

Home assignment for MBBS/BDS students

General Physiology

Questions :

1. Define homeostasis? What is negative feedback? Describe regulation of arterial blood pressure as an example of negative feedback mechanism.
2. Differences between positive and negative feedback?
Why positive feedback is called vicious cycle? Explain along with graph.
3. Classify body fluid compartment? Differentiate between ECF and ICF?
4. What is gain?
What is milieu interieur/internal environment , and why so called?
5. Define cell? What are the parts of a cell? Draw and label a cell membrane?
6. What do you mean by fluid mosaic model of cell membrane? Enumerate the functions of cell membrane and membrane proteins?
7. Short notes on: a) Mitochondria b) Lysosome
8. Define intercellular communication? Classify with functions along with diagram.
9. Define membrane transport? Classification with example?
10. Definition:
 - a) Active transport
 - b) Passive transport
 - c) Co-transport, counter-transport
 - d) RNA
 - e) Simple diffusion, facilitated diffusion
 - f) Exocytosis, endocytosis, phagocytosis, pinocytosis.
11. Criteria of active transport?
Differences between primary and secondary active transport?
12. Short notes: i) $\text{Na}^+ - \text{K}^+$ pump ii) Diffusion iii) Osmosis
13. Differentiate between active transport and facilitated diffusion. Differentiate between osmosis and diffusion.
14. What is membrane potential? Importance of membrane potential.
15. What is RMP ? Why RMP is negative?
16. What is action potential? Draw and label an action potential of cardiac muscle.
17. What is plateau? Why it occur?
18. Short notes on: a) Muscle tetany b) Neuromuscular junction
19. Write down the steps of skeletal muscle contraction and relaxation?

Blood

1. List the name of plasma proteins with their normal values & site of origin.
Functions of important plasma proteins.
2. Composition of blood.
Name the blood cells with their normal values and site of origin.
Properties of blood. Differentiate between plasma & serum.

3. Steps of erythropoiesis. Site of erythropoiesis, peculiarities of RBC, factors necessary for development of RBC. Advantages of biconcave shape of RBC.
4. Normal value of Hb, classify Hb, steps of synthesis of Hb, structure of Hb. Differentiate between HbA & HbF.
5. State the catabolism of RBC. Define jaundice. Classify jaundice. Differentiate among all types of jaundice. What is van den Bery reaction. Normal value of bilirubin.
6. Red cell indices with their normal values. Classify anemia with example. Normal routine investigations for anemia.
7. Define & classify thalassemia. Site of observation of jaundice & anemia clinically. Define ESR & polycythemia. Causes of increased ESR. What is erythropoietin? Site of secretion of erythropoietin.
8. Classify WBC. Absolute & differential count of WBC, functions & properties of WBC.
9. Short notes on :
 - a) Phagocytosis
 - b) Macrophage
 - c) Lymphocyte
10. Define immunity. Classify immunity with example. Differentiate between active & passive immunity. Classify immunoglobulin with their functions. Define antigen & antibody.
11. Define hemostasis. Steps of hemostasis. Morphology of platelet. Steps of formation of platelet plug. Steps of extrinsic pathway for initiating blood clotting.
12. List the blood clotting factors. State the intrinsic pathway of blood coagulation.
13. Name the anticoagulants with their mechanism of action. Classify bleeding disorder. Name the screening test for bleeding disorder with their normal value.
14. Define hemophilia with types, features & diagnosis. Causes of thrombocytopenia. What is erythroblastosis fetalis? How does it occur? How can it be prevented?
15. Name the major blood groups. List the details about ABO blood grouping system & Rh blood grouping system. What is cross matching? What measures have taken for safe blood transfusion?
16. What are the indications of blood transfusion? Hazards of mismatched blood transfusion. Complications of blood transfusion.
17. Normal daily requirements of iron. How iron is metabolized in our body? Causes of Leukocytosis, leukemias & leukopenia.
18. List the name of vit k dependent clotting factors.

