MS-CIT
World-class Comprehensive Computer Course

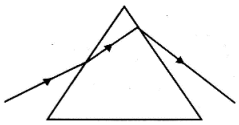
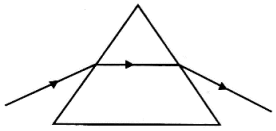
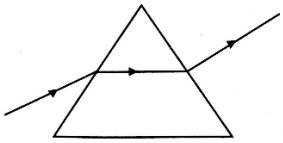
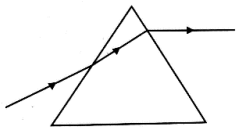
Question Paper
Set- II
Std. – 10th EM/Semi
Subject – Science I

MKCL KLiC Courses
Gateway to Knowledge Lit Careers

Time : 2 Hrs. **Marks : 40**

Instruction :
1. All questions must be attempted.
2. Wherever necessary scientifically correct diagrams and correct labeling should be drawn.
3. Start every main question on a new page.
4. Numbers to the right indicate marks.
5. For question No. 1(A) MCQ marks will be given only for the first attempt.
6. For each MCQ correct answer must be written along with its alphabet.

Q.1 (A) Choose the correct alternative from the given options: **[5]**

1. Lime water turns milky when _____ gas is passed through it.
   a) H_2 b) CO c) CO_2 d) SO_2
2. Study the following diagram in which the path of a ray light passing through a glass prism as traced by four students is shown. The student who has traced the path correctly is:
   a) 
   b) 
   c) 
   d) 
3. According to Cartesian sign conventions for lenses.
   a) all distances in direction of incident ray are taken positive.
   b) all distances in direction of incident ray are taken negative.
   c) height above the principal axis is negative for concave lens.
   d) height above the principal axis is negative for convex lens.
4. Presence of water on moon was first discovered by satellite_____ sent by ISRO in 2008.
   a) Sputnik b) Aryabhatta c) Chandrayaan-1 d) IRNSS
5. A_____ lens always produces virtual and diminished image.
   a) biconvex b) bi-concave c) plano-convex d) bifocal

Q.1 (B) Answer the following. **[5]**

1. **State true or false:**
   Silicon is a nonmetal.
2. **Match the pairs:**

Group A		Group B	
i)	At infinity	a)	Point image
ii)	At F_2	b)	Same size
		c)	Small
		d)	Very large

3. **Find Out Correlation:**
   Reflection of light: Mirror ::_____:: Prism
4. **Find the odd one out:**
   Aryabhatta, Sputnik, INSAT, IRS
5. **Name the following:**
   The motion of any object under the influence of force of gravity alone.

Q.2 (A) Give scientific reasons: (Any two) **[4]**

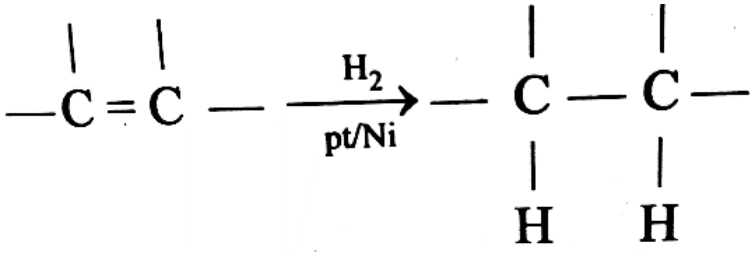
1. It is recommended to use air tight container for storing oil for long time.
2. If two bulbs identical except for their resistance values are connected in series then the bulb with higher resistance glows brighter.
3. Will the mass and weight of an object on the earth be same as their values on Mars? Why?

Q.2 (B) Answer the following. (Any 3) **[6]**

1. Alcohol consumption is injurious to health. Justify the statement.
2. If the speed of light in a medium is 1.5×10^8 m/s, what is the absolute refractive index of the medium? (Velocity of light in vacuum 3×10^8 m/s)
3. Two test tubes contain two colourless liquids ethanol and ethanoic acid. Explain by writing reaction which chemical test you would perform to tell which substance is present in which test tube.
4. State the importance of Newton's universal law of gravitation.
5. Explain the term short circuiting. What does a short circuit lead to?

Q.3 Answer the following questions. (Any 5) **[15]**

1. Study the following reaction and answer the questions asked.



   a) What is the above reaction? Define this reaction.
   b) Name the catalyst used in this reaction.
   c) What is the use of this reaction?

2. From incident white light how will you obtain white emergent light by making use of two prisms?
3. Identify the endothermic and exothermic reaction.
   1) $HCl + NaOH \rightarrow NaCl + H_2O$ + heat
   2) $2KClO_3(s) \xrightarrow{\Delta} 2KCl(s) + 3O_2\uparrow$
   3) $CaO + H_2O \rightarrow Ca(OH)_2 + heat$

4. (motor, parallel, electric current, force, moves, conductor, melts, changing perpendicular, constant)
   When an electric_____ is kept in a magnetic field such that direction of the current flowing through the conductor is _____to the magnetic field, then a _____ is exerted on the conductor. As a result, the conductor _____. But if an electric conductor is moving in a magnetic field or the magnetic field around a stationary conductor is_____, then, _____ can be produced in a conductor with the help of a moving magnet.
5. Harish took metal samples of Fe, Zn, Al, Cu and Pb in separate test tubes and added hydrochloric acid in each of them.
   a) Arrange the metals in the decreasing order of their reactivity.
   b) Which metal reacted vigorously with dilute hydrochloric acid.
   c) Write balanced chemical reaction of Al and Zn with dilute hydrochloric acid.
6. Answer the following questions:
   (a) Principle of froth floatation method
   (b) How the ores are concentrated ?
   (c) Application of this method.
7. i) A ray of light passes through a point in lens without getting deviated. Name the point.
   ii) Arvind used a lens to obtain an image and found that the lens showed magnification less than one irrespective of object distance. Name the type of lens Arvind was using.
   iii) A human eye lens can change its focal length in order to produce clear image. Name this capacity of human eye.
8. Suppose the orbit of a satellite is exactly 35780 km above the earth's surface. Determine the tangential velocity of the satellite. [Gravitational constant (G) = 6.67×10^{-11} N m^2/kg^2, mass of earth (M) = 6×10^{24} kg, radius of earth (R) = 6400 km]

Q.4 Answer the following questions. (Any 1) **[5]**

1. A part of the early classification of elements has been given below.

H	Li	Be	B	C	N	O
F	Na	Mg	Al	Si	P	S
Cl	K	Ca	Cr	Ti	Mn	Fe

   a. Which law of classification of elements is illustrated by the above arrangement

of element?
b. Name the scientist who proposed such a classification of elements.
c. Why is such a classification of elements compared with a characteristic of musical scale?
d. State two limitations of this classification of elements.

2. If heat is exchanged between a hot and cold object, the temperature of the cold object goes on increasing due to gain of energy and the temperature of the hot object goes on decreasing due to loss of energy.
The change in temperature continues till the temperatures both the objects attain the same value. In this process, the cold object gains heat energy and the hot object loses heat energy. If the system of both the objects is isolated from the environment by keeping it inside a heat resistant box (meaning that the energy exchange takes place between the two objects only), then no energy can flow from inside the box or come into the box.
i) Heat is transferred from where to where?
ii) Which principle do we learn about from this process?
iii) How will you state the principle briefly?
iv) Which property of the substance is measured using this principle?
v) What do you mean by isolated system?