression indicates that it is directly proportional to R where as the second expression indicates inverse proportionality. How can the seemingly different dependence of P on R in these expressions be explained?

(b) Explain the following.

(i) Why is tungsten used almost exclusively for filament of electric lamps?

(ii) Why are copper and aluminum wires usually used for electricity transmission?

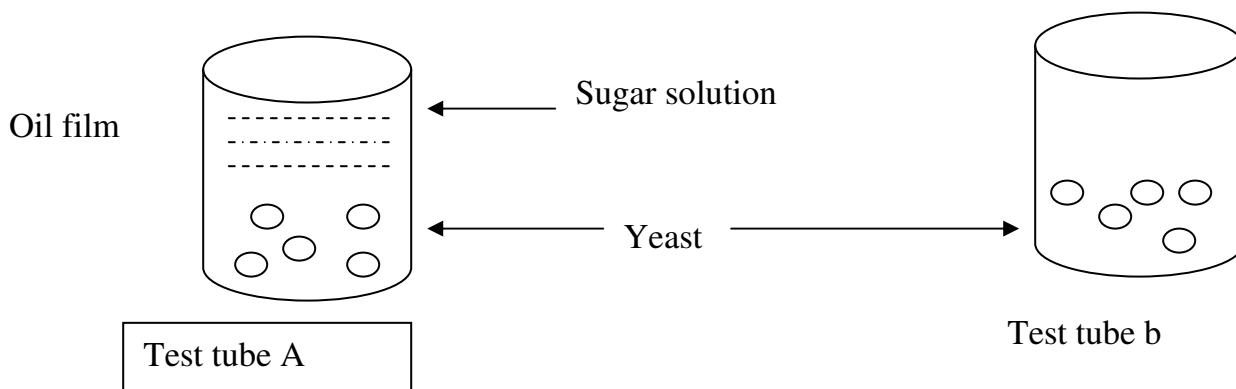
Explain the meaning of the word 'electromagnetic' and induction in the term electromagnetic induction. On what factors does the value of induced current produced in a circuit depend? Name and state the rule used for determination of direction of induced current? State one practical application of this phenomenon in everyday life.

Q17. A particular hormone requires iodine for its synthesis name the endocrine gland which secretes this hormone and states its location in the human body?

Q18. 'Malarial parasite' divides into many daughter individuals simultaneously through multiple fission. State an advantage the parasite gets because of this type of reproduction.

Q19. The human hand cat paw and the horse foot when studied in detail show the same structure of bones and point towards a common origin

Q20. In the test tubes A and B shown below yeast was kept in sugar solution which products of respiration would you expect in tubes A and B?



- Q.21 Write one feature which is common to each of the following pairs of terms /Organs.
- (i) glycogen and starch.
  - (ii) Chlorophyll and hemoglobin.
  - (iii) Gills and lungs.
  - (iv) Arteries and veins
  - (v)
- Q.22. Select the biodegradable items from the list given below Polythene bags old cloths, wilted flowers pencil sharing, glass bangles, bronze statue Vegetable peels.
- Q.23. Quote three instances where human intervention saved the forests from destruction.
- Q.24. The genotype of green stemmed tomato plants is denoted as GG and that of purple stemmed tomato plants as gg. When these two are crossed.
- (i) What colour of stem would you expect in their  $f_1$  progeny?
  - (ii) Give the percentage of purple stemmed plants if  $f_1$  plants are self pollinated.
  - (iii) In what ratio would you find the genotypes GG and Gg in the  $f_1$  Progeny?
- Q25 Draw a labeled Diagram of pistil showing double fertilization.
- Q.26. What are sexually transmitted diseases? Give examples of these diseases and also give their common symptoms. Are these diseases curable?
- Q.27. Explain that it is a matter of chance whether a couple will give birth to a boy or a girl.

**OR**

Which hormone is released into blood when its sugar level rises? Name the organ which produces the hormone and its effect on blood sugar level. Also name one digestive enzyme that this organ secretes and the functions of this enzyme.

## Answer key of Science

- (1) Mand C
- (2) Mercury (Hg)
- (3) To prevent spoilage of Milk It leads to change in PH.
- (4) Brown glass to water .  
Water to Rock salt .
- (5) To prevent Oxidation of chips.
- (6) Alloys Have higher resistively than pure metal.
- (7) Calcium Phosphate
- (8) Corrosion. Ag<sub>2</sub>s 1 Cuco<sub>3</sub>.cr (OH)<sub>2</sub>.
- (9) Student a correct .
- (10) (i) Uniform field. (ii) closed nature of lines.
- (11) CH<sub>2</sub> =CH-CH<sub>3</sub>+H<sub>2</sub> Ni CH<sub>3</sub>-CH<sub>2</sub>-CH<sub>3</sub>

573K

Vegetable oil +H<sub>2</sub> Ni vegetable ghee

Heat

- (12) Marked 5 and 3 are blue and yellow .  
B(i) Potassium Permanganate – violet –color marked by 7 .  
Danger to stop signal light – red color marked by I.

(13) Baking Soda liberates Carbon dioxide which makes cake and bread soft and spongy .  
It liberates co<sub>2</sub> which is non supporter combustion

(14) u = -10cm m=3

Since m > 1 the image is real and inverted.

Using m= -v we get -3 = -u = u =-30 cm

-u                      -10

-15 cm ans

(15) The increasing order of atomic mass could not be maintained I sotopes have different atomic mass it could not tell positions of isotopes

(B) x=12 2,8,2    Ionic compound  
y = 16 =2,8,6

Or  
Mandleev 's periodic table could help in in discovery of new elements by predicting their properties basis of classification was increasing order of atomic mass .

(B) 2,8,2 1 2

X(NO<sub>3</sub>)<sub>2</sub> 1 X so<sub>4</sub> 1 x<sub>3</sub> (po<sub>4</sub>)<sub>2</sub>

(16) As long as the current I through the given device or resist as power can be found using  $P = i^2 r$  similarly if the different in potential across the given register R is known  $p = v^2 r$  can be used both relations are correct as one know about the vlues in the particular device .

(b) Tungsten metal has high registivity and high melting point

(c) They are good conductors of electricity

Or

Electromagnetic refers to phenomena of having electric current due to change in magnetic field

Fleming's Right hand rule .

A.C generator

(17) Thyroxin Thyroid gland neck

(18) More number of small of springs

(19) Homologous organ

(20) Ethanol co2 energy Co2 H20 energy

(21) Carbohydrate pigments Respiratory organs blood vessels

(22) old cloths wilted flower vegetable peels pencil shavings .

(23) Amrita Devi Visnoi

Chipko Movement villagers of asbari west Bengal .

(24) Green stemmed GG purpled g g

F2 25% purple 1:2 GG Gg

(25) Diagrams

(26) SYPHLLIS, AIDS

(27) XX (Female ) XY (Male)

(28) OR

Insulin Pancreas trypsin insulin maintained sugar level in blood .