

## **PHYSICAL SCIENCE- chemistry: 84 Marks**

- ☑ describe the properties and location of protons, neutrons and electrons in an atom **(2)**
- ☑ define ionic and covalent bonding **(2)**
- ☑ draw Bohr diagrams of atoms, ions, molecules or ionic compounds for the first 20 elements **(4)**
- ☑ use the periodic table to identify valence electrons **(2)**
- ☑ distinguish between paired and unpaired electrons of a single atoms **(2)**
- ☑ draw Lewis diagrams for simple ionic compounds and covalent molecules **(4)**
- ☑ distinguish between lone pairs and bonding pairs of electrons in molecules **(2)**
- ☑ identify acids and bases using indicators **(4)**
- ☑ explain the significance of the pH scale for common household substances **(4)**
- ☑ compare the properties and formulae of acids, bases, and salts **(2)**
- ☑ recognize the names and formulae of common acids **(2)**
- ☑ use the periodic table to; classify elements and metal or non-metals, identify the reactivity of elements in a family; and distinguish between basic and acidic solutions **(4)**
- ☑ name and write chemical formulae for common ionic compounds **(4)**
- ☑ convert between names and formulae for covalent compounds **(4)**
- ☑ recognize and distinguish between organic and inorganic compounds using chemical structures, names, formulae, diagrams, or models **(6)**
- ☑ use models to represent chemical reactions and explain how atoms are conserved **(2)**
- ☑ write and balance chemical equations **(8)**
- ☑ classify and predict the products for the following chemical reactions: synthesis, decomposition, single and double replacement, neutralization, and combustion **(4)**
- ☑ describe how temperature, concentration, catalysts, and surface areas affect reaction rates **(4)**
- ☑ use standard atomic notation to identify the atomic number and mass number of various isotopes **(2)**

- ☑ describe the changes in the nucleus during alpha, beta, and gamma decay **(4)**
- ☑ explain how radioactive decay affects protons, neutrons, electrons, alpha particles and beta particles **(4)**
- ☑ explain the connection between half-life and radioactive decay **(2)**
- ☑ compare fission and fusion **(2)**
- ☑ complete and balance nuclear equations **(4)**

**PHYSICAL SCIENCE- physics: 26 Marks**

- ☑ explain the relationship between displacement and time interval to velocity for objects in uniform motion **(2)**
- ☑ use graphs to represent the relationship between displacement, time interval and velocity **(4)**
- ☑ calculate average velocity, displacement and time interval for an object in uniform motion using  $v_{av} = \Delta x / \Delta t$  **(4)**
- ☑ conduct experiments to determine the velocity of an object in uniform motion **(4)**
- ☑ use positive, negative and zero acceleration to describe; falling objects, accelerating from rest, slowing down or stopping, and uniform motion **(4)**
- ☑ calculate acceleration using  $a = \Delta v / \Delta t$ , where  $\Delta v = v_f - v_i$  **(8)**