IBN AL-HYTHAM ISLAMIC SCHOOL

MANAMA , BAHRAIN

ANNUAL EXAMINATION – FEBRUARY 2010

SUBJECT: SCIENCE AND TECHNOLLOGY MAXIMUM MARKS:

CLASS : IX DATE: 01-03-2010 TIME: 2½ HOURS TOTAL PAGES: 2

SECTION A (PHYSICS)

I) Answer the following questions:

1. When the speed of a body is tripled , what is the change in its kinetic energy? 1 mark

2. Why do we prefer a sharp knife for cutting than a blunt one? 1 mark

3. State universal law of gravitation and express it mathematically. 2 marks

4. A man whose mass is 50 kg climbs up 30 steps of a stair in 30 seconds. If the power is 100W, how much high is each step? 2 marks

5. Why is the velocity of sound more in steel than that in water or air? 2 marks

6. A stone is dropped from the top of a tower 800m high into a pond of water at the base of the tower. When is the splash heard at the top of the tower? Given g = 10m/s^2 and spread of sound = 340m/s

7. (a) Define the term kinetic energy and potential energy 3 marks
   (b) Derive an expression for kinetic energy of a moving body 3 marks

8. State Archimede's principle. How will you verify experimentally? 3 marks

9. (a) Distinguish between transverse waves and longitudinal waves.
   (b) What is SONAR? What is the basic principle of its working ? Explain its use. 5 marks

SECTION B (CHEMISTRY)

I) Answer the following questions:

1. What is the charge on particles comprising anode rays? Why they are also called canal rays? 1 mark

2. a. Define a compound.
   b. Classify the following into elements, compounds and mixtures:
   Bronze, Methane, Aluminium, Ink. 2 marks

3. i. Which separation technique will you apply for the separation of the following:-
   a. Mixture of acetone and water.
   b. Mixture of red dye and blue dye.
   ii. What do you mean by Tyndall effect? 2 marks

4. The average atomic mass of an element 'X' is 16.2 u. What is the percentage of each isotope ^{16}X and ^{18}X in the sample? 2 marks

5. An element Y has atomic number 13 and mass number 27.
   a. Determine the number of protons and neutrons in it.
   b. Write its electronic configuration and determine its valency.
   c. Draw the structure of an atom of Y, based on Bohr's model. 3 marks

6. a. Define 1 mole.
   b. Calculate number of moles in 20g of water. (Atomic mass of H= 1u and O = 16 u).
   c. A solution contains 40g of salt in 160g of solution. Calculate the concentration in terms of mass by mass percenta of the solution.

3 marl

7. a. Write the formulae of following compounds:-
   i. Calcium chloride
   ii. Ammonium sulphate
   b. State any two postulates of Dalton's atomic theory.
   c. In a reaction, 17g of silver nitrate react with 5.85g of sodium chloride to produce 14.35g of silver chloride and 8 of silver nitrate. Show that the observations are in agreement with the law of conservation of mass.

Silver nitrate + Sodium chloride → Silver chloride + Sodium Nitrate

3 marks

8. a. Give the main drawback of Rutherford's model of atom.
   b. What would be the observation if the alpha- particle scattering experiment is carried out using a foil of a metal other than gold?
   c.. Justify:
   i. Na^+ has completely filled K and L shells (Atomic number of Na = 11)
   ii. Atom is neutral as a whole, even if it is made of charged particles.

5 marks

SECTION C(BIOLOGY)

II) Answer the following questions:

1. Which organism cause the following disease

1 m

   a. Sleeping sickness
   b. Sars

2. Name the tissues seen in

1 ma

   a. husk of coconut
   b. inner lining of intestine

3. Write the function of vacuoles in amoeba and plant cells

2 mar

4. How do weeds affect the growth of crop plants? Name any two common weeds.

2 mar

5. Write any two points of difference between eukaryotic and prokaryotic cells

2 mar

6. What is immunisation? Explain the basis of the principle of immunisation.

3 mar

7. a. What is the function of nerve tissue?
   b. Draw a neat diagram of a neuron and label the parts

3 mar

8. a. What are the different types of meristematic tissues ?
   b. List the characteristics of cells this tissue.

3 mar

9. a. Give a brief account on the role of nutrients in crop production.
   b. Write the advantages of using manures in agriculture.
   c. Write short notes on any two types manures

5 mar