

Lecture Exam 3 Objectives

Upon completion of this unit, the student should be able to achieve the following performance objectives.

1. Describe the functions of the cardiovascular system.
2. Describe the formed elements of the blood and describe the functions of each.
3. Identify the correct terminology for abnormal laboratory levels for each formed element including:
anemia, polycythemia, leukocytosis, leukopenia, thrombocytosis, and thrombocytopenia.
4. List the major plasma components and their functions. State the functions of hemoglobin, serum globulins, and serum albumins.
5. Compare the composition of plasma and serum.
6. Explain the steps involved in the clotting of blood, using the following terms: platelets, platelet factors, thromboplastins, prothrombin, thrombin, fibrinogen, Ca^{2+} and vitamin K.
7. Differentiate between intrinsic and extrinsic pathways of the clotting cascade.
8. Differentiate between the antigens and antibodies in the ABO and Rh blood types.
9. Explain the meaning of the following blood types: A, B, AB, and O, as well as the positive or negative designation for the Rh antigen.
10. Identify the blood types that are known as universal donor and universal recipient and explain why these blood types have these designations.
11. Identify two ways that Rh incompatibility can occur.
12. Explain the condition that can result in the development of erythroblastosis fetalis.
13. Describe the location and structure of the heart.
14. Describe the path of a drop of blood from the superior vena cava or inferior vena cava through the heart out of the aortic arch, listing all chambers, valves, and vessels involved.
15. State the function of the atria, valves, chordae tendineae, papillary muscles, and ventricles of the heart.
16. Describe the components and function of the intrinsic cardiac conduction system.
17. Trace an impulse through the conduction system of the heart.
18. Diagram and describe a typical ECG/EKG pattern and relate it to pressure changes and heart sounds.
19. Identify the area of the CNS concerned with cardiovascular regulation.
20. Describe factors which regulate heart rate, including baroreceptors and the autonomic nervous system.
21. Describe the heart rhythm using the following terms: asystole, fibrillation, tachycardia, bradycardia, arrhythmia, and ectopic.
22. Describe events occurring during systole and diastole.
23. Compare and contrast the structure of an artery, arteriole, vein, venule, and capillary.
24. Discuss the structure and function of a capillary network.

25. Discuss how arterial blood pressure is influenced by cardiac output, stroke volume, and peripheral resistance.
26. Explain the measurement of blood pressure correctly identifying the systolic and diastolic pressures.
27. Describe the fetal circulatory system and the changes which occur in it following birth.
28. Describe the structure and importance of the hepatic portal system, including the unique content of blood passing through the hepatic portal vein.
29. Describe the functions of the lymphatic system and the primary lymphatic structures.
30. Describe the functions of the spleen.
31. Briefly describe the structures and functions of the immune system and distinguish between antigens and antibodies.
32. Describe the body's three lines of defense against pathogens, including the difference between nonspecific (innate) and specific (adaptive) defenses.
33. Describe the functions of the upper and lower respiratory tracts.
34. Follow the flow of air from the nasal cavities to the alveoli, identifying every structure through which the air passes.
35. Discuss the mechanism of breathing and outline the sequence of events and pressure changes for normal quiet inspiration and expiration.
36. Identify the differences between atmospheric and alveolar pressures during breathing.
37. Discuss the primary factors that influence the respiratory control center and its control of respiratory rate and depth.
38. Identify the primary stimulus for breathing.
39. Describe the Hering-Breuer reflex.
40. Describe the following lung volumes and capacities: tidal volume (TV), residual volume (RV), total lung capacity (TLC), and vital capacity (VC).
41. Explain the role of surfactant in maintaining alveolar stability.
42. Describe the manner and forms in which O₂ and CO₂ are carried in the blood.
43. Describe the principle of partial pressures of gases and its importance in explaining gas movements between alveoli and blood.
44. Discuss gas exchange in alveoli between the capillary blood and the alveoli.
45. Discuss gas exchange in the tissues between capillary blood and the cells.
46. Describe the characteristics of the following type of respiration: apnea, dyspnea, tachypnea, and bradypnea.