Delhi Public School, Jammu
Assignment for final examination, 2016-17

Class: 9th
Subject: Science

Physics

Floatation:

1. Convert $1 Nm^{-2}$ into cgs unit.

2. What is the effect of thrust (force) on area in contact?

3. An object weighs 10N in air. When immersed fully in water, it weighs only 8N, then find the weight of the liquid displaced by the object?

4. Which phenomenon lightens the weight of the body immersed in a liquid?

5. Why the buoyant force decreases with rise in temperature?

6. Define Archimedes' Principle and give two applications based on it?

7. Why do ice and icebergs float on water?

8. How is floatation related to density of the object and that of the liquid?

9. Does Archimedes principle hold good for a satellite moving in a circular orbit?

10. A dead body floats on the water with its head immersed in the water. Explain?

11. What are the factors on which buoyant force depends?

12. (a) Under what condition do the two hollow balls- one of aluminium and another of iron, experience equal up thrust when placed in water?

   (b) The density of liquid B is greater than that of liquid A. A hydrometer is placed one by one in the two liquids. In which liquid the hydrometer will sink to the greater depth?

13. A body weighs 40gf in air by a spring balance. When the weight is immersed in water, then spring balance measures 32gf. Find the relative density of the body?

Work and energy

1. 5 unit of energy is equal to how many joules?

2. At what angle work done is zero? Give one example.

3. Give the commercial units of Power and Energy?

4. Define average power and 1 watt?

5. Convert 1kWh into joule and calories?

6. The bob of a pendulum is released from a horizontal position A (extreme position). If the length of the pendulum is 1.5m, what is the speed with which the bob arrives at the lower most position B. (Take g=$10 ms^{-2}$)

7. If the momentum of a body is increased by 50%, then find percentage increase in its kinetic energy?

8. Give example of (a) Positive work (b) negative work.

9. If an electric iron is used for 30 min, 4 bulbs for 6 hours every day. Find the electric energy consumed in the month of March? Also find the electric bill of this month if 1unit=Rs 2.

10. A force of 5N acts on a 15kg body initially at rest. Find the instantaneous power due to the force at the end of the third second?

11. Define kinetic energy and find its expression? Also give the relation between kinetic energy and momentum.

12. (a) Define momentum.

   (b) Two bodies of masses 3kg and 9kg have equal linear momentum. What is the ration of their kinetic energy?

13. State and prove conservation of mechanical energy?

Sound:

1. Define the following (a) Sound (b) Echo (c) Loudness (d) Intensity.
2. Give SI units of Loudness and Intensity.
3. Give difference between (a) Longitudinal and Transversal waves (b) Loudness and Pitch (c) Echo and Reverberation.
4. What are the factors affecting sound waves.

5. What are the characteristics of sound waves, explain them.
6. Give full form of SONAR. Explain how sonar works.
7. What are ultrasounds? Give its three applications.
8. How we detect flaws/defects in metal pieces using ultrasounds.
9. How a bat catches its prey, explain?
10. Draw the structure of human ear and label its parts. Also explain the working of human ear.

Chemistry

Atoms and molecules:

1. Define the following (a) Atom (b) Molecule (c) Valency and (d) Atomicity. Also give one example for each.
2. Define atomic mass unit and mole. 1 atomic mass is equal to _____ kg and 1 mole is equal to _____ constituent particles.
3. Define laws of chemical combinations with suitable example.
4. Give postulates of Dalton's Atomic theory.
5. Find the molecular mass and atomicity of (a) hydrogen gas (b) water (c) aluminium oxide (d) calcium phosphate (e) ammonium chloride.
6. Calculate the number of constituent atoms in 53g of sodium carbonate and 36g of water.
7. Derive formulae of the following compounds (a) Magnesium phosphate (b) Aluminium chloride (c) Aluminium oxide (d) Ammonium chloride (e) sodium nitrate.
8. Find the valency of (a) oxygen (b) sodium (c) Aluminium (d) argon (e) calcium.
9. Give difference between (a) Atoms and ions (b) Atoms and molecules.
10. Calculate the mass percentage of each element present in (a) water (b) aluminium oxide and (c) aluminium sulphate.

Chapter: Structure of atom

1. An unknown species X has 17p and 18e. Predict its nature.
2. Name the phenomena that gave one of the first indications that atoms are not indivisible?
3. Why is the charge to mass ratio (e/m) for the particles in positive rays much lower than that for the particles in the cathode rays?
4. Which result of the gold foil scattering experiment were unexpected?
5. Write down the drawbacks/Limitations of Rutherford's and Bohr's model of atom.
6. Give difference between cathode rays and anode/canal rays.
7. The average atomic mass of a sample of an element X is 16.2u. What are the % ages of isotopes $^{16}_{8}X \: and \: ^{18}_{8}X$ in the sample?
8. Give difference between isotopes and isobars with example.
9. Name the isotopes used to (a) cure goiter (b) check blood circulation.
10. Why do helium, Neon and argon have zero valences? Also give their electronic configurations.
11. Give the postulates of Bohr's model of atom.
12. Match the names of the scientists given in column A with their contribution towards the understanding of the atomic structure as given in column B:

Column A	Column B
(a) Mosley	(I) Neutron
(b) E. Goldstein	(II) Canal rays
(c) James Chadwick	(III) Stationary orbits
(d) Ernest Rutherford	(IV) Concept of nucleus
(e) J.J Thomson	(V) Atomic number
(f) Neil's Bohr	(VI) Discovery of electrons.

13. What do you mean by radio-carbon-dating? Give short explanation.
14. Explain Bohr-Bury scheme.

Biology

Why do we fall ill

1. Define disease, pathogens and vectors.
2. Name two vectors and diseases transmitted by them.
3. Name two communicable and two non-communicable diseases.
4. Give difference between acquired and congenital diseases with example.
5. Name two diseases transmitted by (a) bacteria (b) viruses (c) vectors.
6. Define vaccination and immunization. Why it is to be done.
7. Write short note on AIDS and Jaundice.
8. Give some preventive measures to avoid the spread of any diseases.

Natural resources

9. How winds are formed.
10. Define ecosystem and define biotic and abiotic components of ecosystem.
11. Explain green house effect and global warming.
12. Define biogeochemical cycles and give its importance.
13. Define weathering of rocks and explain how soil is formed.
14. Explain (a) Oxygen cycle and (b) Nitrogen cycle.

Chapter: Diversity in living organisms

1. Define Taxonomy and Classification.
2. Who is known as the father of Taxonomy?
3. Why Bryophytes are called amphibians of plant kingdom?
4. Who gave five Kingdom of classification and why?
5. What do you mean by symbiotic association? Give one example.
6. Write the main characteristics of Plantae.
7. Give the main characteristics of (a) Fungi (b) Protista.
8. Give difference between (a) Algae and Fungi (b) Gymnosperms and Angiosperms and (c) Monocots and Dicots with examples.
9. What do mean by (a) Notochord (b) Radial Symmetry (c) Triploblastic animals? Give example for each.
10. Give difference between (a) Arthropoda and Annelida (b) Porifera and coelenterate.
11. What are the characteristic features of vertebrates?
12. Give three characteristic features of (a) Reptiles (b) Amphibians (c) Mammals with example.