# CSEC HUMAN AND SOCIAL BIOLOGY SYLLABUS OUTLINE

The Human and Social Biology course is divided into FIVE sections as follows:

### Section A: Living Organisms And the Environment

- Characteristics of living organisms with focus on mammals (humans)
- Structure of animal and plant cells; microbes (bacteria, viruses, fungi)
- Function of cell organelles
- Cell specialization and levels of organization in humans
- Selected cells in the human body (sperm, egg, muscle, epithelial, nerve)
- Osmosis, diffusion and active transport
- Photosynthesis
- Food chains, webs, trophic levels, energy flow
- Nutrient cycling (carbon and nitrogen cycles)

#### Section B: Life Processes

- <u>Nutrition</u> (balanced diet, nutrients, malnutrition, causes of constipation and diarrhea, tooth structure, tooth decay, digestion, importance of enzymes, structure of villus)
- <u>The Respiratory System</u> (structure, breathing, vital capacity, gaseous exchange, anaerobic/aerobic respiration, ADP/ATP, mouth to mouth resuscitation, cigarette smoking)
- <u>The Circulatory System</u> (heart structure, blood components, blood vessels, blood clotting, heart attack causes & effects, lymphatic system)
- <u>Skeletal System</u> (skeleton, bones, cartilage, ligaments, tendons, joints, muscles)

- <u>Excretion and Homeostasis</u> (kidney, nephron structure & function, excretory organs, homeostasis, feedback mechanisms, osmoregulation, blood sugar regulation, heat, temperature regulation)
- <u>Coordination and Control</u> (nervous system, the brain, neurons, sense organs, structure of eye, sight defects, endocrine system)
- <u>The Reproductive System</u> (sexual/asexual, male & female reproductive systems, menstrual cycle, fertilization and pregnancy, birth process, prenatal care, abortion, birth control methods, family planning)

#### Section C: Hereditary and Variation

- Cell division (mitosis and meiosis)
- Genetic variation
- Inheritance (DNA, RNA, chromosomes, genes, inheriting a single pair of

characteristics, sex determination, sex-linked traits, blood groups)

- Genetic Engineering (applications, pros and cons)

### Section D: Disease and its Impact on Humans

- Health, diet, exercise
- Types of diseases, signs & symptoms
- Causes, prevention and treatment of obesity, diabetes (type 2), hypertension
- Transmission of the following infectious diseases: HIV/AIDS, gonorrhea, acute respiratory infections, ringworm, typhoid, tuberculosis, cholera, dengue, herpes, gastroenteritis
- Effects of STDs on individuals including pregnant women
- Personal hygiene, sterilization, disinfection, antiseptics, antibiotics
- Vectors and life cycle, control e.g. mosquitoes, houseflies, rats

- Immunity, immunization, vaccination
- Drug use and dependence; social and physiological effects

### Section E: The Impact of Health Practices on the Environment

- Pollution, pollutants and effects on the environment, control methods
- Water pollution, water cycle, small and large-scale water purification, testing for bacteria, human activities on water supplies, contaminated water
- Sewage treatment (biological filter, activated sludge methods), disposal practices, pit latrine, landfills
- Solid waste management, recycling, domestic refuse disposal, biodegradable and non-biodegradable waste

# **Examination Format**

1. Paper 2- 6 compulsory questions (2hrs)

Section A- 4 structured questions; One question is investigative/practicalbased; Each question is worth <u>15 marks</u>.

Section B- 2 structured essay questions; Each question is worth <u>15 marks</u>.

Total: 90 marks (60%)

2. Paper 1- 60 multiple choice questions (1hr 15 mins)

Total: 60 marks (40%)