

High Yield Hints – Haematology

1. Plasma makes 55% of blood volume
2. Each RBC contains 270,000,000 Hemoglobin molecules.
3. Optimum amount of Hb in male is 16 gm / 100 ml and in female it is 13-14 gm / 100 ml.
4. Haemocrit value - It is the percentage of blood sample volume made up of RBC.
5. Life span of RBC - 120 days.
6. Life span of RBC in the transfused blood - 60 days.
7. Life span of foetal RBC - 180 days.
8. Bilirubin is the breakdown product of RBC.
9. Time taken for completing Erythropoiesis is 72 hours
10. **White blood corpuscles**

Neutrophils	70%	
Eosinophils	3 – 8%	
Basophils	0.5%	large granules present
Lymphocytes	20 – 30%	
Monocytes	1%	Largest leucocyte
11. Life span of Platelets is 9 – 10 days.
12. Blood plasma contains 500 proteins.
13. Biological signature is the Antigens (A and B) present on the surface of RBC.
14. **Foetal hemopoiesis** occurs in the blood islands of Yol sac, Liver, Speen and Bone marrow.
15. **H Antigen** is the precursor of A and B antigens.
16. **Thromboplatin** is released from Platelets.
17. **ERYTHROCYTE SEDIMENTATION RATE – ESR**

Rate of settlement of RBC	High ESR indicates infections like TB.
Normal ESR is 3-5 mm / Hr in male and 7-12mm / Hr in female.	
Wintrobe tube is used to measure ESR.	
ESR above 20mm / Hr. is an indication of infection.	
18. **ANTI COAGULANTS**

Heparin, Sodium oxalate, Sodium citrate, EDTA.
19. **Von Willebrand disease** is a bleeding disorder.
20. **DISORDERS RELATED TO BLOOD CELLS**

Polycythemia	High RBC count
Anemia	Low RBC or Hb count

Microcytic anemia	Due to lack of Iron
Megaloblastic anemia	Due to lack of Folic acid and
Pernicious anemia	Due to lack of Cyanocobalamin – Vit. B12.
Aplastic anemia	Due to destruction of Bone marrow.
Lecopenia	Low WBC count due to deficiency of Folic acid.
Leukemia	High WBC count.
Eosinophilia	High Eosinophil count – above 12%.
Septicemia	Blood poisoning due to the toxins from microbes.

21. **RED CELL INDICES** It is the measure of the size and Hb content of RBC.
22. **TRANSFERRIN** It is the plasma protein transporting Iron.
23. **TRANSCOBALAMIN** It is the plasma protein that transports Vit.B12.
24. **HAPTOGLOBINS** **It is the transport substance of Hb products**
They protect cells from the destroyed RBC products.
25. **CYANMETHOGLOBIN** Stable derivative of Hb. It is used to test the Hb. Concentration.
26. **HIRUDIN** Anticoagulant from the salivary glands of leech.
27. **HIRUDIN** An artificial anticoagulant produced from plant by genetic engineering.
28. **NATURAL ANTICOAGULANTS**
Heparin From liver
Plasmin From tissues.
29. **ARTIFICIAL ANTICOAGULANTS**
Used for preventing blood clotting during storage or during experiments.
Sodium oxalate, Sodium citrate, Potassium citrate, Potassium oxalate, EDTA etc are used.
30. **MENADIONE**
It is the synthetic Vit. K used to prevent bleeding after the surgery. Heparin is used during the surgery to prevent blood clotting.
31. **Chilling** also prevent blood clotting in test tubes and blood bags.
32. Life span of RBC is limited because of the **absence of Nucleus**.
33. **Hemoglobin** makes about **95% of RBC**.
34. Eosinophil is the **motile phagocytic cell**.
35. Eosinophils make about 3% of total WBC.
36. Non granular or Mononucleic leucocytes are **Lymphocytes and Monocytes**.
37. **Lymphocytes contain non specific Azurophilic granules**.
38. Blood of Man and Primates is related due to the presence of Antigen and Antibodies.
39. **Perfluorocarbon** is used to make artificial blood.

40. Artificial blood has no antigens so it will not cause agglutination in the recipients body.
41. **Myeloma** is the cancer of **Plasma cells**. Plasma cells are a kind of WBC found in tissues.
42. Haemorrhagic anemia is due to excessive bleeding.
43. Hemolytic anemia is due to rupture of RBC.
44. Nutritional anemia results from malnutrition.
45. **ABNORMAL RBCs.**
Acanthocytes, Echinocytes (Burr cells), Codocytes (Target cells), Schizocytes (Spur cells), Stomocytes, Spherostomocytes.

46. **ROULEAU FORMATION**

It is the abnormal arrangement of RBC. RBC arrange like coins in a stack.

47. Total blood volume is measured using **radio active Chromium**.

48. **ERYTHROPOETIN**

Hormone produced from the kidney that stimulate Erythropoiesis.

49. **Lipemia** or excess fat leads to Greyish greasy plasma.

50. **Ghost cells** are the remnants of RBC without Hb. It contains only the membrane. RBC Ghosts are used to study the structure of Plasma membrane.

51. **Diapedesis** is the squeezing of WBC through the blood capillaries. It is similar to amoeboid movement.

52. **Null cells** are the lymphocytes present in the Lymphoid organs. They have cytotoxic properties. They do not have surface markers. Null cells are called as Natural Killer cells. They destroy infected and tumour cells.

53. **Hemostasis** is the decrease in platelet count. It is characterized by Purpura (haemorrhage under the skin and mucous membrane) .

54. **Antarctic fish** is the only animal with **White blood**.

55. **Blood worm** or **Chironomous larva** is the **only insect with Red blood**.

56. **Buffer of blood** is NaHCO_3 – **Sodium carbonate**.

57. **The ratio of RBC to WBC is 600:1**

58. **BLOOD GROUPS**

Rh factor was discovered by **Landsteiner and Weiner** in 1940.

If a man is Rh positive and mother is Rh negative, the first child will survive.

The Rh factor will detect in the **Foetal blood from the 10th week**.

Anti-A and Anti-B appear in the Foetal blood about 4-8 months after birth. Those present at the time of birth are that of the mother