



## Octahedral classes, kharadi

2nd floor, yashwant plaza, near bank of India,

### Class 10 - Science

### Science Prelim 3

Maximum Marks: 60

Time Allowed: 2 hours and 30 minutes

#### Section A

1. Answer the following 10
- Write the valency and usual number of valence electrons of group 18 of the periodic table.
  - Out of group 1 and group 17 elements, the chemical reactivity decreases down in which group?
  - Out of Na, Al, Si, P which element exhibits maximum number of valence electrons?
  - Write the correct increasing order of the atomic radii of O, F and N.
  - Which group of elements will form an acidic oxide?
  - The element with atomic number 14 is hard and forms acidic oxide and a covalent halide. To which of the categories does the element belong?
  - Write the technical term for the following:
    - Funnel lying close to the ovary
    - The period of endometrial repair and regeneration.
    - Copulation chamber in the human female.
  - Where does the fertilization occur in mammals?
  - What is implantation?
  - Name a tubular passage for the exit of sperms and urine in mammals.
2. Answer the following 5
- Under what condition, the induced current produced in moving conductor in a magnetic field can be maximum?
  - Name the type of current:
    - used in household supply,
    - given by a cell.
  - A constant current flows in a horizontal wire in the plane of the paper from East to West as shown in the figure. At what point, the direction of the magnetic field will be North to South?
- 
- Why are magnetic field lines closed curves?
  - What does the degree of closeness of magnetic field lines near the poles signify?
3. Answer the following 30
- An element is placed in 2nd group and 3rd period of the periodic table, burns in presence of oxygen to form a basic oxide.
    - Identify the element.
    - Write the electronic configuration.
    - Write a balanced equation when it burns in the presence of air.
    - Write a balanced equation when this oxide is dissolved in water.
    - Draw the electron dot structure for the formation of this oxide.
  - Two elements P and Q belong to the 3rd period of the modern periodic table and are in group 1 and group 2, respectively. Compare their following characteristics in tabular form:

- i. The number of electrons in their atoms
  - ii. The sizes of their atoms
  - iii. Their metallic character
  - iv. Their tendencies to lose electrons
  - v. The formula of their oxides
  - vi. The formula of their chlorides
- c) A mother always wants her child to drink milk. Milk is a boon for health. If one does not drink milk, he or she can face severe health problems. Read the given passage and answer the following questions.
- i. Name one mineral (metal) present in major quantity in milk.
  - ii. Write the chemical symbol, atomic number and valency of that nutrient (metal).
  - iii. What value do you infer from the given text?
- d) Ravi took three bread slices and kept them in the following conditions
- i. Slice 1 in a dry and dark place
  - ii. Slice 2 in moist and dark place
  - iii. Slice 3 in moist and in refrigerator
- What would he observe in each of the above conditions? Give reasons for your answer.
- e) Can you think of reasons why more complex organisms cannot give rise to new individuals through regeneration?
- f) Write one difference between asexual and sexual modes of reproduction. Which species is likely to have better chances of survival, the one reproducing asexually or the one reproducing sexually? Justify your answer.
- g) Explain the term 'Regeneration' as used in relation to reproduction of organism. Describe briefly how regeneration is carried out in multicellular organisms like Hydra?
- h) (a) Distinguish between A.C and D.C? (b) Which source produces alternating current?
- i) What is the role of the split ring in an electric motor?
- j) Mahesh bought an electric iron and connected its wires into the two-pin plug. Obviously, the green wire was not connected anywhere. Few days later, his wife got a severe electric shock while ironing the clothes. The electrician told Mahesh that this situation could be averted, if he had connected the green wire also, using the three-pin plug. Mahesh learnt a lesson for a life-time.
- Read the above passage and answer the following questions:
- i. Which terminal was to be connected using green wire?
  - ii. What qualities does Mahesh need to incorporate in himself to avoid such mistakes?
  - iii. If you were the electrician, what else would you do than explaining to Mahesh?

4. Answer the following

15

- a) Given below are few elements of the modern periodic table. Atomic number of the element is given in the parenthesis  
A (4) , B(9), C(14), D(19), E(20)
- i. Select the elements that has one electron in the outermost shell. Also write the electronic configuration of this element.
  - ii. Which two elements amongst these, belong to the same group? Give reason for your answer.
  - iii. Which two elements amongst these belong to the same period? Which one of the two has bigger atomic radius?
- b) Draw a well labeled diagram of female reproductive system and mention its parts.
- c) Differentiate between AC and DC. Name one source of each. Write any two advantages of A C over DC.