

**UNIVERSITY OF RUHUNA**  
**BACHELOR OF SCIENCE IN MARINE AND FRESHWATER SCIENCES DEGREE**  
**Level I Semester I Examination, September 2018**  
**FAQ 1131 – Cell Biology**

Time – 1 ½ hours

Answer all questions.  
Underline the correct answer in Part I. Use the given space for answering Part II questions

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**Part I**

1. Which statement about eukaryotic chromosomes is *not* true?
  - a. Sometimes consist of a single chromatid
  - b. Sometimes consist of two chromatids
  - c. Normally possess a single centromere
  - d. Consist of proteins
  - e. Clearly visible as defined bodies under the light microscope.
  
2. Which statement about cytokinesis is true?
  - a. In animals, a cell plate is formed
  - b. In plants, it is initiated by furrowing of the cell membrane
  - c. Generally, it immediately follows mitosis
  - d. In plant cells, actin and myosin play an important role
  - e. It is the division of the nucleus.
  
3. Apoptosis
  - a. Occurs in all cells
  - b. Involves the dissolution of the cell membrane
  - c. Does not occur in an embryo
  - d. Involves a series of programmed events associated with ultimate death of a cell
  - e. Is not involved with cancer.
  
4. In meiosis,
  - a. meiosis II reduces the chromosome number from diploid to haploid
  - b. DNA replicates between meiosis I and II
  - c. The chromatids that make up a chromosome in meiosis II are identical
  - d. Each chromosome in prophase I consists of four chromatids
  - e. Homologous chromosomes separate from one another in anaphase I

5. A plant has 12 diploid chromosomes while an egg cell of that plant has 5 chromosomes. The most probable explanation of this observation is
- a. Normal mitosis
  - b. Normal meiosis
  - c. Nondisjunction in meiosis I
  - d. Nondisjunction in meiosis I and II
  - e. Nondisjunction in mitosis

**Part II**

6. What are the major organizational patterns of cells?

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7. Most cells are tiny. Why?

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8. What is meant by metabolism. Name the types of biochemical reactions that take place in cells

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9. Briefly describe the role of the plasma membrane of a cell.

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10. What is the importance of cell fractionation in studying the cell organelles?

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11. Mention six differences between an animal cell and a plant cell

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12. What are the four events that occur during cell division?

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13. Describe the sub phases of interphase

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14. What are major features that can be observed during prophase?

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15. What is meant by cytokinesis?

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16. What is the importance of Chiasmata during cell division?

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17. Give three examples for meiotic errors in cell division

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18. "Meiosis leads to genetic diversity". Give reasons

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19. Indicate the major difference between meiotic and mitotic cell divisions

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20. Describe the methods of cell death

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