STATION 1

1. Which of the following human body systems is NOT being tested in Anatomy & Physiology this year?
   A. Cardiovascular  
   B. Excretory  
   C. Nervous  
   D. Lymphatic

2. How many chambers are in the normal adult heart?
   A. 3  
   B. 4  
   C. 5  
   D. 6

3. In the blood, which component makes up the largest fraction of blood?
   A. Erythrocytes  
   B. Leukocytes  
   C. Thrombocytes  
   D. Plasma

4. Which of the following is included in the calculation of hematocrit?
   A. Erythrocytes  
   B. Fibrinogens  
   C. Thrombocytes  
   D. Albumins

5. True/False: Every artery in the body carries blood away from the heart.
   A. True  
   B. False

6. True/False: Every vein in the body carries blood towards the heart.
   A. True  
   B. False
7. Which tissue is this histological slide taken from?
   A. Artery tissue
   B. Vein tissue
   C. Capillary tissue
   D. Cardiac tissue

8. Why did you select your answer?
   A. There appears to be considerable thickness in the layers around this blood vessel.
   B. There are nuclei present.
   C. There are intercalated discs present.
   D. No clue :D

9. True/False: There is muscle present in the histological slide.
   A. True
   B. False

10. Is histology considered to be Anatomy or Physiology?
    A. Anatomy
    B. Physiology
    C. Both
    D. Neither
STATION 3

11. Which of the following parts of a normal EKG is unclear as to its purpose?
   A. P wave
   B. QRS complex
   C. T wave
   D. U wave

12. Which of the following parts of a normal EKG involves atrial depolarization?
   A. P wave
   B. QRS complex
   C. T wave
   D. U wave

13. Which of the following parts of a normal EKG involves ventricular repolarization?
   A. P wave
   B. QRS complex
   C. T wave
   D. U wave

14. Which of the following parts of a normal EKG involves ventricular depolarization?
   A. P wave
   B. QRS complex
   C. T wave
   D. U wave

15. True/False: The SA node contains pacemaker cells.
   A. True
   B. False

16. True/False: The AV node contains pacemaker cells.
   A. True
   B. False

17. __________ causes relaxation of cardiac tissue.
   A. Depolarization
   B. Repolarization
18. What is the formal name for blood clotting?
   A. Reticulation
   B. Vascular Spasm
   C. Neutralization
   D. Coagulation

19. Which vitamin is critical for proper blood clotting?
   A. K
   B. C
   C. A
   D. E

20. In the common clotting pathway, which specific entity converts fibrinogen to fibrin?
   A. Plasmin
   B. Thrombin
   C. Plasminase
   D. Prothrombinase

21. Which of the following ions are most crucial for blood clotting?
   A. Sodium ions
   B. Potassium ions
   C. Manganese ions
   D. Calcium ions

22. What is the process of stopping bleeding formally referred to as?
   A. Homeostasis
   B. Erythrostasis
   C. Hemostasis
   D. None of the above
STATION 5

23. What is the correct flow of blood through the heart?
   A. Right Atrium, Right Ventricle, Lungs, Left Ventricle, Left Atrium
   B. Right Ventricle, Right Atrium, Left Atrium, Left Ventricle, Lungs
   C. Right Atrium, Right Ventricle, Lungs, Left Atrium, Left Ventricle
   D. Right Ventricle, Right Atrium, Left Ventricle, Left Atrium, Lungs

24. Which valve separates the Right Atrium and Right Ventricle?
   A. Bicuspid Valve
   B. Aortic Valve
   C. Pulmonary Valve
   D. Tricuspid Valve

25. Which valve separates one of the ventricles from the systemic circulation?
   A. Bicuspid Valve
   B. Aortic Valve
   C. Pulmonary Valve
   D. Tricuspid Valve

26. Which valve separates one of the ventricles from the lung circulation?
   A. Bicuspid Valve
   B. Aortic Valve
   C. Pulmonary Valve
   D. Tricuspid Valve

27. Which valve separates the Left Atrium and Left Ventricle?
   A. Bicuspid Valve
   B. Aortic Valve
   C. Pulmonary Valve
   D. Tricuspid Valve
STATION 6

Perform the following calculations.

28. Calculate systolic pressure if diastolic pressure is 50 mmHg and pulse pressure is 60 mmHg.
   A. 10 mmHg
   B. 20 mmHg
   C. 50 mmHg
   D. 110 mmHg

29. Calculate mean arterial pressure if pulse pressure is 30 mmHg and systolic pressure is 90 mmHg.
   A. 60 mmHg
   B. 70 mmHg
   C. 100 mmHg
   D. 120 mmHg

30. Calculate how many heart beats will happen in 2 hours with a heart rate of 60 beats per minute.
   A. 120 beats
   B. 360 beats
   C. 3600 beats
   D. 7200 beats

31. In one experiment, you determine that an individual pumps a total 25 liters (L) of blood in a total of 5 minutes when at rest. In another experiment (also at rest), you determine that over the course of 26 minutes, the individual’s heart beat a total of 1950 times. What is the best estimate of resting stroke volume for this individual in milliliters per minute (mL/min)? Note that 1000 mL = 1 L.
   A. 375 mL/min
   B. 75 mL/min
   C. 67 mL/min
   D. 15 mL/min
STATION 7

REST STATION

Please follow our page to receive important updates and try out practice questions!

Twitter handle: @ncsoanatphys
STATION 8

32. True/False: Lymph nodes are the most abundant entities in the lymphatic system.
   A. True
   B. False

33. Which of the following is a function of the lymphatic system?
   A. Drain excess interstitial fluid.
   B. Immunity
   C. Transportation of water-soluble vitamins.
   D. A & B

34. True/False: Lymphatic vessels convey lymph unidirectionally.
   A. True
   B. False

35. The thoracic duct drains which fraction of the body roughly?
   A. 1/10
   B. 1/4
   C. 1/2
   D. 3/4

36. The right lymphatic duct drains which fraction of the body roughly?
   A. 1/10
   B. 1/4
   C. 1/2
   D. 3/4
37. The right lymphatic duct drains into the _________________ vein.
   A. Right subclavian
   B. Left subclavian
   C. Right jugular
   D. Left jugular

38. What is the specific name of lymphatic capillaries located in the villi of the small intestine?
   A. Peyer’s patches
   B. Lacteals
   C. Cisterna chyli
   D. Lymph nodes

39. True/False: Pressure is the main driver of the flow of lymph throughout the body.
   A. True
   B. False

40. Which white blood cell type matures in the tissue that you selected in the previous question?
   A. T cells
   B. B cells
   C. Neutrophils
   D. Megakaryocytes
STATION 10

Utilize the letters in the diagram to identify the named lymphatic structures below. Each letter is used exactly once.

41. Cisterna Chyli
42. Axillary Lymph Nodes
43. Cervical Lymph Nodes
44. Thoracic Duct
45. Inguinal Nodes
Utilize the letters in the diagram to identify the parts of a lymph node. Each letter is used exactly once.

46. Germinal Center
47. Afferent Vessels
48. Trabeculae
49. Lymphoid Follicle
50. Efferent Vessels
51. Medullary Sinus
STATION 12

52. Which lymphatic organ contains white pulp and red pulp?
   A. Thymus
   B. Liver
   C. Spleen
   D. None of the above

53. Which type of bone marrow is considered a part of the lymphatic system?
   A. Red
   B. White

54. What is a function of the type of bone marrow you selected in the previous question?
   A. Fat Storage
   B. Produce Platelets
   C. Produce Red Blood Cells
   D. B & C

55. Roughly how many lymph nodes are there in a healthy adult?
   A. 6
   B. 60
   C. 600
   D. 6000
56. True/False: There exist 3 pairs of tonsils in a normal human being.
   A. True
   B. False

57. Based on your answer to the previous question, select the correct choice.
   A. The answer to the previous question is true.
   B. The answer to the previous question is false because there exists an additional tonsil in addition to the 3 pairs of tonsils.
   C. The answer to the previous question is false because there exist only two pairs of tonsils along with a fifth tonsil that is not paired.
   D. None of the above.

58. Based on your answer to the previous question, select the correct choice.
   A. There exist pairs of pharyngeal, lingual, and palatine tonsils.
   B. There exist pairs of pharyngeal, lingual, and palatine tonsils, along with one additional adenoid tonsil.
   C. There exist pairs of pharyngeal and lingual tonsils, along with one palatine tonsil.
   D. There exist pairs of lingual and palatine tonsils, along with one pharyngeal tonsil.

59. The tonsils provide immunity against foreign substances that are either inhaled or ingested.
   A. True
   B. False
STATION 14

REST STATION

Twitter handle: @ncsoanatphys
60. Which of the following is a function of the kidneys?
   A. Hormone production
   B. Regulation of blood pressure
   C. Production of white blood cells
   D. A & B

61. Because the kidneys are posterior to the abdominal cavity’s peritoneum, they are deemed __________ .
   A. Anteroperitoneal
   B. Superficial
   C. Superolateral
   D. Retroperitoneal

62. True/False: The kidneys filter out incoming arterial blood.
   A. True
   B. False

63. Choose the path of urine flow that is correct of the following.
   A. Collecting Duct, Minor Calyx, Major Calyx, Renal Pelvis, Ureter, Bladder
   B. Renal Pelvis, Collecting Duct, Minor Calyx, Major Calyx, Ureter, Bladder
   C. Collecting Duct, Renal Pelvis, Minor Calyx, Major Calyx, Ureter, Bladder
   D. Collecting Duct, Major Calyx, Minor Calyx, Renal Pelvis, Ureter, Bladder
STATION 16

Utilize the letters in the diagram to identify the main aspects of a kidney. Each letter is used exactly once.

64. Renal Artery
65. Renal Pelvis
66. Major Calyx
67. Renal Cortex
68. Renal Vein
69. Minor Calyx
STATION 17

70. Which part of the nephron is primarily responsible for filtration?
   A. Renal Corpuscle
   B. Proximal Convoluted Tubule
   C. Loop of Henle
   D. Distal Convoluted Tubule

71. Which part of the nephron is primarily responsible for secretion?
   A. Renal Corpuscle
   B. Proximal Convoluted Tubule
   C. Loop of Henle
   D. Distal Convoluted Tubule

72. Which part of the nephron is capable of reabsorbing water and salt?
   A. Proximal Convoluted Tubule
   B. Loop of Henle
   C. Distal Convoluted Tubule
   D. All of the above

73. True/False: Ammonia is toxic to humans and is therefore secreted in the nephron.
   A. True
   B. False
Utilize the letters in the diagram to identify the main aspects of the nephron. Each letter is used exactly once.

74. Afferent Arteriole
75. Ascending Loop of Henle
76. Collecting Duct
77. Glomerulus
78. Descending Loop of Henle
STATION 19

79. Vasopressin acts on which of the following aspects of the nephron?
   A. Loop of Henle
   B. Distal Convoluted Tubule
   C. Collecting Duct
   D. B & C

80. Would you expect vasopressin to increase or decrease urine output?
   A. Increase
   B. Decrease

81. What is another name for vasopressin?
   A. Thymosin
   B. Prostaglandin
   C. Antidiuretic Hormone
   D. Cortisol

82. Urine is generally __________.
   A. Acidic
   B. Basic
   C. Neutral
STATION 20

You and your partner are medical laboratory technicians who are trying to determine the glomerular filtration rate (GFR) of a patient at the request of a nephrologist.

First, you both conduct tests to determine the urine concentration of the patient's urine. After collecting an initial urine sample from the patient, you both determine that the urine concentration is 0.173 g/mL.

Next, you both attempt to estimate the urine flow rate by assessing urine volume as a variable of time while the patient urinates. It is determined that the urine flow rate for the patient is 1800 mL/min.

Lastly, you both determine the blood plasma concentration to be 2.5 g/mL.

83. What is the GFR of the patient in mL/min?
   Round your answer to the nearest whole number.

   A. 88 mL/min
   B. 105 mL/min
   C. 124 mL/min
   D. 179 mL/min

84. Is this a healthy GFR?
   A. Yes
   B. No

85. True/False: GFR is an estimate of the total fluid filtered in the distal convoluted tubule as a function of time.
   A. True
   B. False