BOKARO STEEL CITY

ASSIGNMENT FOR THE SESSION 2013-2014

Class: IX **Subject : Science & Tech.** **Assignment No. 3**

Section – A : Physics

1) Find the relation between momentum and kinetic energy. What will be the percentage change in kinetic energy if the momentum is doubled?

2) Illustrate the law of coservation of energy by discussing the energy changes which occur when we draw a pendulum both to one side and allow it to oscillate. Why does the bob eventually come to rest? What happens to its energy eventually? Is it a violation of law of conservation of energy?

3) A man weighing 40kg carries a box weighing 20 kg to the top of a building 15 m high in 25 seconds. Calculate the power.

4) A man fires a shot and hears an echo from a cliff after 2 sec. He walks 85m towards the cliff and the echo of a second shot is now heard after 1.4 sec. What is the velocity of sound and how far was the man from the cliff when he first heard the echo?

5) On what factors does the upthrust depend?

6) A block of wood in water with 3/4rd of its volume submerged. What will be the fraction of its volume submerged in liquid of relative density 0.8?

7) A wooden block floats is glycerine in such a way that its 2/5th volume remains above surface. If relative density of wood is 0.78. Calculate the relative density of glycerine.

8) The global climate has always fluctuated millon of year ago ,some part of the world that are now quite warm ,were covered with ice and over recent centuries , average temperature have risen and fallen in cycle what is new however is that current and future climate change will be caused not just by natural event but also by activities of human being. Suggest 3 simple ways to help save the climate of our planet.

Section – B : Chemistry

1. What are polyatomic ions? Give examples.

2. a) Calculate the formula unit mass of $Na_2CO_3.10H_2O$ and K_2CO_3.

   b) Calculate the molecular mass of C_2H_5OH and H_2SO_4

3. What is the mass of

   a) 0.2 mole of oxygen atoms?

   b) 10 mol of Na_2SO_3

   c) 1.5 mol of Na^+ ions.

   d) 4 mol of Aluminium atoms (atomic mass of Al = 27)

4. What are isotopes ? Give one example.

5. The atomic number of Al and Cl are 13 and 17 respectively. What will be the number of electrons in Al^{3+} and Cl^- ?

6. Write the conclusions and shortcomings of Rutherford's model of an atom.

7. VALUE BASED QUESTION:

   Rutherford's atomic model was a reasonably good model of structure of atom based on the famous particle scattering experiment. However it was modified by Neil Bhor and later on by others. The resulting improvements in the understanding of atomic structure have contributed to further scientific advancement. There are many examples in scientific field when original contributers happily accept modifications in their ideas.

   Answer the following questions based on the above information:

a) Name the scientific values associated with the above anecdotes.

b) In what way such a personal attribute is likely to help you?

Section – C : Biology

Chapters - Biological Diversity, Health & Diseases, Our Environment (Biogeochemical Cycles, Greenhouse Effect) :

1. What is evolution? How is algae different from fungi? Draw diagram of any one member of Protista.
2. How are Pteridophytes different from Bryophytes? Write any four differences between angiosperms and gymnosperms.
3. Write the differences (any four) between the following groups

   a) poriferans and coelenterates b) molluscs and arthropods

   c) flatworms and roundworms d) aves and mammals
4. Explain the different means by which infectious diseases spread in the environment? List the preventive measures of such diseases.
5. Justify giving reasons why it is difficult to make antiviral medicines than antibacterial medicines.
6. Explain the different processes involved in oxygen and water cycle operating in nature.
7. Represent schematically the carbon cycle and nitrogen cycle operating in the biosphere. How is greenhouse effect caused?
8. Value Based Question :

   Government officials often go from one house to another every year and request people to take their infants to the Pulse Polio booths to administer polio drops to them. However in a particular area few infants were not taken for polio drops.

   Answer the following questions;

   a) Why does the government take active part in administering polio drops to infants?

   b) What values are being ignored by people who do not take their infants to the Pulse Polio booths?

   c) Government officials go from house to house for promoting polio drops vaccination. Besides doing their office duty, which values are promoted through their actions?

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