



Chapter 4: The blood

Plasma

1. Which of the following is responsible for keeping plasma fluid within the blood vessels?
 - a) Hydrostatic pressure
 - b) Osmotic pressure
 - c) Blood pressure
 - d) Pulse pressure

2. Which of the following plasma proteins is mainly responsible for exerting the pressure that keeps plasma fluid within the blood vessels?
 - a) Thyroglobulin
 - b) Immunoglobulin
 - c) Fibrinogen
 - d) Albumin

3. Which of the following is the most abundant plasma protein?
 - a) Thyroglobulin
 - b) Immunoglobulin
 - c) Fibrinogen
 - d) Albumin

4. Which of the following plasma proteins is involved in the clotting of blood?
 - a) Thyroglobulin
 - b) Immunoglobulin
 - c) Fibrinogen
 - d) Albumin

5. Which of the following plasma proteins is involved in neutralising antigens?
 - a) Thyroglobulin
 - b) Immunoglobulin
 - c) Fibrinogen
 - d) Albumin





6. What is the most abundant component of plasma?
- a) Clotting proteins
 - b) Water
 - c) Immunoglobulins
 - d) Albumin
7. What percentage of normal blood is made up of cells?
- a) 50%
 - b) 30%
 - c) 35%
 - d) 45%
8. The fluid which remains after blood has clotted is known as _____.
- a) water
 - b) plasma
 - c) serum
 - d) whole blood

Content of blood

9. How long does it take to make a red blood cell?
- a) 7 hours
 - b) 3 hours
 - c) 7 days
 - d) 3 days
10. Where in the body is the equation $\text{Hb} + \text{O}_2 \leftrightarrow \text{HbO}_2$ driven to the right?
- a) In the lungs
 - b) In the kidneys
 - c) In the heart
 - d) In the brain
11. Which of the following best describes the function of haemoglobin?
- a) Gives red blood cells their colour
 - b) Carries respiratory gases
 - c) Transports iron in the blood
 - d) Supplies oxygen to the tissues





12. Which of the following would decrease the release of oxygen from oxyhaemoglobin?

- Increased tissue metabolism
- Reduced tissue temperature
- Increased tissue carbon dioxide production
- Reduced red blood cell numbers

13. Match the term with its description.

Term:

- Myelocyte
- Polymorphonuclear
- Granulocyte
- Neutrophil
- Eosinophil
- Monocyte
- Langerhans cell
- Basophil
- Kupffer cell

Description:

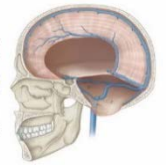
- Generic term for a white cell with particles in its cytoplasm
- White cell that synthesises histamine
- Cell that differentiates into a macrophage
- Term meaning irregularly shaped nucleus
- Fixed microphage of the skin
- Immature white blood cell
- White cell associated with allergy
- Fixed microphage of the liver
- Leukocyte whose main function is phagocytosis

14. Fill in the blanks to complete the paragraph on the ABO blood grouping system.

Red blood cells have groups of proteins on their surface, called _____. There are several of these protein groups, and clinically the most important is the ABO system. An individual's blood grouping is determined by the _____ they possess. An individual with group O has _____. An individual with group A has _____, and someone with group B has _____. A person with blood group AB has _____. These blood groups are important in blood donation. Someone given the incorrect blood may suffer a _____.



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15. Enter a tick in the appropriate column to match the statements with the corresponding blood types.

Statements	Group O	Group A	Group AB
Sometimes referred to as the 'universal donor'			
Plasma contains anti-B antibodies only			
Red cells display A and B antigens			
Universal recipient			
Plasma contains neither anti-A nor anti-B antibodies			
May be given to blood group B			
May receive blood group AB			

16. Enter a tick in the appropriate column to indicate whether the following events are associated with the extrinsic, intrinsic or the final common pathway.

Events	Extrinsic pathway	Intrinsic pathway	Final common pathway
Triggered by damage to vessel endothelium			
Fibrin is produced			
Activated within seconds of tissue damage			
Prothrombin is converted to thrombin			
Triggered by damage to tissue outwith the circulation			
Requires thromboplastin			
Results in stable clot			





17. Arrange the descriptions of the physiological response to hypoxia in the correct sequence.

Sequence:

- Step 1: _____
- Step 2: _____
- Step 3: _____
- Step 4: _____
- Step 5: _____
- Step 6: _____

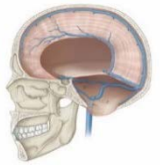
Description:

- Red blood cell numbers rise
- Division of stem cells in the bone marrow is stimulated
- Oxygen-carrying capacity of the blood is increased
- Kidneys secrete erythropoietin into the blood
- Tissue hypoxia
- Tissue hypoxia is reversed

18. Enter a tick in the appropriate column to match the statements to the relevant blood cell.

Statements	Red blood cell	White blood cell	Platelet
Transports oxygen			
Responsible for immunity			
Capable of phagocytosis			
The most numerous blood cell			
Contains a nucleus			
Responsible for clotting			
Contains haemoglobin			





Module review

19. Match the blood disorder with its definition.

Blood Disorder:

- Sickle cell anaemia
- Iron deficiency anaemia
- Pernicious anaemia
- Aplastic anaemia
- Acute myeloblastic leukaemia
- Haemophilia B
- Vitamin K deficiency
- Disseminated intravascular coagulation
- Neutropenia

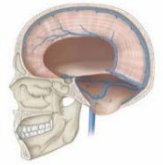
Definition:

- Leads to the inappropriate activation of the clotting system
- Causes abnormally shaped red blood cells due to abnormal haemoglobin
- Due to abnormal clotting factor IX
- Underlying problem in haemorrhagic disease of the newborn
- A consequence of agranulocytosis
- A chronically bleeding duodenal ulcer is likely to lead to this
- Caused by complete bone marrow failure
- Frequent consequence of gastrectomy
- Commonest form of this disease in adults

20. Fill in the blanks to complete the paragraph on the haemolytic disease of the newborn:

In this disorder, the mother's immune system makes _____ to the baby's _____, leading to _____ of fetal cells. The commonest antigen involved is the _____ antigen. The problem only arises in _____, and the mother is always _____ for the antigen concerned, the father _____ and the baby _____.





21. What are thrombocytes used for?
- a) Blood clotting
 - b) Body defence
 - c) Transport of glucose
 - d) Transport of oxygen
22. Which of the following are the most active phagocytes?
- a) Neutrophils and basophils
 - b) Lymphocytes and eosinophils
 - c) Basophils and monocytes
 - d) Neutrophils and monocytes
23. Which of the following statements is true?
- a) Erythropoietin is a hormone that is released by the kidney to stimulate red blood cell formation.
 - b) Erythropoietin is released by the lungs to stimulate red blood cell formation.
 - c) Erythropoietin is released by the kidney to stimulate red and white blood cell formation.
 - d) Erythropoietin causes the recycling of iron for production of red blood cells.
24. Where are many types of blood cells produced?
- a) Liver
 - b) Red bone marrow
 - c) Spleen
 - d) Pancreas

