

- **Please Attempt All Questions**
- **Full Mark is 50**

Q.1: In Details Explain the following items:

[8 Marks]

- a. Structure and Quantity
- b. Constraint
- c. Accuracy, Meaning, and Effect

Q.2: Classify and Describe the following Expressions:

[8 Marks]

- a. Coding
- b. Decoding
- c. Error Correction

Q.3: The Nature of Living Things, explain with sketches: [8 Marks]

- a. The Cell.
- b. Metabolism
- c. The Cell Cycle
- d. The Immune System

Q.4: With the aid of neat Sketches:

[9 Marks]

- a. **Ontogeny (Development).**
 - *Stem Cells.*
 - *Epigenesis*
 - *r and K Selection.*
 - *Homeotic Genes.*
- b. **Phylogeny and Evolution**
 - *Models of Evolution*



- *Sources of Genome Variation*
- *The Origin of Proteins*
- *Geological Eras and Taxonomy*

Q.5: With the aid of formulations, tables, and/or figures: [9 Marks]

- a. Explain the main idea of Genomics.
- b. Discuss the DNA Sequencing.
- c. DNA Methylation Profiling.

Q.6: Discuss in details:

[8 Marks]

- a. Gene Identification.
- b. Gene Extrinsic Methods.

All Best Wishes

Prof. Mohamed Abdelazim