3. Describe the main features of parenchyma, collenchyma and sclerenchyma.

Ans. (a) Parenchyma

(i) Parenchyma is a primitive simple tissue made up of cells which are similar in structure and function; it has given rise to the other types of tissues.

(ii) Cells are living, thin-walled and contain dense cytoplasm cell wall is made up of cellulose.

(iii) Cells are usually isodiametric; sometimes they may be lobed or elongated.

(iv) Intercellular spaces may or may not be present.

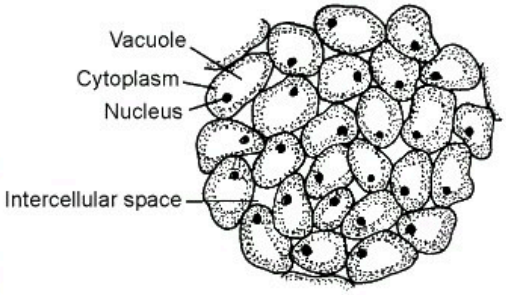

Fig : Parenchyma cells

(b) Collenchyma

(i) Collenchyma, like parenchyma, is a simple tissue.

(ii) Cells are living and thick-walled; thickenings are present at the corners of the cells and contain cellulose and pectin; lignin is never present.

(iii) Intercellular spaces are absent.

(iv) Cells may be circular, oval or polygonal in shape.

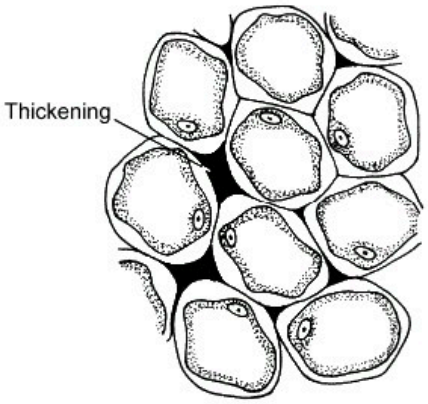

Fig : Collenchyma cells

(c) Sclerenchyma

(i) Like parenchyma and collenchyma, sclerenchyma is also a simple tissue.

(ii) Cells are dead and possess hard, rigid, very thick lignified walls; lignin is a waterproof material.

(iii) Intercellular spaces are absent.

(iv) Sclerenchyma cells are of two types — **fibres** which are long, narrow, pointed cells, and sclereids which are shorter, isodiametric or irregular cells; **sclereids** are also called **stone cells** or **grit cells**.

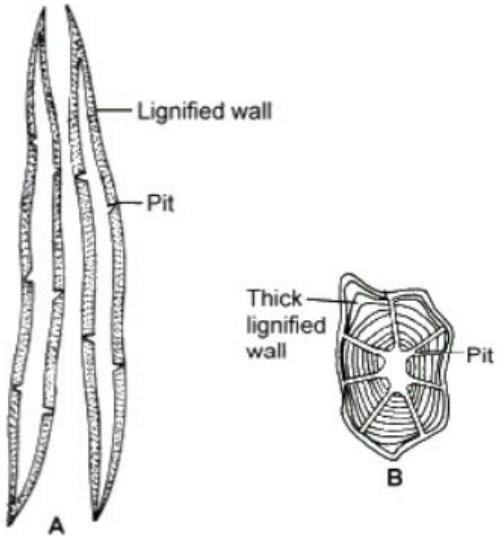

Fig :Slerenchyma : A. fibres B. Sclereids

(v) The walls of sclerenchyma cells contain oblique thin areas called pits.

1. Define the following :

(a) Differentiation **(b)** Meristem

(c) Lymph **(d)** Blood

(e) Tissue

Ans. **(a)** Differentiation is the process by which unspecialised structures become modified and specialised for performing specific functions.

(b) Meristems are the sites or regions within the plant body where formation of new meristematic cells takes place.

(c) Lymph is another fluid connective tissue consisting of plasma and mainly white blood cells.

(d) Blood is a bright-red coloured fluid connective tissue.

(e) A group of cells similar in structure, having a common origin and performing similar functions is called a tissue.