SNS COLLEGE OF PHYSIOTHERAPY
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Puzzle Questions (Solve in Groups):

1. **True/False:** A cell is defined as the largest structural and functional unit of living organisms. (True or False?)
2. **Fill in the Blank:** According to basic anatomy, the cell is the basic _____ and functional unit of life.
3. **Multiple Choice:** Which of the following best defines a cell in the context of the BPT syllabus? a) A group of tissues b) The basic structural and functional unit of the body c) An organ system d) A type of bone
4. **Short Answer:** Why is understanding the cell important in physiotherapy? (Hint: Relate to tissue healing and body functions.)
5. **True/False:** The main parts of a cell include the nucleus, cytoplasm, and cell membrane. (True or False?)
6. **Fill in the Blank:** The _____ is the control center of the cell, containing genetic material.
7. **Multiple Choice:** Which cell part is responsible for producing energy through ATP? a) Nucleus b) Mitochondria c) Ribosomes d) Golgi apparatus
8. **Short Answer:** Name at least three major parts of a eukaryotic cell.
9. **True/False:** The cell membrane is permeable to all substances and does not regulate what enters or leaves the cell. (True or False?)
10. **Fill in the Blank:** _____ are organelles involved in protein synthesis and are found on the rough endoplasmic reticulum.
11. **Multiple Choice:** In the BPT syllabus, cell functions are key for understanding anatomy. Which function involves maintaining homeostasis? a) Cell division only b) Regulation by the cell membrane c) Energy production only d) Genetic replication only
12. **Short Answer:** Describe the function of the cytoplasm in a cell.
13. **True/False:** Lysosomes function as the digestive system of the cell, breaking down waste. (True or False?)
14. **Fill in the Blank:** The _____ apparatus modifies, sorts, and packages proteins for transport.
15. **Multiple Choice:** Which cell part or function would be most relevant when studying muscle cell fatigue in a physiotherapy case? a) Nucleus for DNA storage b) Mitochondria for energy production c) Cell membrane for shape d) Cytoplasm for storage

Discussion (Post-Puzzle):

- How can overlooking cell functions lead to errors in treating cellular-level injuries (e.g., in soft tissue repair)?
- Apply to a case: A patient with delayed wound healing—how do cell parts like the nucleus guide therapy?
- Debate: Should BPT curriculum expand cell studies to include more on cellular pathology?

Here is a diagram of a typical eukaryotic cell:

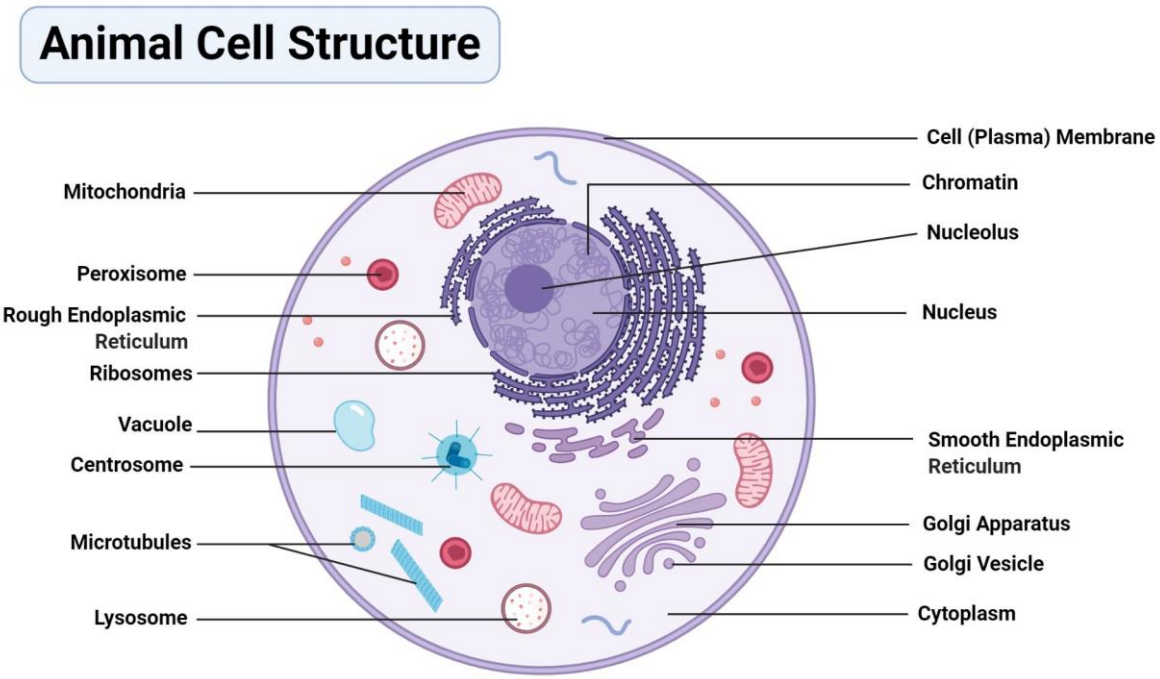

Figure: Animal Cell Structure, Image Copyright © Sagar Aryal, www.microbenotes.com

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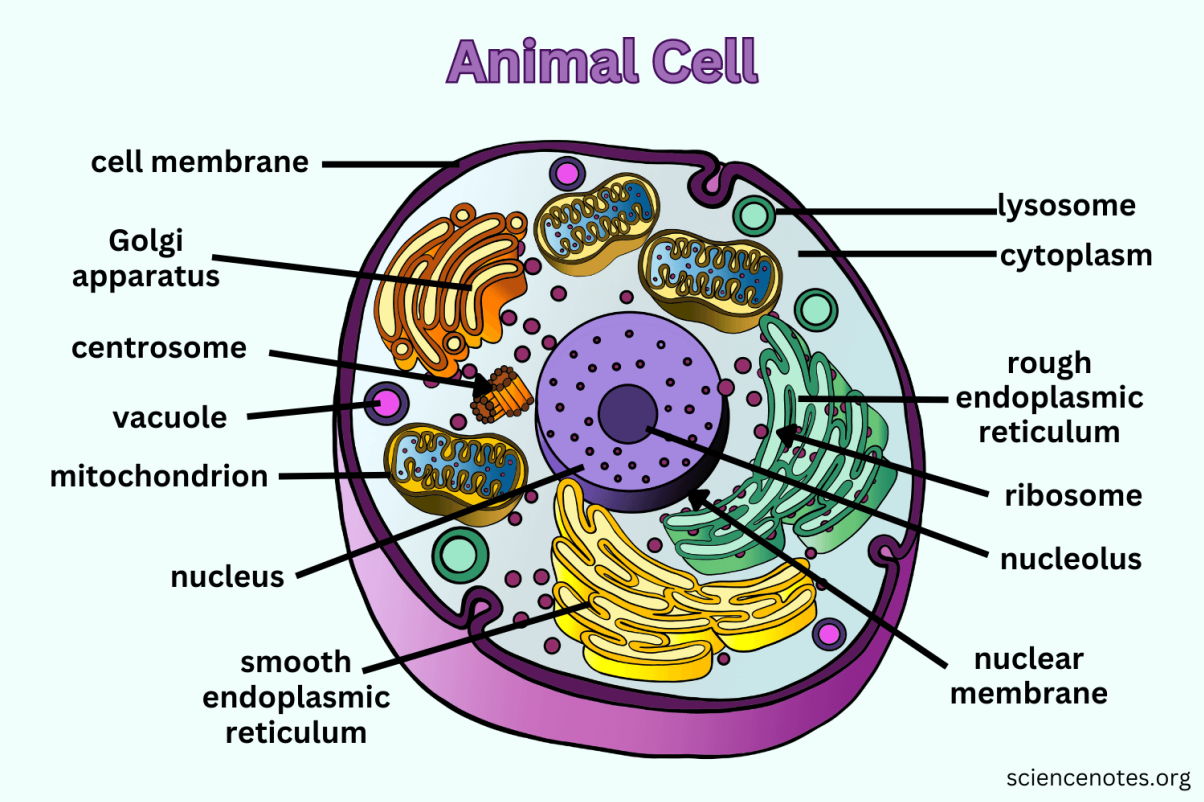
And another view for clarity:



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Animal Cell - Diagram, Organelles, and Characteristics

Answers:

1. False (It is the smallest unit, not the largest.)
2. Structural
3. b) The basic structural and functional unit of the body
4. It forms the basis for understanding tissues, organs, and systems; essential for processes like healing, regeneration, and response to physiotherapy treatments.
5. True
6. Nucleus
7. b) Mitochondria
8. Nucleus, cytoplasm, cell membrane, mitochondria, endoplasmic reticulum, ribosomes (any three).
9. False (It is selectively permeable and regulates entry/exit.)
10. Ribosomes
11. b) Regulation by the cell membrane
12. The cytoplasm is the jelly-like substance where organelles are suspended; it supports chemical reactions, transport, and cellular processes.
13. True
14. Golgi
15. b) Mitochondria for energy production (as fatigue relates to energy depletion)