

# Physics

## Unit 1 – Paper 1

- 1. Conservation and dissipation of energy**  
(energy stores, conservation of energy, energy and work, gravitational potential energy, kinetic energy, energy dissipation, energy and efficiency, electrical appliances, energy and power)
- 2. Energy transfer by heating**  
(conduction, *infrared radiation*, specific heat capacity, insulating buildings)
- 3. Energy resources**  
(energy demands, energy from wind and water, power from the Sun and Earth, energy and the environment)
- 4. Electric circuits**  
(*electrical charges*, current and charge, potential difference and resistance)
- 5. Electricity in the home**  
(alternating current, cables and plugs, electrical power and potential difference, electrical current and energy transfers, appliances and efficiency)
- 6. Molecules and matter**  
(density, states and matter, changes of states, internal energy, specific latent heat, gas pressure- temperature *and pressure*)
- 7. Radioactivity**  
(atoms and radiation, discovery of the nucleus, changes in the nucleus, alpha, beta and gamma radiation, activity and half life, *nuclear radiation in medicine, nuclear fission, nucleus fusion*)

## Unit 2 – Paper 2

- 8. Forces in balance**  
(vectors and scalars, forces between objects, resultant forces, moments, levers and gears, centre of mass, moments and equilibrium, parallelogram of forces, resolution of forces )
- 9. Motion**  
(speed and distance-time graphs, velocity and acceleration, analysing motion graphs)
- 10. Force and motion**  
(*force and acceleration, weight and terminal velocity, forces and braking, momentum, conservation of momentum, impact forces, safety first, forces and elasticity*)
- 11. Force and pressure**  
(pressure and surfaces, pressures in a liquid at rest, atmospheric pressure, upthrust and flotation)
- 12. Wave properties**  
(properties of waves, reflection, refraction, sound waves, uses of ultrasound, seismic waves)
- 13. Electromagnetic waves**  
(electromagnetic spectrum, light, infrared, microwaves, radio waves, communications, ultraviolet waves, x-rays and gamma rays, x-rays in medicine)
- 14. Light**  
(reflection of light, refraction, light and colour, lenses)
- 15. Electromagnetism**  
(magnetic fields, magnetic fields of electric currents, electromagnets in devices, the motor effect, the generator effect, alternating-current generator, transformers)
- 16. Space**  
(formation of the Solar System, life history of a star, planets, satellites and orbits, expanding universe, beginning and future of the Universe)

**Key:**

**In colour: Separate science only**

**In bold: Higher only**