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**Q 1.**

**Ans. Developmental stages of erythropoiesis .**

Erythropoiesis is the process which produces red blood cells which is development from erythropoietic stem cell to mature red blood cells. It is stimulated by decreased O<sub>2</sub> in circulation, which is detected by the kidneys which then secrete the hormone erythropoietin.

**The stages are as follows:**

Hemocytoblast, which is a pluripotent hematopoietic stem cell.

Common myeloid progenitor, a multipotent stem cell.

Unipotent stem cell.

Pronormoblast.

Basophilic normoblast also called an erythroblast.

Polychromatophilic normoblast.

Orthochromatic normoblast.

Reticulocyte.

## Q 2.

**Ans.** Drop of blood too large or too small. Spreader slide pushed across the horizontal slide in a jerky manner. Failure to keep the entire edge of the spreader slide against the horizontal slide while making the smear. Failure in using appropriate angle for the spreader slide

### Poor smears.

- ⇒ Too large or small blood drop.
- ⇒ Not pushing the spreader in an even motion
- ⇒ Too great or small an angle of the spreader
- ⇒ Speed of stroke used to move the spreader
- ⇒ Clots in the blood
- ⇒ Dirty oily slides

### Common causes of a poor blood smear.

- ⇒ Film which is too thick C. Film which is too long, too wide, uneven thickness and made on a greasy slide.
- ⇒ Drope of a blood to large or to small
- ⇒ Spreader slide pushed across the slide in a jerky manner
- ⇒ Hole in filam:slide contaminated with fat or grease
- ⇒ Failure to push the spreader slide completely across the slide
- ⇒ Failure to keep the spreader slide it 30°angle with the slide

## Q 3.

**Ans.** Granulopoiesis is the process by which committed hemopoietic progenitor cells develop into granulocytes under the influence of various growth factors and cytokines.

Granulopoiesis is a part of haematopoiesis, that leads to the production of granulocytes. A granulocyte, also referred to as polymorphonuclear lymphocyte, is a type of white blood cell that has multi lobed nuclei, usually containing three lobes, and has a significant amount of cytoplasmic granules within the cell.

## Q 4.

### Ans. Iron deficiency anemia.

Iron deficiency anemia is a common type of anemia — a condition in which blood lacks adequate healthy red blood cells. Red blood cells carry oxygen to the body's tissues.

As the name implies, iron deficiency anemia is due to insufficient iron. Without enough iron, your body can't produce enough of a substance in red blood cells that enables them to carry oxygen (hemoglobin). As a result, iron deficiency anemia may leave you tired and short of breath. You can usually correct iron deficiency anemia with iron supplementation. Sometimes additional tests or treatments for iron deficiency anemia are necessary, especially if your doctor suspects that you're bleeding internally.

### **Symptoms.**

Initially, iron deficiency anemia can be so mild that it goes unnoticed. But as the body becomes more deficient in iron and anemia worsens, the signs and symptoms intensify.

Iron deficiency anemia signs and symptoms may include:

Extreme fatigue

Weakness

Pale skin

Chest pain, fast heartbeat or shortness of breath

Headache, dizziness or lightheadedness

Cold hands and feet

Inflammation or soreness of your tongue

Brittle nails

Unusual cravings for non-nutritive substances, such as ice, dirt or starch

Poor appetite, especially in infants and children with iron deficiency anemia

**Causes of iron deficiency anemia include:**

**Blood loss.** Blood contains iron within red blood cells. So if you lose blood, you lose some iron. Women with heavy periods are at risk of iron deficiency anemia because they lose blood during menstruation. Slow, chronic blood loss within the body — such as from a peptic ulcer, a hiatal hernia, a colon polyp or colorectal cancer — can cause iron deficiency anemia.

**A lack of iron in your diet.** Your body regularly gets iron from the foods you eat. If you consume too little iron, over time your body can become iron deficient. Examples of iron-rich foods include meat, eggs, leafy green vegetables and iron-fortified foods

**An inability to absorb iron.** Iron from food is absorbed into your bloodstream in your small intestine. An intestinal disorder, such as celiac disease, which affects your intestine's ability to absorb nutrients from digested food, can lead to iron deficiency anemia

**Pregnancy.** Without iron supplementation, iron deficiency anemia occurs in many pregnant women because their iron stores need to serve their own increased blood volume as well as be a source of hemoglobin for the growing fetus.

**Q 5.**

**Ans.**

**Classify anemia on the basis of morphology.**

Anemia is classified by morphology or pathophysiology. The morphological classification is based partly on the size or volume of the red blood cell. Normocytic would indicate a red blood cell of a normal size or volume. Microcytic indicates an abnormally small cell, and macrocytic indicates an abnormally large cell.

The anemia is also classified by severity into mild (110 g/L to normal), moderate (80 g/L to 110 g/L), and severe anemia (less than 80 g/L) in adult males and adult non pregnant females. Different values are used in pregnancy and children.

Red blood cell morphology is another system for classifying anemia. There are three basic divisions within the morphologic classification system:

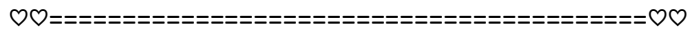
Microcytic -- MCV <80 fL

Macrocytic -- MCV >100 fL

Normocytic -- MCV 80-100 fL

**Example.**

Categorizing an anemia based on morphology is useful in determining the underlying condition. For example, microcytic, hypochromic cells are seen in iron-deficiency anemia, and macrocytic, normochromic cells are characteristic of a deficiency of B12 or folic acid



♡ 《 The End 》 ♡