

**2016**  
**(January)**

*Time : 2 hours*

*Full Marks : 40*

*The questions are of equal value.*

*Answer any **five** questions.*

**(CELL BIOLOGY)**

1. Briefly explain the structural and molecular organization of nucleus. Add a note on nuclear pore complex.
2. Write short notes on the following :
  - (a) Cytoskeleton
  - (b) Anaphase promoting complex
3. Describe the molecular organization of chromosomes with emphasis on nucleosome concept.

4. Briefly explain the mechanisms of cell permeability and add a note on importing.
5. Write short notes on the following :
  - (a) Role of Calcium-Calmodulin complex in cell signaling
  - (b) Temporal regulation of gene expression in **Arabidopsis**
6. Differentiate between the following :
  - (a) Primary messenger and Secondary messenger
  - (b) Plastome and Chondriome
7. Describe the molecular mechanism of apoptosis with suitable sketches.
8. Write short notes on the following :
  - (a) Tumor suppressor genes
  - (b) Role of cyclic AMP in the regulation of cell cycle

