मंगलाबाई भागवत फाऊंडेशन

Time :2 Hours **Science and Technology – Part I** **Marks:40**

Note : i) All questions are compulsory.
ii) Use of a calculator is not allowed.
iii) The numbers to the right of the questions indicate full marks.
iv) In case of MCQS (Q. No. 1(A) only the first attempt will be evaluated and will be given credit.
v) For each MCQ, the correct alternative (A), (B), (C), or (D) with sub question number is to be written as an answer. (E.g. (i) A, (ii) B, (iii) C)
vi) Scientifically correct labelled diagrams should be drawn wherever necessary.

Q.1. (A) Write the correct alternative. **( )**

i. According to _____ the line joining the planet and the sun sweeps equal area in equal intervals of time.

a) Kepler's third law b) Kepler's second low

c) Kepler's first law d) Newton's universal law of gravitation

ii. The halogen which is liquid at room temperature is ……

a. Fluorine b. Bromine

c. Astatine d. Iodine

iii. For the normal human eye, the near point is at _____ cm.

a) 10 b) 20 c) 25 d) 30

iv. Silver gets corroded due to _____ in air.

a) Oxygen b) Hydrogen Sulphide c) Carbon Dioxide d) Nitrogen

v. The astronomical object closest to us is ……. In our galaxy.

a. Mars b. Venus

c. Jupiter d. Moon

(B) Answer the following questions. **( )**

i. Find the odd one out-.

Reflection, Oxidation, Refraction, Dispersion

ii. State whether the following statement is true or false.

The mass of an object changes from place to place

iii. Name the following.

The quantity expressed in ampere.

iv. Match the correct pair :

	Column "A"	**Column "B"**
i)	Clouds over India	1. PSLV
		2. Communication Satellite
		3. Weather Satellite

v) Considering the relation between first pair, complete the second pair.
Near Sightedness : Image in front of the ratina : Farsightedness : ……..

Q.2. (A) Give scientific reasons. (Any two) (4)

i) The bottom of a pond appears raised.

ii) Carbon atoms are capable of forming in unlimited number of compounds.

iii) Lemon or tamarind is used for cleaning copper vessels turned greenish.

(B) Answer the following question. (Any three) (6)

i. Distinguish between reflection of light and refraction of light.

ii. Write short not on "Galvanizing Process".

iii. State any four physical properties of ethyl alcohol.

iv. Define the following terms.

a) Centripetal force b) Weight

v. Explain the chemical reaction with a balanced chemical equation. Sodium Chloride solution is mixed with silver nitrate solution.

Q.3. (A) Answer the following (Any five) (15)

i) Complete the paragraph by using proper words in the brackets.
(Inert, Octet, Chemical reaction, non-metals, cations, driving force, outermost, electronic configuration)

Noble gases do not take part in the chemical reaction. If we look into the …… of some metals and non-metals, it will be seen that the …… behind a reaction is to obtain the electronic configuration of the nearest noble-gas with complete …….. metals do this by losing electrons while……. do this by gaining electrons. The …… shell of noble gases being complete, they are chemically……

ii) If the absolute refractive indices of glass and water are $\frac{3}{2}$ and $\frac{4}{3}$ respectively. What is the refractive index of glass with respect to water.

iii) Explain the term Alloy. Give its two examples with chemicals composition.

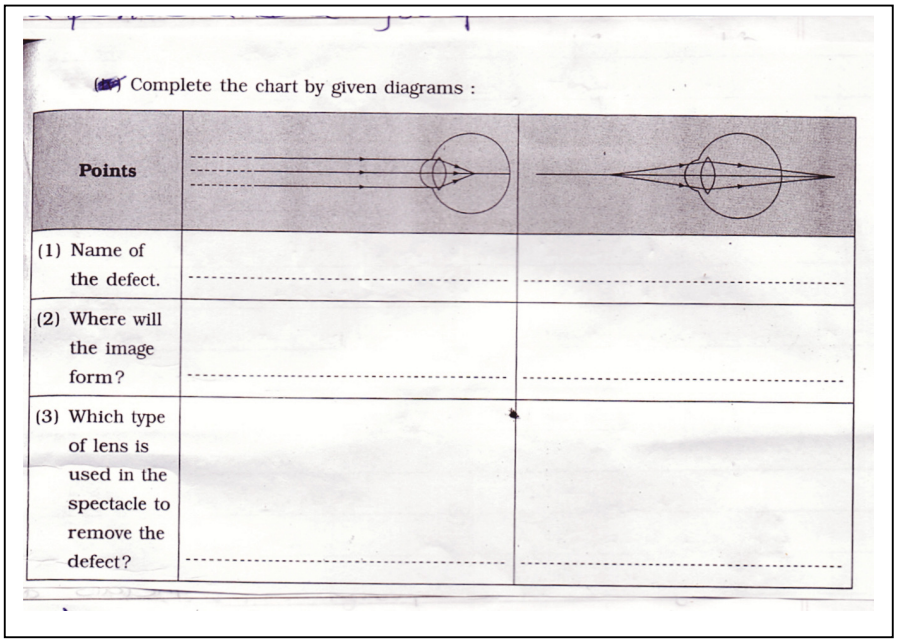
iv) Write the structural formula for the following IUPAC names.

a) Propan-2-0-1 b) 2-Chlorobutane c) Methanol

v) Describe with examples the contributions of India's space mission.

vi) Explain atomic size. How does it very in a period and a group.

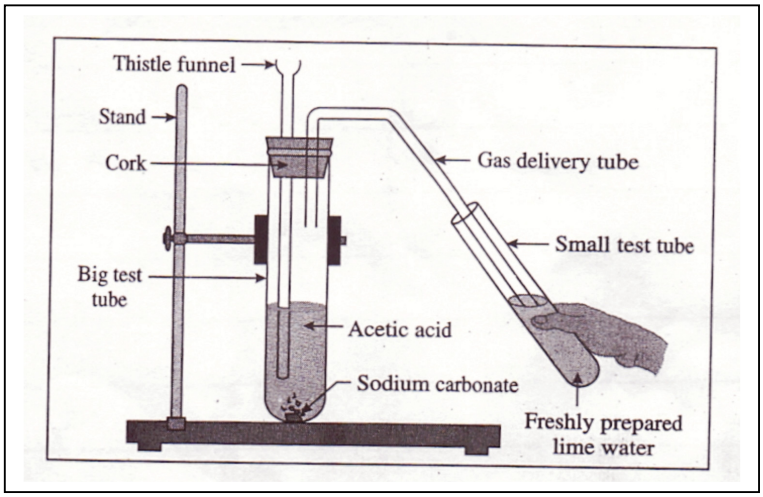
vii) Complete the chart by given diagrams :



Complete the chart by given diagrams :

Points		
(1) Name of the defect.	.....	.....
(2) Where will the image form?	.....	.....
(3) Which type of lens is used in the spectacle to remove the defect?	.....	.....

viii) Observe the following figure and answer the questions based on this experiment :



a) Which gas does come out as effervescence in the big test tube ?

b) Why bubbles are seen in the small test tube ?

c) What is the colour change in the lime water ? Write the related equation.

Q.4. Answer any one of the following questions. (5)

i) With a neat labelled diagram describe the experiment to demonstrate dispersion of sunlight (white light) by a prism.

ii) If the solution of potassium, chromate $\ell(k2\,Lr\text{-}o4)$ is added in Barium sulphate Solution ($Baso_4$).....

a) What is the colour of precipitate formed ?

b) Name the precipitate ?

c) Write down the balanced equation for this reaction.

d) Will you call this reaction a displacement reaction or a double displacement reaction ?

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