CSEC BIOLOGY
SYLLABUS SUMMARY

There are THREE sections:

A. Living Organisms In the Environment

- Characteristics of living organisms
- Classification of organisms
- Food chains, food webs, trophic levels, energy flow
- Nutrient cycling (carbon and nitrogen cycles)
- Ecosystem, abiotic and biotic factors
- Ecological study and sampling methods
- Population growth
- Recycling
- Pollution and conservation

B. Life Processes and Disease

1. Cells, Osmosis and Diffusion
- Cell structure (plants, animals, bacteria, amoeba)
- Cell specialization in humans
- Osmosis, diffusion and active transport

2. Nutrition
(Photosynthesis, structure of leaf, food tests, nutrients, digestive system, tooth structure, importance of enzymes, balanced diet, minerals needed by plants)

3. Respiration and Gaseous Exchange
-The respiratory system (ATP, anaerobic/aerobic respiration, breathing, lungs, gaseous exchange, cigarette smoking,)

4. Transport in Animals and Plants
-The circulatory system (blood, heart, vessels, blood clotting)
- Structure and function of xylem and phloem
-Transpiration, food storage

5. Excretion and Osmoregulation (kidney, nephron, water regulation, water conservation in plants)

6. Movement and Support (skeleton, bones, joints, muscles)

Sensitivity and Coordination (response of plants to light and gravity, response of invertebrates, nervous system, brain, drug use, structure of eye, the skin)

7. Growth and Reproduction (measuring growth, sexual/asexual, reproductive systems in humans, menstrual cycle, fertilization and pregnancy, birth control; reproduction in flowering plants, structure of seed, germination, seed dispersal)

8. Disease, Treatment and Control (types of diseases, role of vectors, transmission of HIV/AIDS, gonorrhea, role of blood in immunity, social and economic implications of disease in plants and animals

C. Continuity and Variation

1. Cell division (Mitosis and meiosis)
2. Genetic & Environmental variation (continuous and discontinuous variation)
3. Inheritance (DNA, RNA, chromosomes, genes, inheriting a single pair of characteristics, genetic diagrams e.g. Punnett square)
4. Biological species, natural and artificial selection
5. Genetic engineering