

The Assam Royal Global University, Guwahati  
Royal School of Life Sciences  
M.Sc. (BOTANY) 1<sup>st</sup> semester  
Semester End Examination, December 2018  
Course Title: Cell Biology  
Course Code: BOT144C101

Time: 3 Hours

Maximum Marks: 70

Note: Attempt all questions as per instructions given.

*The figures in the right-hand margin indicate marks.*

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Section – A

- Q.1.** Attempt **all questions**. (Maximum word limit 50) **2x8**
- A. What is flow cytometry?
  - B. What is the fundamental principle of X-ray diffraction technique?
  - C. What are plasmodesmata?
  - D. What is a NPC?
  - E. What is a cistron?
  - F. What is a promoter gene?
  - G. What is extra-nuclear inheritance?
  - H. What is Mt DNA depended male sterility in plants?

Section - B

- Q.2.** Answer **any 2**: **6x2**
- A. Explain the process of cell fractionation and visualization
  - B. Compare between light microscopy and electron microscopy
  - C. Explain cytochemistry and its application.
- Q.3.** Answer **any 2** **7x2**
- A. Discuss in detail the biogenesis and structure of cell wall.
  - B. Throw light on components of nucleus with special reference to nucleolus.
  - C. Discuss the components of cytoskeleton of an Eukaryotic cell
- Q.4.** Answer **any 1**: **14x1**
- A. Discuss in detail the process of DNA replication with appropriate diagrams.
  - B. Discuss in detail the process of RNA transcription with appropriate diagrams.
- Q.5.** Write short notes on **any 2**: **7x2**
- A. Structure and function of chloroplast as a genetic material.
  - B. Transfer of genes between nucleus and mitochondria.
  - C. Evolution of organellar genome.