VIVEK TUTORIALS

Preliminary Examination

Std: SSC (E.M) **Subject: Science & Technology I** **Time: 2 Hours**

Date : 29/Jan/2020 **Max Marks: 40**

1. It is necessary to solve all the questions.
2. Draw neat and labelled diagrams wherever necessary.
3. Start every new main question on separate page.
4. Figures on the right indicate marks.
5. For each Multiple Choice Question (1.B), ONLY first answer will be considered.
6. Write answer of each MCQ with option number.

Eg. i) a……. ii) c……..

Q.1 (A) Choose the proper alternative and fill in the blanks: **5**

(1) The law used by Newlands to arrange elements is called_____.
(a) Newlands' periodic law
(b) Newlands' law of octaves
(c) Newlands' law of triads
(d) Newlands' law of elements

(2) Distances perpendicular to the principal axis and above it are taken to be _____.
(a) negative (b) positive
(c) sometime positive sometime negative (d) zero

(3) The moon is the only _____ of the earth.
(a) organo satellite (b) minimature satellite
(c) natural satellite (d) artificial satellite

(4) Ethanoic acid reacts with ethanol in presence of an acid catalyst and ester, _____ is formed.
(a) ether ethanoate (b) ethyl ethanoate
(c) ester ethanoate (d) both (a) and (c)

(5) During war, it is possible to get information about the actions of the enemy through aerial surveillance using _____.
(a) satellites (b) aeroplane (c) antenna (d) radiowaves

(B) Attempt the following: **5**

(1) Find the odd one out: **1**

Light, sound, heat, laws of planetary motion

(2) State 'True' or 'False', if 'False' correct it: **1**

The entire periodic table is divided into four blocks.

(3) Write the correlated terms: **1**

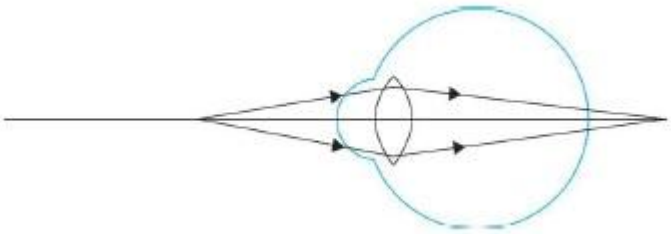
Power : Dioptre :: Magnification : _____ .

(4) Name the following: **1**

butanoic acid*

(5) Answer the following in one line: **1**

Name the defect shown in the diagram.



Q.2 (A) Give reasons:(Any Two) **4**

(1) Atomic radius goes on decreasing while going from left to right in a period.

(2) A body weighs more at poles and less at equator.

(3) Planets do not twinkle.

(B) Answer the following:(Any Three) **6**

(1) The mass and weight of an object on earth are 5 kg and 49 N respectively. What will be their values on the moon? Assume that the acceleration due to gravity on the moon is l/6th of that on the earth.*

(2) How do we decide that a given material is a good conductor of electricity or is an insulator?*

(3) Which is the component of biogas that makes it useful as fuel? Write a balanced chemical equation to show the combustion of that component.

(4) Where does the latent heat go during these transformations?*

(5) What is the periodic trend in the variation of valency while going down a group? Explain your answer with reference to the group 1, group 2 and a group 18.*

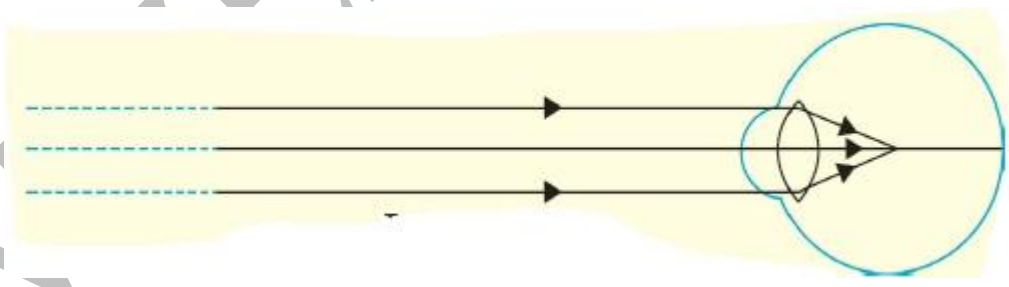
Q.3 Answer the following:(Any Five) **15**

(1) What is the reaction called when oxidation and reduction take place simultaneously? Explain with one example.*

(2) Complete the following table:

TYPE OF SATELLITE	FUNCTION	NAME OF SATELLITE SERIES	LAUNCH VEHICLES
Earth Observation satellite	————	————	PSLV
Broadcast satellite	Telecasting TV programmes	————	————
Navigational satellite	————	————	PSLV

(3) Study the figure and answer the following question:-

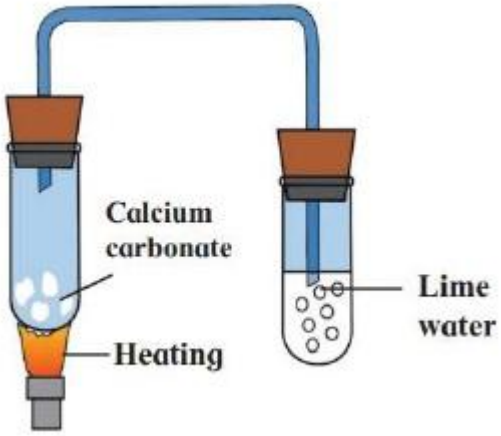


1. Identify the eye defect?
2. Which type of lens will you use for correction the defect?
3. Draw the proper diagram for defect and correction.

(4) Divide the metals Cu, Zn, Ca, Mg, Fe, Na, Li into three groups, namely reactive metals, moderately reactive metals and less reactive metals.*

(5) In the chlorination, substitution reaction of propane two isomeric products containing one chlorine atom are obtained. Draw their structural formulae and give their IUPAC names.*

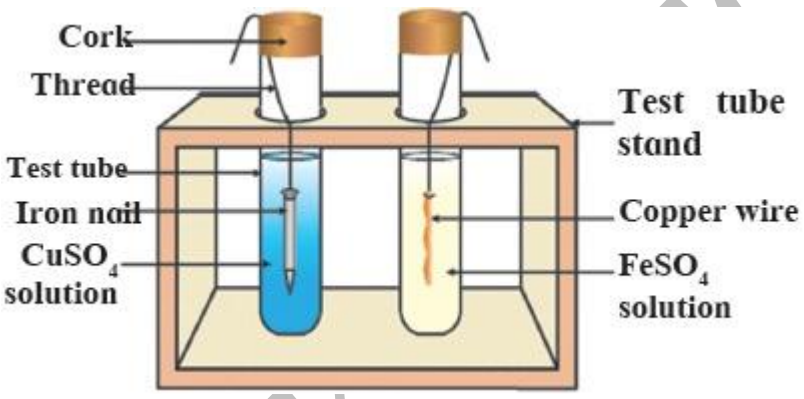
(6) Study the following figure and answer questions.



a) After heating Calcium carbonate, which gas is formed in a test tube?
b) When we pass this gas through limewater what change, did you observe?
c) Write down the chemical reaction showing the product formation after heating the Calcium carbonate.

(7) A thermally insulated pot has 150 g ice at temperature 0 °C. How much steam of 100 °C has to be mixed to it, so that water of temperature 50 °C will be obtained?
(Given : latent heat of melting of ice = 80 cal/g, latent heat of vaporization of water = 540 cal/g, specific heat of water = 1 cal/g °C)*

(8) Observe the following experimental set-up and answer the following questions.



i. What changes will you observe in test tube A?
ii. What do you think will happen in test tube B?
iii. What will happen if copper sulphate solution in test tube A is replaced by magnesium nitrate solution?

Q.4 Answer the following:(Any One) **5**

(1) What is a solenoid? Compare the magnetic field produced by a solenoid with the magnetic field of a bar magnet. Draw neat figures and name various components.*

(2) The observation made by Swarali while doing the experiment are given below. Based on these write answers to the questions:
Swarali found that the light ray travelling from the denser medium to rarer medium goes away from the normal. If the angle of incidence (i) is raised by Swarali, the angle of refraction (r) went on increasing. However after certain value of the angle of incidence the light ray is seen to return back into the denser medium.
Questions:
(i) What is the specific value of ∠i called?
(ii) What is the process of reflection of incident ray into denser medium called?
(iii) Draw the diagrams of three observations made by Swarali.

-------- All the Best --------