cytoskeleton

- Cytoskeleton is unique to eukaryotic cells.

- It is a dynamic three-dimensional structure that fills the cytoplasm.
- This structure acts as both muscle and skeleton, for movement and stability.
- The long fibers of the cytoskeleton are polymers of subunits.
- The primary types of fibers comprising the cytoskeleton are microfilaments, microtubules, and intermediate filaments.

- Microfilaments and microtubules are the parts of any organism's cells that provide strength and structural support.
- They are the major components of the cytoskeleton, a framework of proteins that give the cell its shape and prevent it from collapsing.
- They are also the ones responsible for cell movement, as in the case of muscle cells.

Microtubules

- Microtubules, which are proteins shaped like tubes, are one component of the cytoskeleton.
- They are involved in maintaining the shape of the cell; without them, the cell would be squished by its neighboring cells.
- They are also responsible for organizing the inside of the cell and for various movements in the cell, especially when organelles and other small compartments move from one location to another.
- This function makes microtubules vital to cell division, when the cell divides to form two new cells.

Microfilaments

- Microfilaments, also called actin filaments, are protein filaments in the cytoplasm of eukaryotic cells that form part of the cytoskeleton.

- They are primarily composed of polymers of actin, but are modified by and interact with numerous other proteins in the cell.