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**Program: BS (MLT)**

**viva assignment  blood banking**

**Submitted to Mam huma imtiaz**

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**Question: short summary of how blood component are separated and prepared?**

**Answer:**

**How blood component are separated:**

Centrifuge force is used to separate the bloodcomponent. Red blood cell, white blood cell, platelet and plasma from each other.

The red blood cell (erythrocyte) goes the bottom of the bag, platelet above from red blood cell, white blood cell and plasma at the very top.

The plasma and red blood cell are collected into different bag under optical supervision using a device is called separator. The white blood cell and platelet are remain in original bag.

The layer of platelet and white blood cell from three or four donor with the same blood type are allowed to flow together and by product is returned to centrifuge process. The layer of leukocyte and thrombocyte is formed.

**Why need blood component separation:**

Separation of blood component allows optimal survival of each constituent. Transfusion of only specific constituent of blood needed avoid the use unnecessary component, which could be contraindicated in a patient. Use of blood component, supplements blood supply add to the blood inventory.

**Preparation of blood component:**

The whole blood which is mixture of cells, colloids and crystalloids can be separated into different blood component namely packed red blood cell (PRBC) concentrate, platelet concentrate, fresh frozen plasma and cryoprecipitate.

**General principles of Component preparation:**

The whole blood is collected as 350 ml or 450 ml in double/ triple/ quadruple or penta bags with CPDA-1 or additive solution. After blood collection component should be separated within 5-8 hours. Component room should be a separated sanitized room.

All precaution to avoid red cell contaminated have to be taken such as the tapping the segment end. Proper balancing of opposite bags, following standard program and protocol described in the manual of refrigerator centrifuge manufacturer.

The program is run with mainly two spin- heavy (5000 G 10-15 min) and light spin (1500 G 5-7 min).

The heavy and light spin configuration varies with manufacture and model. Here G is relative centrifugal force calculated using revolution per minute end rotor length. Use of total automated component separator instrument will allow for preparation of low volume BCs with at recovery of 90%of whole blood platelet.