General AP2 Question

Include all the program so do them by section

1. The anterior surface of the heart is mostly formed by the:

   A. right ventricle.

   B. right atrium.

   C. right auricle.

   D. left ventricle.

   E. left atrium.

2. The most important job of the heart is to:

   A. get oxygen to our lungs.

   B. carry hormones to our tissues for growth and stimulation.

   C. prevent the accumulation of waste products in our organs.

   D. deliver nutrients to our brain and other vital organs.

   E. send blood to our capillary beds to facilitate exchange of materials with the cells.

3. If a person's blood shows a hematocrit reading of 45, it means:

   A. that he is anemic.

   B. that he has more formed elements than fluid in his blood.

   C. forty-five percent of his blood volume is due to RBC'S and 55% due to plasma.

   D. forty-five percent of his blood volume is due to plasma and the rest is due to red blood cells.

4. Indicate the answer which does not belong with the others on this list.

   A. foramen ovale

B. ligamentum arteriosus

C. coronary sinus

D. ductus arteriosus

5. When a nerve impulse spreads from the S-A node toward the bundle of his, it

A. goes directly through the atrioventricular valves to get there.

B. is slowed down at the A-V node, thus allowing blood to be pushed upon at the same time the impulse arrives in the septum.

C. moves over both right and left atria simultaneously.

D. All of the above

E. B and C only

6. The following structures and vessels are listed in the sequence which blood follows as it passes thru part of the heart. Which of the following is out of order?

A. pulmonary venules

B. pulmonary veins

C. right atrium

D. bicuspid valve

E. left ventricle

7. Blood group incompatibilities cause no problem when plasma rather than whole blood is used for transfusion. This indicates that the blood-group antigens are associated with

A. serum.

B. plasma.

C. blood cells.

D. clotting elements.

E. antibodies.

8. Which one of the following listed occurs thirdly?

A. contraction of the atria

B. depolarization of the bundle of his

C. depolarization of the SA node

D. depolarization of purkinje fibers

9. Since ? causes sluggish movement of blood through vessels, it makes the heart contract more forcefully and thus increase it's pressure.

A. high blood viscosity

B. stroke volume

C. peripheral resistance to blood flow

D. venous return to the heart

E. cardiac output

10. The main function of blood capillaries is to:

A. permit exchange of materials across their walls to the tissue spaces.

B. decrease arterial blood pressure.

C. Both A and B

D. Neither A nor B

11. A red marrow biopsy is ordered for two patients -- one a child and the other an adult. The specimen is taken from the tibia of the child but from the iliac crest of the adult. Explain why different sites are used to obtain marrow samples in adults and children.

A. In adult, red marrow is found chiefly in the flat bones of the skull and pelvis, ribs, sternum and proximal epiphyses of the humerus and femur.

B. In children, red marrow is found in the bone marrow cavities of all the long bones.

C. Both A and B

D. Neither A nor B

12. At any one time, most of the blood in the circulatory system is in the:

A. heart.

B. arterioles.

C. large arteries.

D. venous system.

E. pulmonary system.

13. The systolic arterial pressure taken in the arm measures the greatest pressure of blood against the:

A. aorta.

B. subclavian artery.

C. brachial artery.

D. brachycephalic artery.

14. Of the following, the most dangerous kind of transfusion reaction (due to incompatible blood) results from agglutination of

A. recipient's serum by donor's cells.

B. the donor's cells by recipient's cells.

C. recipient's cells by donor's serum.

D. donor's cells by recipient's serum.

15. Which statement about capillaries is not true?

A. Capillaries are microscopic vessels whose walls are one cell thick.

B. Blood pressure is lowest in capillaries.

C. Velocity of blood flow is slowest in capillaries.

D. Many capillaries are smaller than whole cells.

E. All of the above.

16. In the hospital, a patient's arterial blood pressure was recorded by auscultation and found to be 145/80 mm Hg. In the process of examining this patient, the nurse probably noted that:

A. the intermittent sound was heard continuously as the pressure of the cuff was lowered.

B. the intermittent sound disappeared as the cuff was lowered to 145 mm Hg.

C. the intermittent sound began to appear at 145 mm Hg as the pressure in the cuff was being lowered.

D. the sounds became continuously intense from the 80 mm Hg mark right to the 0 mm Hg mark.

E. the pulse pressure was abnormally large.

17. On the basis of this information, the differential count is:

A. abnormal because there are no basophils.

B. abnormal because all cell types are low.

C. normal.

D. can't be determined from the information given.

18. A person can be "sensitized" to RH^+ blood by:

A. receiving sensitive blood from A RH^- donor.

B. being RH negative and receiving a transfusion of RH^+ blood.

C. Both A and B

D. Neither A nor B

19. In the sequence of vessels leading away from the heart, which of the following is the most accurate description?

A. venule, vein, vena cava, aorta, artery

B. aorta, capillary, vein

C. aorta, artery, arteriole, capillary bed, venule, vein, vena cava

D. arteriole, venule, artery, vein, aorta, vena cava

E. None of the above

20. Which of the following would not influence venous return:

A. contraction of skeletal muscles squeezing veins.

B. higher pressure in capillaries than in veins, forcing blood toward heart.

C. gravity.

D. dilation of veins.

E. exchange of materials at capillary bed.

21. In which of the following ways do buffers react with relatively strong acid solutions in the body?

A. Buffers accelerate acid production.

B. Buffers neutralize relatively strong acid solutions.

C. Buffers replace of relatively strong acid solution with one of weaker strength.

D. Buffers soak up the strong alkaline products of metabolism.

E. All of the above

22. Erythroblastosis is a serious condition because:

A. fetal oxygen-carrying capacity is greatly diminished.

B. the mother is unable to have any more children.

B. the mother may develop RH antibodies to RH positive blood.

D. the mother's red blood cells are destroyed by the RH^{+}.

E. Rhogam only helps those women who help themselves.

23. With the progressive change from capillaries to venules to veins, which one of the following statements is incorrect?

A. The diameters of the individual vessels increase.

B. The total cross-sectional area begins to increase.

C. The thickness of the vessel walls increases.

D. The velocity increases.

E. None of the above

24. If an individual stands at attention for a prolonged period, it can be expected that his/her ? would be ? .

A. arterial blood pressure; moderately increased

B. venous pressure; moderately increased

C. blood pressure; uniformly increased

D. cardiac output; initially increased

25. Which of the following is a true statement?

A. Arteriosclerosis and atherosclerosis are synonymous.

B. The proportion: CO = BP/R was first used and explained by a great cardiac physiologist by the name of WM. Harvey.

C. A heart attack is the same as a CVA

D. If the mitral valve does not closed tightly, the amount of blood pumped into the aorta with each ventricular contraction tends to decrease.

E. All of the above

26. A student determines her blood type in the laboratory. She finds that clumping occurs in the Anti-D sera and in the Anti-A sera. What blood type does she have?

A. type A^+

B. type B^+

C. type C^+

D. type D^+

E. type O^+

27. The "right atrium is to the venae cavae" as the "left atrium is to

A. the pulmonary veins".

B. the coronary sinus".

C. the aorta".

D. the pulmonary artery".

E. the inferior vena cava".

28. Circulatory shock occurs whenever the ? or blood volume is too low to supply the tissues with oxygen and nutrients.

A. arterial blood pressure

B. venous blood pressure

C. cardiac output

D. heart rate

E. none of the above

29. The neutrophil function is to protect the body against infection. it's major weapon is ? and it works primarily in the ? .

A. phagocytosis, tissue spaces

B. immunity lymph nodes

C. antibody production, blood stream

D. coagulation; ruptured blood vessel

30. Sickle cell anemia is said to produce a vicious cycle since the stimulus, ?, causes the sickling to begin, and the resulting destruction produces low oxygen which causes ?.

A. hypoxia; hypoxia

B. precipitation of hemoglobin; more sickling

C. hypoxia; more sickling

D. RBC fragility; hemoglobin precipitation

31. Which of the following statement is "true"?

A. The myocardium is the name of the muscular portion of the arteries and veins.

B. Blood can be preserved for future use by adding water to it to thin it out.

C. Individuals with A^- blood can receive blood from others who have either A^- or O^- blood types.

D. The formation of a clot in a branch of the coronary artery is known as coronary occlusion or obstruction.

E. The principal function of the spleen is to destroy

lymphocytes.

32. One of the reasons that blood can not flow into the coronary arteries during systole of the heart is that

A. valve leaflets cover the coronary orifices during systole.

B. the force of the blood pressure is too weak to get the blood out during systole.

C. blood can only be driven out during diastole.

D. the coronary arteries only need blood when their tissues are experiencing hypoxia.

E. None of the above

33. Since mild shock is a "stress" to the body, the ? fires; this causes the adrenal medulla to release ? , thus further responding to the stress.

A. sympathetic nervous system; epinephrine

B. parasympathetic nervous system; adrenalin

C. central nervous system; ADH

D. peripheral nervous system; aldosterone

E. autonomic nervous system; renin

34. A differential blood count provides information concerning what?

A. the abundance of red blood cells

B. the viscosity of the blood

C. the clotting time

E. the number of white blood cells in a blood smear

35. During early atrial systole and late ventricular diastole,

A. the blood will flow directly from the vena cavae and pulmonary veins, respectively into the atria and then the ventricles of the heart.

B. atrial contractions will put a sizeable amount of push upon the blood to get it into the right and left ventricles.

C. Both A and B

D. Neither A nor B

36. Patients, with liver disease or defective gastrointestinal fat absorption, frequently have serious bleeding problems because

A. there is a deficiency of platelet cell fragments produced by the liver.

B. there is not enough ATP to synthesize fibrinogen.

C. there is a deficiency of Ca^{++} in the blood.

D. there is a deficiency of bile salts which are necessary for vitamin K absorption and vitamin K an essential factor in hepatic synthesis of prothrombin and other clotting factors.

E. All of the above

37. The lymphatic vessels transport particulate matter such as ? away from the interstitial spaces - such particles being too large for direct absorption into the blood capillaries.

A. glycogen

B. starch

C. amino acids

D. vitamins

E. large protein molecules

38. In the general feedback regulating red blood cell production, which of the following processes is out of order?

A. The stimulus, hypoxia, increases erythropoiesis.

B. Increased RBC production decreases hypoxia.

C. Increased oxygen again causes erythropoiesis.

D. All of the above.

E. None of the above.

39. The inability to provide sufficient platelets to initiate blood clotting is one of the most frightful aspects in the condition of:

A. hemolytic disease of the newborn.

B. sickle cell anemia.

C. leukemia.

D. atherosclerosis.

E. transfusion reactions.

40. The atrioventricular valve that is on the same side of the heart as the origin of the pulmonary artery is named the

A. tricuspid valve.

B. bicuspid valve.

C. mitral valve.

D. semilunar valve.

41. The "lubb-dup" sounds have practical clinical value because they provide information concerning the

A. strength of arterial contractions.

B. power of papillary muscles.

C. efficiency of heart valves.

D. foramen ovale.

E. venae cavae.

42. The lymphatic system:

A. drains fluid and proteins that form in the tissue spaces.

B. returns excess fluid from the interstitial spaces to the circulatory system.

C. includes the thoracic duct and numerous lymph nodes.

D. All of the above

E. None of the above

43. In which circulation do the arteries carry mainly oxygenated blood?

A. pulmonary circulation of adults

B. systemic circulation of adults

C. both A and B

D. neither A nor B

44. What would you call the cavity that lies between the lungs? The heart lies in this cavity and the diaphragm forms the floor:

A. abdominal cavity.

B. pleural cavity.

C. pelvic cavity.

D. peritoneal cavity.

E. mediastinum.

45. The period of time, in which the heart chambers are receiving blood and the myocardium is in a relaxed position, is termed:

A. a heart attack.

B. diastolic phase.

C. diastolic phase.

D. systolic phase.

E. bleeding time.

46. In the capillaries:

A. blood hydrostatic pressure (BHP) tends to cause filtration of fluid from the vessels, and interstitial fluid hydrostatic pressure tends to move fluid into the vessels.

B. blood hydrostatic pressure promotes filtration of fluid from the vessels and blood osmotic pressure promotes movement of fluid back into the blood stream.

C. Both A and B

D. Neither A nor B

47. These are events in clotting of blood ---

1. severing of a vessel

2. clot retraction

3. fibrin formation

4. agglutination of platelets

Put the answers in correct order

A. 1,2,3,4

B. 2,3,4,1

C. 3,4,1,2

D. 4,1,2,3

E. 1,4,3,2

48. Which of the following is "not" found in or attached to the ventricles?

A. trabeculae carnae

B. papillary muscles

C. pectinate muscles

D. fossa ovalis

E. semilunar valves

49. Systole is a term "usually" referring to:

A. the relaxation of the heart during the cardiac cycle.

B. the makeup of the wall of the heart.

C. the integrity (or makeup) of the pericardium.

D. the conduction system of the heart.

E. contraction of the ventricles of the heart.

50. Rate and direction of fluid exchange between capillaries and interstitial spaces are determined by the ? and ? pressures exerted by the blood plasma and blood pressure, respectively.

A. pushing; pulling

B. blood; water

C. osmotic; hydrostatic

D. all of the above

E. none of the above

51. The purpose of valves in larger lymph vessels is to:

A. stop or start lymph flow.

B. control overflow.

C. permit lymph to flow in one direction.

D. prevent lymph from returning to the interstitial spaces from which it was formed.

52. The rate of formation of thrombin from prothrombin is almost directly proportional to the amount of available:

A. prothrombin.

B. prothrombin activator.

C. vitamin K.

D. calcium ions.

E. fibrinogen.

53. Veins from the spleen, pancreas, stomach and intestines send their blood to the liver by means of tributaries of the:

A. hepatic veins.

B. hepatic portal vein.

C. mesenteric vein.

D. hepatic artery.

E. cisterna chili.

54. Which is false about the cardiac cycle?

A. Consists of contractions and relaxations of the atria and vent.

B. Is initiated by a spontaneous generation of an action potential in the S-A node.

C. Takes about 16 seconds to complete.

D. Initiates in the aria and spreads to the ventricles.

E. None of the above

55. You should calculate that, for this capillary exchange system. There is:

A. a net filtration pressure of 18 mm Hg.

B. a net osmotic pressure of 18 mm Hg.

C. a net filtration pressure of 10 mm Hg.

D. a net osmotic pressure of 10 mm Hg.

E. a state of exchange equilibrium.

56. Spasm of a severed blood vessel is a local reaction that:

A. reduces the flow of blood through the opening for about one minute.

B. varies in intensity directly as the severity of the trauma to the vessel.

C. occurs only after the clot has been formed.

D. activates the platelets to adhere to the vessel.

E. causes clot retraction.

57. Which of the following vessels and chambers are passed by blood in it's flow through the pulmonary circuit?

A. inferior vena cava, superior vena cava, right atrium

B. right ventricle, tricuspid valve, left ventricle

C. right ventricle, pulmonary artery, pulmonary vein, left atrium

D. inferior vena cava, right atrium, left atrium

58. Which of the following is/are true?

A. The force of contraction of the left ventricle is greater than that of the right ventricle.

B. The lowest velocity blood flow occurs in the capillaries.

C. The atrioventricular node is the only site at which electrical activity occurring in the atria can be conducted to the ventricles.

D. All of the above

E. None of the above

59. Which of the following is/are the most critical factor in maintaining arterial pressure?

A. total length of the vessel

B. peripheral resistance

C. cross sectional diameter

D. cardiac output

E. all of the above

60. Blood osmotic pressure due to colloids is more constant than blood osmotic pressure due to crystalloids because:

A. albumin is a larger molecule than sodium.

B. the pores in capillaries are permeable to albumin but not to sodium.

C. enough to let colloids in and out of the vessel but not big enough let crystalloids out.

D. blood pressure not osmotic pressure affects movement across capillary beds.

E. none of the above

61. Lymph nodes act as:

A. reservoirs for extra blood.

B. sites of red cell production.

C. scavengers of foreign matter picked up by white blood cells.

D. drainage depots for dying red blood cells.

E. All of the above

62. Probably the most important factor in preventing coagulation of blood in the normal, intact circulation is:

A. fibrinogen.

B. heparin.

C. the normal, smooth endothelial surface of the blood vessels.

D. vitamin K.

E. calcium ions.

63. "To allow 2 capillary beds for exchange of materials" is the function of the

A. pulmonary circulation.

B. ductus venosus.

C. portal circulation.

D. placenta.

E. right side of the heart.

64. The "Basic Principle" or cardiovascular reflexes is that the stimuli that causes these reflexes to occur in the first place will be ? by the ultimate result of that reflex.

A. reversed

B. inhibited

C. both A and B

D. Neither A nor B

65. Normally, there is no fluid in the tissue spaces of the lungs because

A. the pulmonary artery has no stretch and recoil.

B. the highest filtration pressure is in the pulmonary veins.

C. there is a very low blood pressure in the pulmonary capillaries to cause filtration into the alveoli.

D. All of the above

66. Since a number of anti-clotting factors, including antithrombin and heparin, are normally present in the plasma, the event that can initiate actual clotting is dependent upon the

A. ratio of clotting to anti-clotting factors present.

B. ratio of antithrombin to heparin in the blood.

C. Both A and B

D. Neither A nor B

67. Which description pertains to oxygen content per unit volume of blood in fetal circulation?

A. Blood in the pulmonary veins contains more oxygen than does blood in the pulmonary arteries.

B. Blood in the femoral veins contains more oxygen than does blood in the aorta.

C. Blood in the ductus arteriosus contains more oxygen than does blood in the ductus venosus.

D. Blood in the inferior vena cava contains more oxygen than does blood in the superior vena cava.

68. The heartbeat is slowed by:

A. the action of acetylcholine.

B. stimulation of it's sympathetic nerves.

C. a decreases in blood pressure.

D. All of the above

E. A and B only

69. Starling's law of the heart states that within limits the strength of ventricular contraction is:

A. directly proportional to venous return.

B. inversely proportional to body temperature.

C. directly proportional to sex.

D. inversely proportional to cardiac output.

E. None of the above

70. The partial pressure of oxygen is highest in the:

A. blood in the pulmonary veins.

B. cells.

C. lungs.

D. blood in the pulmonary arteries.

E. atmosphere.

71. What would happen if an opening were made into the thoracic wall so that air entered the pleural cavity but not the pulmonary cavity?

A. The intra pleural pressure becomes subatmospheric pressure.

B. The intra alveolar pressure becomes subatmospheric pressure.

C. The intra pleural pressure becomes atmospheric pressure.

D. The intra alveolar pressure becomes atmospheric pressure.

E. The lungs will burst.

72. Carbon monoxide is harmful because it:

A. has been shown to cause cancer.

B. interferes with phagocytosis.

C. causes atelectasis.

D. combines rapidly with hemoglobin and is not readily released.

E. speeds up the process of electron transport.

73. Which of the following is not a characteristic of the large intestine?

A. Absorbs much of the water remaining in the waste material of undigested foods.

B. It is divided into ascending, transverse, and descending portions.

C. Contains bacteria which synthesize certain nutritional factors such as vitamins.

D. Serves as the main absorptive surface for digested foods.

E. All of the above

74. Which of the following is not a factor in the movement of lymph?

A. arterial pulsations

B. squeezing action of skeletal muscles

C. breathing

D. contraction of smooth muscle in the walls of the trunk

E. negative pressure in thoracic cavity

75. Which of the following could best be termed "cellular respiration"?

A. The passage of gasses in and out of the lung alveoli

B. Utilization of oxygen by a liver cell with the release of energy.

C. The entry of food materials into cells.

D. The act of breathing itself.

E. all of the above

76. Exercise causes an increase in the respiratory rate because:

A. nerve impulses from stretched muscles directly stimulate the respiratory center to fire.

B. oxygen is burned up and the individual needs more glucose.

C. Both A or B

D. Neither A nor B

77. Normally, most of the contents of the small intestine have been absorbed by the time chyme has reached the

A. end of the duodenum.

B. middle of the jejunum.

C. end of the jejunum.

D. middle of the ileum.

E. end of the ileum.

78. The fluid in the pleural cavity is there to:

A. dissolve the gases that normally enter the pleural cavity.

B. carry oxygen to the most distal parts of the bronchial tree.

C. allow cohesion of the visceral to parietal layers of pleura.

D. prevent friction of the lungs during breathing.

E. C and D only

79. Emphysema is devastating disease because every breath is painful. Emphysema is most commonly related to long term:

A. lack of exercise.

B. anemia.

C. cigarette smoking.

D. All of the above

E. None of the above

80. The major stimulus for the initiation of the "defecation reflex" is:

A. a small amount of feces in the large intestine.

B. stimulation of proprioreceptors (stretch receptors) in the rectum.

C. Both A and B

D. Neither A nor B

81. In passive immunity:

A. antibodies made by another person are injected into the patient as a form of treatment.

B. the patient produces T lymphocytes and antibodies in response to an infection.

C. immunity lasts for many years because memory cells are produced.

D. All of the above

E. A and B only

82. In the male, going through puberty, testosterone causes an increased ? to make the voice deeper and the pitch lower.

A. tension on the vocal cords

B. tautness on the vocal cords

C. size of the thyroid cartilages to overstretch the vocal cords

D. all of the above

E. A and B only

83. Which of the following reactions occurs just before CO_2 diffuses from the pulmonary capillary bed to the alveoli?

A. $CO_2 + H_2O \rightarrow H_2CO_3$

B. $CO_2 + H_2O$ --carbonic anhydrase--> H_2CO_3

C. $H_2CO_3 \rightarrow H^+ + HCO_3^-$

D. $H_2CO_3 \rightarrow H_2O + CO_2$

E. none of the above

84. Edema in the lungs interferes with air exchange over the respiratory membrane by

A. significantly decreasing the volume of the lung.

B. greatly increasing the resistance of the conduction vessels.

C. increasing the distance over which the gas must travel.

D. reducing the surface area available for diffusion.

E. mixing too much water and other fluids with oxygen and carbon dioxide.

85. Which one of the following is/are functions of saliva in the mouth?

A. Helps to lubricate food so it can be swallowed.

B. The enzyme ptyalin or salivary amylase initiates carbohydrate digestion.

C. both A and B

D. neither A nor B

86. The following processes, A to E, occur in getting humoral immunity. Which is first out of order?

A. Production of stem cells in bone marrow.

B. Potentiation at thymus and other areas, such as the liver.

C. Cloning in response to microbial introduction.

D. Antigenicity by plasma cells.

E. Antibody production to specific antigens.

87. If atmospheric pressure is 745 mm HG and the air is 20% 02, what is the partial pressure of oxygen?

A. 740 mm HG

B. 38 mm HG

C. 149 mm HG

D. 144 mm HG

E. 37.25 mm HG

88. Which of the following listed substances is greatest as a result of cellular respiration?

A. oxygen

B. carbon dioxide

C. glucose

D. water

E. B and D only

89. The functions of the digestive tract are enhanced by it's accessory organs. They are the:

A. tongue, teeth, salivary glands, liver and pancreas.

B. cecum, lips, fauces, spleen and colon.

C. mouth, pharynx, esophagus, stomach and small intestines.

d. ascending colon, transverse colon, descending colon, sigmoid colon and rectum.

90. Which of the following is not a function of the pancreas?

A. Secretes insulin as well as glucagon into pancreatic duct.

B. Secretes alkaline juice which neutralizes chyme while chyme is stored in the stomach.

C. Secretes both endocrine and exocrine substances.

D. Secretes lipase which acts on bile-emulsified fats to convert them to fatty acids and glycerol.

E. Secretes amylase which acts on starches to convert them to maltose.

91. The idea that one's own antigens provide too much exposure to the thymus in the pre-processing time and thus destroy the ability to later provide lymphocyte cloning, is called:

A. phagocytosis.

B. coagulation.

C. autoimmunity.

D. tolerance.

92. Which of the following is/are true regarding the respiratory system?

A. The conducting airways contain gas which cannot be exchanged with blood; their volume is called "tidal volume".

B. The sum of the tidal, inspiratory reserve, and expiratory reserve volumes is the total lung volume.

C. Minute respiratory volume(MRV) is calculated as respiratory rate times respiratory reserve.

D. The change in intra pleural pressure from -4 MM HG to -12 MM HG during inspiration is due to compression of the thoracic cage.

E. None of the above

93. In comparison with that in the right atrium, blood in the left atrium has a:

A. lower concentration of oxygen.

B. lower concentration of carbon dioxide.

C. higher concentration of oxygen.

D. higher concentration of carbon dioxide.

E. B and C only

94. If an incision has to be made in the small intestine to remove an obstruction, the first layer of tissue to be cut into is the:

A. muscularis.

B. mucosa.

C. submucosa.

D. serosa.

95. The secretion of sodium bicarbonate from the pancreas is triggered by

A. the alkalinity of chyme in the stomach.

B. the alkalinity of chyme in the pancreas.

C. the alkalinity of food in the duodenum.

D. the acidity of chyme in the duodenum and stomach.

E. None of the above

96. Which of the following is the better definition of immunity?

A.Immunity refers to the resistance of the body to microbes: viruses, bacteria, and other unicellular and multicellular organisms.

B.Immunity constitutes all the physiological mechanisms which allow the body to recognize materials as foreign to itself and to neutralize or eliminate them.

97. The largest fraction of the carbon dioxide in the blood travels as

A. the oxygenated form of carbon dioxide.

B. bicarbonate ions.

C. carboxyhemoglobin.

D. Co_2 physically dissolved in the plasma of the blood.

E. None of the above.

98. To free the small intestine from the posterior abdominal wall, which of the following would have to be cut?

A. mesocolon

B. mesentery

C. lesser omentum

D. falciform ligament

99. Only one type of digestive juice contains carbohydrate, protein and fat-digesting enzymes. Which one is it?

A. pancreatic juice

B. saliva

C. bile

D. intestinal juice

E. gastric juice

100. As a ? , phagocytosis provides transitory protection until the immune system is activated.

A. first line of defense

B. second line of defense

C. third line of defense

D. fourth line of defense

E. fifth line of defense

101. The lungs inflate when the air pressure in the lungs is:

A. less than that of the atmosphere.

B. greater than that of the atmosphere.

C. equal to that of the atmosphere.

D. equal to that in the chest cavity.

E. None of the above

102. Hydrogen ion concentrations in the blood always parallel carbon dioxide concentration because:

A. H+ is the same as CO_2.

B. H+ forms from ionization of carbonic acid.

C. H_2O releases H+ ions during respiration.

D. the respiratory center only responds to H+ and CO_2.

E. B and C only

103. Which of the following lists digestive organs in the order that food matter passes through them?

A. esophagus, stomach, large intestine, small intestine

B. esophagus, stomach, pancreas, small intestine, large intestine

C. stomach, esophagus, liver, large intestine, small intestine

D. pharynx, esophagus, stomach, small intestine

104. The liver:

A. secretes bile as it's only digestive function.

B. has an important role in maintaining homeostasis of blood sugar.

C. plays an essential role in metabolism of carbohydrates, proteins, and fats.

D. is one of the most vital organs of the body.

E. All of the above

105. Metabolism is best describes as:

A. the build up of food molecules into more complex molecules from less complex ones.

B.the changes which foods undergo in order to be in a form in which they can be absorbed.

C. the breakdown of food molecules into simpler compounds from more complex compounds.

D. the chemical changes which the digestive end products undergo inside the cells of the body.

E. the transport of digestive food products in our blood stream.

106. The secondary or anamnestic response in immunity:

A. occurs after the primary response has activated specific B-cells.

B. is due to proliferation of plasma cells from stimulated T-cells.

C. is more effective than the primary response because more antibodies are produced in a shorter period of time.

D. results in the production of different classes of antibodies than the primary response.

E. are similar in function to plasma cells.

107. Which air pressure is the highest?

A. intra thoracic pressure during inspiration

B. pulmonary pressure during expiration

C. atmospheric pressure

D. pulmonary pressure during inspiration

E. intra thoracic pressure during expiration

108. In carbon monoxide poisoning

A. the arterial partial pressure of oxygen is decreased.

B. the arterial partial pressure of carbon monoxide is much greater than that of oxygen.

C. the arterial partial pressure of carbon dioxide is substantially increased above normal.

D. the venous partial pressure of oxygen is normal.

E. the oxygen-carrying ability of hemoglobin is substantially decreased.

109. What role does bile play in digestion?

A. Contains an enzyme which splits fat molecules into simpler compounds.

B. Increases the number of fat particles and hence their total surface area.

C. Releases the energy stored in fats, making it available to the body cells.

D. All of the above

E. None of the above

110. What is the most important outcome of cellular respiration?

A. carbon dioxide discharge

B. energy transformation from foodstuffs

C. food intake

D. oxygen intake

E. oxygen utilization

111. Which of the following actions would not result in inspiration?

A. decrease in intra pulmonic pressure to less than 760

mm HG.

B. elevation of the diaphragm

C. elevating the front part of the ribs

D. depression of the diaphragm

E. combines elevation of ribs and depression of diaphragm

112. A drop in the PO_2 of the blood is less of a stimulus to breathing than a rise of the PCO_2 level of the blood because:

A. excess of CO_2 would be toxic to the blood, causing irreversible damage, whereas oxygen deprivation can be remedied by addition of oxygen.

B.the respiratory center of the brain is more responsive to CO_2 than it is to oxygen levels.

C. Both A and B

D. Neither A nor B

113. In swallowing, all of the following events are automatic except:

A. pushing the bolus of food into the pharynx.

B. closure of the glottis.

C. relaxation of the lower esophageal constrictor muscle.

D. contraction of the pharyngeal muscles.

E. upward movement of the soft palate.

114. Which of the following is not one of the functions of the liver?

A. conjugation of steroid hormones

B. domination of amino acids

C. detoxification of poisons

D. production of red blood cells in the embryo

E. protein digestion through the action of bile

115. Cohesion of the visceral pleura to the parietal pleura occurs

A. just prior to inspiration

B. immediately after expiration.

C. when we are sleeping or resting.

D. in pleurisy and pneumonia.

E. All of the time

116. Changes in which of the following affect breathing rate the most?

A. degree to which exercise is being carried on

B. PO_2 of atmospheric air

C. heat produced in the body during respiration

D. pH of alveolar membranes

E. all affect respiration equally

117. Which one of the following would be pierced thirdly by the point of a pin entering a tooth from the surface of the crown?

A. pulp

B. root canal

C. dentin

D. enamel

118. Inability of the pyloric sphincter to open would prevent

A. food from entering the stomach.

B. stomach acid from being released.

C. digestive enzymes from being released.

D. food from entering the small intestines.

E. the mechanical breakdown of food in the stomach.

119. Which of the following provides the primary source of fuel for cellular processes?

A. carbohydrates

B. lipids

C. proteins

D. amino acids

120. The "negative" intra pleural pressure assists:

A. the flow of air to the nasal cavity from outside.

B. the inflow of blood into the right atrium from the inferior vena cava and other abdominal veins.

C. the formation of bubbles of nitrogen gas in muscular capillaries.

D. the entrance of air into the pleural cavity.

E. All of the above

121. The intestinal microvilli are:

A. folds of the wall of the small intestine.

B.finger like extensions of the intestinal mucosa that increase the surface area.

C. small extensions of the peritoneum.

D. projections of the cell membrane that increase the cell's surface area.

E. the major site of vitamin B and vitamin K formation by bacteria.

122. Why is it that one can eat and drink even though the head may be lower than their stomach?

A. The stomach exerts suction which pulls the food into it.

B. The cartilaginous rings in the trachea contract to push the food downward toward the stomach and abdomen.

C. Rhythmic relaxation and contraction of the esophagus forces the material toward the stomach.

D. Reverse peristalsis pushes the food and water toward the stomach.

E. Air pressure in the mouth forces the food and water into the stomach.

123. Suppressor T cells:

A. release lymhokines that increase the activity of cytotoxic T cells and activated B cells.

B. decrease their activity as antigenic stimulus decreases.

C. function in preventing autoimmune response.

D. are regulatory cells.

E. Two of the above are correct.

124. Probably the most important factor regulating the rate of diffusion of CO_2 through the "respiratory membrane" is the:

A. degree to which a gas dissolves in water.

B. thickness of the respiratory membrane.

C. surface area of the respiratory membrane.

D. gaseous pressure gradient.

E. All are equally important.

125. Chyme is produced principally by the action of ? in the stomach.

A. carbohydrate enzymatic action

B. ptyalin and protease

C. ptyalin and lipase

D. churning

E. pepsin and hydrochloric acid

126. The reason that the stomach mucosa is not digested by the enzymes within the lumen of that organ is because:

A. the enzymes do not stay that long within the stomach.

B. the enzymes are destroyed when the come in contact with the mucosa.

C.the enzymes are produced in an inactive form within the stomach and are not activated until they reach the intestine.

D. the microvilli of the stomach mucosa are constantly being replaced every two weeks.

E. None of the above

127. Active immunity is acquired by either infection with the live organism or by:

A. being given the antibody from a person or animal that had been infected.

B. exposure to histocompatible (or similar) antigens.

C. vaccination.

D. blood transfusions.

E. All of the above

128. When oxygen diffuses into the Red blood cells, it:

A. forms a strong chemical bond with hemoglobin.

B. forms a weak chemical bond with hemoglobin.

C. is dissolved in the plasma and transported principally in this fashion.

D. combines with carbon dioxide to form a special type of transport molecule.

E. causes the displacement of any carbon monoxide which may be combines with hemoglobin.

129. The stomach performs all of the following functions except:

A. temporary storage of food immediately after a meal.

B. secretion of hydrochloric acid.

C. mixing of food with gastric secretions.

D. emptying of the food in the small intestine.

E. segmentation and deglutition.

130. The greatest amount of absorption occurs in the ileum of the small intestine because:

A. blood and lymph vessels are very abundant there.

B. most of the food had been digested by the time it gets there.

C. Both A and B

D. Neither A nor B

131. Substances such as glycerol, fatty acids and proteins may sometimes be converted into acetoacetic acid and acetyl coa, for the purpose of getting energy. What is the name for this type of conversion?

A. anaerobic respiration

B. glycogenesis

C. glycogenolysis

D. Gluconeogenesis

E. glycolysis

132. The fact that hemoglobin provides almost 60% more oxygen-carrying capacity than could be done by simple dissolving of oxygen in plasma indicates that:

A. hemoglobin is an "oxygen buffer".

B. hemoglobin is an acid-base buffer.

C. Both A and B

D. Neither A nor B

133. Which one of the following is correct?

A.The carotid and aortic bodies are more important than the central chemoreceptors in terms of their effect on respiratory rate.

B.The chemical to which the central chemoreceptors respond directly is carbon dioxide.

C.The expulsion of carbon dioxide from the lungs can increase the pH of the blood.

D.Arterial pH is more important than arterial partial pressure of carbon dioxide in normal respiratory regulation.

134. Products of digestion are brought to the liver by:

A. tributaries of the superior mesenteric and hepatic portal vein.

B. branches of the hepatic vein.

C. branches of the hepatic artery.

D. branches of the celiac artery.

E. superior mesenteric artery and it's branches.

135. Which of the following is/are true?

A. Secretion of insulin is inhibited by eating.

B.The rate of insulin secretion is controlled primarily by the glucose level of the blood flowing through the pancreas.

C. Both A and B

D. Neither A nor B

136. If blood samples were taken from right atrium, right ventricle and pulmonary artery, and analyzed for oxygen concentration:

A. all would contain about the same oxygen concentration.

B. the right atrial sample would be lowest in oxygen concentration.

C. all would contain more oxygen than pulmonary vein blood.

D. all would contain 20 ML 02 per 100 MLS. blood.

137. Because the inspiratory center of the medulla is so ? to hypoxia, it can:

A.sensitive; respond to very low levels of oxygen in the blood without being adversely affected.

B.responsive; cause rapid breathing to the state of hyperventilation with no trouble at all.

C. insensitive; withstand low oxygen levels for a long period of time.

D. None of the above

138. Sympathetic nerve innervation to the small intestine

A. stimulates peristalsis.

B. inhibits parasympathetic activity of the G.I. tract.

C. stimulates the secretion of enzymes.

D. inhibits the absorption of water.

E. None of the above

139. Cholecystokinin, produced by the intestinal wall in the presence of chyme, functions most directly to produce:

A. emulsification of bile.

B. contraction of the gallbladder.

C. concentration of bile in the gallbladder.

D. metabolism of fats.

140. Insulin:

A. is a steroid hormone.

B.is secreted by cells in the pancreas in response to decreased blood glucose levels.

C.increases glycogen synthesis by increasing glucose concentration within the cells and by increasing glucose phosphorylation.

D. increases blood concentration of glucose.

E. excess can cause the disease diabetes mellitus.

141. Oxygen and carbon dioxide are exchanged in the lungs by:

A. active transport mechanism.

B. diffusion.

C. filtration.

D. osmosis.

142. After hyperventilation for several seconds, a person experiences a short period of apnea(lack of breathing) because:

A. the level of oxygen has increased and inhibits the inspiratory center.

B. the oxygen in the lungs has not had time to diffuse into the blood.

C. the pH would drop and inhibit inspiration.

D.the level of carbon dioxide would drop below the level necessary to stimulate the inspiratory center.

E.the short, quick respirations would upset the timing of the apneustic center, resulting in a temporary lack of action potentials to the inspiratory center.

143. As a group, fat-soluble vitamins are:

A. absorbed more readily in the presence of bile salts.

B. excreted rapidly by the kidneys.

C. easily destroyed by heat during cooking.

D. All of the preceding

144. Glucagon increases blood sugar by:

A. increasing the secretion of insulin by alpha cells.

B.increasing epinephrine secretion to promote hepatic breakdown of glycogen.

C. promoting glucose transfer across cell membranes.

D. promoting glycogenesis.

145. Blood pressure in the glomerulus is higher than the arterial end of a non-renal capillary bed because: (HINT: remember cause and effect)

A. efferent arterioles offer more resistance to blood flow.

B. it needs to be higher in order to facilitate formation of the glomerular filtrate.

C. Both A and B

D. Neither A nor B

146. A woman will still continue to have her menstrual periods after surgical removal of:

A. both ovaries.

B. one ovary.

C. one ovary and the uterus.

D. both ovaries and the uterus.

E. uterus only.

147. In the makeup of the fetal membranes, the --?-- gives rise to the fetal part of the placenta, while the --?-- forms the fluid-filled cavity which cushions the embryo and fetus.

A. chorion; amnion

B. amnion; yolk sac

C. morula; blastula

D. amnion; chorion

E. umbilical cord; endometrium

148. Which of the following mechanisms, if any, exerts the greatest influence towards maintaining homeostasis of total fluid volume?

A. glomerular filtration rate

B. renal tubular water reabsorption

C. tubular secretion of urea

D. amount of water intake

E. reabsorption of water in the large intestine

149. The primary mechanism of fluid & electrolyte balance involves control of fluid --?--.

A. output

B. input

C. Both A and B

D. Neither A nor B

150. If sperm are not fully developed and motile by the time they leave the seminiferous tubules, the maturation process is finished in the:

A. testes

B. interstitial cells

C. vas deferens

D. epididymis

E. seminal vesicles

151. Which of these is probably least important in bringing about the conception of a new person?

A. Presence of hyaluronidase in acrosomes of the sperm.

B. Degree of peristalsis in fallopian tube of woman.

C. Size or shape of the uterus in the woman.

D. Reaching of orgasm in the man.

E. Sped at which the sperm move through the female tract.

152. Identical twins result when:

A. 2 eggs are fertilized by the same sperm.

B.cells at the 2-cell or 4-cell stage are separated and develop as two separate embryos.

C. coitus is accomplished with 2 different men.

D. 2 eggs are fertilized simultaneously by 2 different sperms.

E. None of the above

153. Which of the following is "not" true of the ureters?

A. They are capable of having peristalsis.

B. They carry urine from the renal pelvis to urinary bladder.

C. They enter the posterior wall of the bladder.

D. They aid in reabsorption of water.

E. All of the above are false.

154. Approximately what percent of the body is composed of water?

A. 5 to 6%

B. 10 to 20%

C. 70 to 80%

D. 95 to 96%

E. There is no water at all.

155. The reason that the seminal vesicles do not store sperm is because:

A.they are too small to possibly store all the sperm produced by the testes and store it for more than a day at a time.

B.as exocrine glands, they have no means of receiving materials from outside of itself.

C.the vas deferens, which carries sperm, does not come into close proximity to the seminal vesicles.

D.sperm would be destroyed in it because it, that is, the seminal vesicle is too close to the pelvic cavity where the temperature is considerably higher than in the testes.

E. None of the above

156. Which of these is/are the most detrimental to sperm in their reproductive task?

A. Sperm count of 120 - 150 million per milliliter.

B. Ejaculate volume of about three and one half milliliters.

C. Vaginal pH of about 3.5.

D. All of the above.

E. A and B only

157. The treatment of diabetes is commonly the administration of insulin; this must be given by injection rather than thru the mouth because:

A.the excessive pressure of peristalsis would distort the shape of the insulin molecule.

B.insulin would be digested and thus destroyed by the gastric enzymes.

C. injection into a muscle puts the insulin where it can do the most good.

D. many diabetics are overweight.

158. Which of the following statements concerning the urethra is "not" true?

A. It opens to the posterior wall of the vagina.

B. In males, it is both excretory and reproductive.

C. Possesses a sphincter muscle which can halt urination at mid-stream.

D. Its walls are composed of mucous membrane and epithelium.

159. The excretory system is better than the respiratory system in fixing acidosis because:

A. it does it automatically.

B. it can reverse the production of CO2 that occurred during breathing.

C. Both A and B

D. Neither A nor B

160. Which of the following sequences lists the events of coitus in the correct order(in males)?

A. ejaculation - erection - orgasm

B. orgasm - erection - ejaculation

C. erection - emission - ejaculation

D. None of the above are correct

161. "First stage of labor is to amniotic fluid release" as second stage of labor is to:

A. estrogen decrease".

B. oxytocin".

C. parturition".

D. None of the above

162. Place the structures below in the proper sequence as the blood filtrate would pass through them.

1. loop of the nephron(loop of henle)
2. distal convoluted tubule
3. proximal convoluted tubule
4. Bowman's capsule
5. collecting tubules and ducts

A. 3, 2, 1, 4, and 5

B. 3, 4, 1, 2, and 5

C. 4, 3, 1, 2, and 5

D. 4, 3, 2, 1, and 5

E. 2, 3, 1, 4, and 5

163. Which of the following is not true of urine:

A. it can be alkaline or acid depending on the diet.

B. it has a specific gravity averaging 1.155.

C. the normal daily volume is 1.0 to 1.5 liters.

D. urea is one of the main organic constituents.

164. Puberty in humans occurs when the --?--; accordingly, it releases hormones that --?--.

A. pituitary starts working; start sexual cycles

B. ovaries start working; promote sex drive

C. hypothalamus ages prematurely; stimulate FSH/LH/ICSH release

D. B and C only

E. All of the above

165. The most important "hormonal" event at delivery of the afterbirth is:

A. the removal of the baby from the womb.

B. the removal of the placenta from the uterus.

C. the decrease in estrogen levels in the mother's blood.

D. the inhibition of prolactin secretion by progesterone.

E. None of the above

166. When energy input is greater than energy output a person may

A. gain weight.

B. lose weight.

C. maintain his weight.

D. increase his basal metabolic rate.

E. succumb to energy poisoning.

167. Place the vessels in the order that blood would flow through them toward the inferior vena cava.

1. arcuate vein
2. interlobar vein
3. peritubular venules
4. interlobular veins
5. renal vein

A. 3, 4, 1, 2, and 5

B. 1, 3, 4, 2, and 5

C. 3, 4, 2, 1, and 5

D. 3, 4, 5, 1, and 2

E. 1, 5, 2, 4, and 3

168. If blood is too acidic, which of these would occur?

A. Hydrogen ions would be excreted by the kidneys.

B. Sodium ions would be taken up by the kidneys.

C. The person's rate of breathing would increase.

D. Ammonia would be secreted by the cells of the kidney tubules.

E. All of the above would occur.

169. The passages of the female reproductive system differ from those of the male in that females have direct communication with:

A. the gonads.

B. mucous secreting glands.

C. the peritoneal cavity.

D. urinary system.

E. None of the above

170. If a young man was impotent, he could still:

A. perform normal sexual intercourse.

B. have an occasional ejaculation.

C. reach an orgasm now and then.

D. sustain an erection.

E. None of the above

171. An essential amino acid differs from other amino acids because it:

A. forms peptide linkages with other amino acids to form proteins.

B. is a product of hydrolysis of ingested proteins.

C. contains an amino and an acidic radical.

D. is absorbed from the gut by active transport.

E. cannot be synthesized by the body.

172. Whenever the plasma glucose concentration exceeds the renal threshold for glucose,

A. the glomerular filtration rate increases.

B. glucose will appear in the urine.

C. the volume of urine decreases.

D. glucose will be secreted into the peritubular capillary bed.

E. None of the above

173. If an individual has a bleeding ulcer, his/her kidney would shut down if it were not for the fact that --?-- is maintained by the --?-- of the efferent arteriole. This action is due to secretion of --?-- which activates angiotensinogen to angiotensin I in the blood.

A. glomerular filtration; constriction; renin

B. tubular reabsorption; dilation; rennin

C. filtration; pressure; aldosterone

D. pressure; closing; anti-diuretic hormone

E. None of the above

174. It is reasonable to assume that since the inner wall of the vagina is cornified or thickened, it also will

A. resist irritation from the penis during sexual intercourse.

B. resist infection upon exposure to pathogenic bacteria from the outside of the body.

C. Both A and B

D. Neither A nor B

175. The effect of suckling on milk release is to:

A. provide the chemical stimulus for milk release from the breasts.

B. initiate the nervous reflex that promotes oxytocin secretion and release, as well as continue the secretion of prolactin.

C. promote estrogen and progesterone secretion from the ovaries.

D. counteract the milk-producing effects of prolactin.

E. inhibit further contractions of the myometrium.

176. One of the most destructive aspects of protein breakdown is the production of --?--.

A. ammonia

B. ketones

C. both A and B

D. neither A nor B

177. The most important source of water for the normal adult is from:

A. beverages and liquids ingested.

B. moist food such as lettuce and tomatoes.

C. oxidative metabolism of nutrients.

D. proteins.

E. the oxidation of lipids and hormones.

178. Which of the following statements concerning the urination reflex is "incorrect"?

A. Distention of the bladder with over 300 cc stimulates stretch receptors in the inner wall of the bladder.

B. Sensory impulses pass over the lateral spinothalamic tract to the hypothalamus of the brain.

C. Motor impulses from the hypothalamus travel over the parasympathetic nervous system down the spinal cord toward the urinary bladder.

D. Forceful action of the detrusor muscle pushes urine through the contracted internal urethral sphincter.

E. None of the above

179. "Human development" begins with

A. birth.

B. the seventh week of pregnancy.

C. the second week of pregnancy.

D. fertilization.

E. implantation.

180. An increased loss of urea, uric acid and creatine, as during dieting and then starvation, would put a person initially in --?-- nitrogen balance and later in --?-- nitrogen balance.

A. negative; more negative

B. negative; positive

C. positive; negative

D. positive; more positive

181. The major role of the kidney in the maintenance of acid-base balance is to:

A. excrete hydrogen ions in exchange for sodium ions.

B. excrete carbonic acid and sodium chloride.

C. excrete sodium bicarbonate.

D. excrete sodium in exchange for hydrogen ions.

182. What would probably occur if the prostate gland had a tumor in it’s central part?

A. The seminal duct would be obstructed.

B. An excessive secretion of testosterone would result.

C. An excessive number of spermatozoa would be produced.

D. The urethra would be constricted and urine would probably back up into the bladder.

183. The structure(s) that each month thickens and become(s) engorged with blood in preparation for receiving a fertilized ovum is/are the:

A. erectile tissues of the uterus.

B. stratum functionalist of the endometrium.

C. pelvic or urogenital diaphragm of the floor of the pelvis.

D. All of the above

184. Which of these is/are "true"?

A. Conception is most likely if coitus has occurred within one day before or two days after ovulation.

B. Fertilization of the ovum cannot occur unless the ovum enters the uterus.

C.The primary function of the uterine tubes is to provide a place for fertilization of the ovum.

D. A and C only

E. B and C only

185. The most effective method of blocking conception is:

A. the rhythm method.

B. the "pill".

C. constant condom use.

D. diaphragm.

E. abortion.

186. Basal metabolism refers to the energy output required to:

A. keep one alive.

B. for growth in a child.

C. during old age.

D. for normal activity of the thyroid gland.

E. to put one to sleep.

187. Urine formation will not occur if --?-- does not also occur.

A. tubular reabsorption

B. tubular secretion

C. glomerular filtration

D. All of the above

188. Diabetes mellitus is characterized by polyuria. This is due to the fact that

A. insulin acts as an inhibitor of ADH secretion.

B. renal cells fail to reabsorb glucose resulting in increased use of glucose as an osmotic diuretic in the filtrate.

C. hyperglycemia results in increased filtration rate at all capillary beds in the body.

D. All of the above

189. Which of the following situations or conditions would promote the formation of female genitalia in a person with "XX" genetic sex?

A. lack of fetal estrogen

B. lack of fetal androgen

C. Both A and B

D. Neither A nor B

190. Sperm and ova are similar in that:

A. they are about the same size.

B. both are motile cells.

C. both have equal amounts of cytoplasm.

D. both are haploid cells.

E. All of the above

191. Which of these pairs of terms are least similar?

A. abortion = contraception

B. decidualization = implantation

C. fertilization = conception

D. afterbirth = placenta

E. newborn = neonate

192. The primary mechanism for the production of fever in the body during an infection is:

A. a resetting of the hypothalamic thermostat at a higher level.

B. a direct effect of foreign protein on the heat loss mechanism.

C. a direct effect of foreign protein on the heat production mechanism.

D. a total loss of any regulatory function of the hypothalamus.

E.direct effect of foreign protein on vasoconstriction of the cutaneous blood vessels.

193. Mature sperm first appear in the ejaculatory fluid:

A. at age 8-9 in most boys.

B. at an earlier age than most girls begin to menstruate.

C. at about age 12-13.

D. long before any of the external signs of puberty appear.

E. at the time that skeletal growth in length ceases.

194. Menstruation is initiated by a(n):

A. sudden release of FSH from the hypothalamus.

B. sudden burst of LH from the anterior pituitary.

C. increased release of estrogen and progesterone from the corpus luteum.

D. imbalance between FSH and LH.

E. decreasing levels of both estrogen and progesterone blood.

195. If a man had a serious accident in which 75% of his penis and all of his right testis was destroyed, due to a devastating tumor, which of the following could he still have?

A. normal sexual intercourse

B. sexual desire

C. libido

D. All of the above

E. B and C only

196. The most effective way to raise body temperature in response to cold is:

A. shivering.

B. vasodilation of arterioles in the skin.

C. lowering the hypothalamic thermostat to the cold temperature level.

D. A and B only

E. B and C only

197. Of the 180 liters or so filtered across the glomeruli each day, how much is reabsorbed back into the plasma of the blood?

A. None

B. 10%

C. 50%

D. 75%

E. 99%

198. How are accessory sexual characteristic different from accessory sex organs?

A. The former are found only in females.

B. Accessory sex organs produce the sex cells.

C.Accessory sex organs produce either testosterone in the male or estrogen and progesterone in the female.

D. The former include generalized features such as body contours and libido.

E. They are both the same.

199. Early mitotic divisions of the embryo occur in the fallopian tube rather than the uterus because:

A. the woman is not yet pregnant.

B. the uterus is not ready yet to accept the embryo.

C. the placenta has not been formed yet.

D. HCG secretion stimulates estrogen secretion.

E. progesterone inhibits peristalsis in the tubes.

200. A "chancre" near the external genitalia is an indication of:

A. gonorrhea.

B. the late stage of syphilis.

C. the early stage of syphilis.

D. indecent thoughts.

E. aggressive sexual stimulation.

201. The following is a hypothetical example of pressures in the glomerulus and in Bowman's capsule of a typical PGCC nursing student's kidney. Glomerular blood.pressure = 70 mm HG; glomerular osmotic pressure = 28 mm HG; capsular hydrostatic pressure = 13 mm HG; capsular osmotic pressure = 2 mm HG. What is the effective filtration pressure for our student?

A. 31 mm HG

B. 64 mm HG

C. 35 mm HG

D. 23 mm HG

E. 75 mm HG

202. The scrotum functions to:

A. maintain the sperm at a temperature higher than body temperature.

B. maintain the sperm at a temperature lower than body temperature.

C. prevent diffusion of six hormones directly into the blood.

D.chemically protect the testes due to it’s thick skin and think layers of insulating fat tissue.

E. A and D only

203. "Necrosis of blood vessels, sloughing off or desquamation of tissues, and detritus formation" are all events related to:

A. the ovarian cycle.

B. sexual intercourse.

C. menstruation.

D. parturition.

E. menopause.

204. The hormone responsible for a positive pregnancy test is:

A. testosterone.

B. estrogen.

C. human chorionic gonadotrophin.

D. follicle-stimulating hormone.

E. prolactin.

205. Which of the following is/are characteristic of the kidney?

A. At the upper or proximal end of the ureter is the pelvis, a wide collecting area for urine from the major calices.

B. The kidney exhibits an inner darkened area, the medulla, and an outer pale area, the cortex.

D. All of the above

206. Which of the following mechanisms modify the volume and composition of glomerular filtrate after passage from the glomerulus?

A. secretion

B. filtration

C. reabsorption

D. All of the above

E. A and C only

207. The ovary is insensitive to follicle stimulating hormone:

A. during the first third of pregnancy.

B. after pregnancy.

C. during the ovarian or menstrual cycles.

D. after menopause.

208. The fertilized ovum is in what stage of development at implantation?

A. early cleavage

B. morula

C. blastocyst

D. neural groove

E. gill slit stage

209. Much of the endocrine system is regulated by:

A. blood calcium.

B. feed backs mechanisms.

C. nervous system interactions.

D. a security system.

E. the solar system.

210. The glomerular membrane differs from a typical capillary membrane in which of the following ways?

A. More permeable to blood cells.

B. More permeable to water and small molecular solutes.

C. More permeable to plasma proteins.

D. Uses active rather than passive transport.

E. None of the above

211. What effect does antidiuretic hormone have on the kidney?

A. It helps it to rebuild kidney tissue.

B. It helps it to conserve water by enhancing it’s reabsorption.

C. It initiates the excretion of urine.

D. It stops urine production by causing the medulla to contract.

212. About how many ovarian Graafian follicles reach maturity in a healthy young woman, in the course of a year?

A. One if she becomes pregnant, none if she does not.

B. About 12 if she does not become pregnant.

C. A highly variable number depending upon sexual stimulation.

D. Several thousand in the absence of pregnancy.

213. The --?-- functions as the "lungs" for the nonbreathing fetus; on the other hand, a minimal amount of blood circulates through the --?--.

A. umbilical cord; placenta

B. placenta; fetal lungs

C. umbilical cord; umbilical cord

D. foramen ovale; ductus arteriosus

E. kidney; placenta

214. Which of the following best describes how the kidney handles sodium?

A. NA+ is filtered and then actively reabsorbed.

B. NA+ follows passively as water is reabsorbed.

C. The rate of sodium ion reabsorption is related to the rate of erythropoietin secretion by the kidney.

D. The rate of sodium reabsorption is controlled by ADH secretion.

215. Most of the volume of semen is accounted for by:

A. the sperm cells themselves.

B. secretions of the prostate and seminal vesicles.

C. secretions of small glands in the walls of the penis and vagina.

D. secretions of the bulbourethral glands.

E. secretions from the testes.

216. Ovulation ordinarily occurs:

A. about 14 days before the beginning of the next menses.

B at the time when the basal body temperature shows a sudden rise.

C. after luteinizing hormone secretion reaches a peak level.

D.approximately 9 days after the end of the previous menstrual flow, in a 28 day cycle.

E. All of the above

217. The most important hormone in initiating and maintaining lactation is

A. estrogen.

B. follicle stimulating hormone.

C. prolactin.

D. progesterone.

E. mammoglandin.

218. Which of the following is not a function of the urinary system?

A. Maintenance of pH of interstitial fluid and blood.

B. Maintenance of water balance.

C. Endocrine stimulation of red blood cell production.

D. Elimination of CO_2.

E. All of the above are functions of the urinary system.

219. Which of the following changes is brought about by an increase in the blood level of aldosterone?

A. An increase in blood glucose.

B. The retention of potassium by the kidney.

C. The retention of sodium and water by the kidney.

D. An increase in calcium absorption from the digestive tract.

220. At ovulation, the

A. endometrium is continuing to grow into a decidua.

B. production of progesterone is at it's highest level.

C. follicular wall is ruptured and secondary oocyte released.

D. LH level in the blood stream is at it's lowest level.

221. If a given hormone acts on another endocrine gland and causes that gland to secrete it's hormones, then the first hormone is called a(n):

A. feedback hormone.

B. accelerator hormone.

C. tropic hormone.

D. inhibiting hormone.

ANSWERS TO CHALLENGE EXAM II

1. The anterior surface of the heart is mostly formed by the:

A. right ventricle.

B. right atrium.

C. right auricle.

D. left ventricle.

E. left atrium.

2. The most important job of the heart is to:

A. get oxygen to our lungs.

B. carry hormones to our tissues for growth and stimulation.

C. prevent the accumulation of waste products in our organs.

D. deliver nutrients to our brain and other vital organs.

E. send blood to our capillary beds to facilitate exchange of materials with the cells.

3. If a person's blood shows a hematocrit reading of 45, it means:

   A. that he is anemic.

   B. that he has more formed elements than fluid in his blood.

   C. forty-five percent of his blood volume is due to RBC'S and 55% due to plasma.

   D. forty-five percent of his blood volume is due to plasma and the rest is due to red blood cells.

4. Indicate the answer which does not belong with the others on this list.

   A. foramen ovale

   B. ligamentum arteriosus

   C. coronary sinus

   D. ductus arteriosus

5. When a nerve impulse spreads from the S-A node toward the bundle of his, it

   A. goes directly through the atrioventricular valves to get there.

   B. is slowed down at the A-V node, thus allowing blood to be pushed upon at the same time the impulse arrives in the septum.

   C. moves over both right and left atria simultaneously.

   D. All of the above

   E. B and C only

6. The following structures and vessels are listed in the sequence which blood follows as it passes thru part of the heart. Which of the following is out of order?

   A. pulmonary venules

B. pulmonary veins

C. right atrium

D. bicuspid valve

E. left ventricle

7. Blood group incompatibilities cause no problem when plasma rather than whole blood is used for transfusion. This indicates that the blood-group antigens are associated with

   A. serum.

   B. plasma.

   C. blood cells.

   D. clotting elements.

   E. antibodies.

8. Which one of the following listed occurs thirdly?

   A. contraction of the atria

   B. depolarization of the bundle of his

   C. depolarization of the SA node

   D. depolarization of purkinje fibers

9. Since ? causes sluggish movement of blood through vessels, it makes the heart contract more forcefully and thus increase it's pressure.

   A. high blood viscosity

   B. stroke volume

   C. peripheral resistance to blood flow

   D. venous return to the heart

   E. cardiac output

10. The main function of blood capillaries is to:

A. permit exchange of materials across their walls to the tissue spaces.

B. decrease arterial blood pressure.

C. Both A and B

D. Neither A nor B

11. A red marrow biopsy is ordered for two patients -- one a child and the other an adult. The specimen is taken from the tibia of the child but from the iliac crest of the adult. Explain why different sites are used to obtain marrow samples in adults and children.

A. In adult, red marrow is found chiefly in the flat bones of the skull and pelvis, ribs, sternum and proximal epiphyses of the humerus and femur.

B. In children, red marrow is found in the bone marrow cavities of all the long bones.

C. Both A and B

D. Neither A nor B

12. At any one time, most of the blood in the circulatory system is in the:

A. heart.

B. arterioles.

C. large arteries.

D. venous system.

E. pulmonary system.

13. The systolic arterial pressure taken in the arm measures the greatest pressure of blood against the:

A. aorta.

B. subclavian artery.

C. brachial artery.

D. brachycephalic artery.

14. Of the following, the most dangerous kind of transfusion reaction (due to incompatible blood) results from agglutination of

A. recipient's serum by donor's cells.

B. the donor's cells by recipient's cells.

C. recipient's cells by donor's serum.

D. donor's cells by recipient's serum.

15. Which statement about capillaries is not true?

A. Capillaries are microscopic vessels whose walls are one cell thick.

B. Blood pressure is lowest in capillaries.

C. Velocity of blood flow is slowest in capillaries.

D. Many capillaries are smaller than whole cells.

E. All of the above.

16. In the hospital, a patient's arterial blood pressure was recorded by auscultation and found to be 145/80 mm Hg. In the process of examining this patient, the nurse probably noted that:

A. the intermittent sound was heard continuously as the pressure of the cuff was lowered.

B. the intermittent sound disappeared as the cuff was lowered to 145 mm Hg.

C. the intermittent sound began to appear at 145 mm Hg as the pressure in the cuff was being lowered.

D. the sounds became continuously intense from the 80 mm Hg mark right to the 0 mm Hg mark.

E. the pulse pressure was abnormally large.

17. On the basis of this information, the differential count is:

A. abnormal because there are no basophils.

B. abnormal because all cell types are low.

C. normal.

D. can't be determined from the information given.

18. A person can be "sensitized" to RH^+ blood by:

A. receiving sensitive blood from A RH^- donor.

B. being RH negative and receiving a transfusion of RH^+ blood.

C. Both A and B

D. Neither A nor B

19. In the sequence of vessels leading away from the heart, which of the following is the most accurate description?

A. venule, vein, vena cava, aorta, artery

B. aorta, capillary, vein

C. aorta, artery, arteriole, capillary bed, venule, vein, vena cava

D. arteriole, venule, artery, vein, aorta, vena cava

E. None of the above

20. Which of the following would not influence venous return:

A. contraction of skeletal muscles squeezing veins.

B. higher pressure in capillaries than in veins, forcing blood toward heart.

C. gravity.

D. dilation of veins.

E. exchange of materials at capillary bed.

21. In which of the following ways do buffers react with relatively strong acid solutions in the body?

A. Buffers accelerate acid production.

B. Buffers neutralize relatively strong acid solutions.

C. Buffers replace of relatively strong acid solution with one of weaker strength.

D. Buffers soak up the strong alkaline products of metabolism.

E. All of the above

22. Erythroblastosis is a serious condition because:

A. fetal oxygen-carrying capacity is greatly diminished.

B. the mother is unable to have any more children.

B. the mother may develop RH antibodies to RH positive blood.

D. the mother's red blood cells are destroyed by the RH^{+}.

E. Rhogam only helps those women who help themselves.

23. With the progressive change from capillaries to venules to veins, which one of the following statements is incorrect?

A. The diameters of the individual vessels increase.

B. The total cross-sectional area begins to increase.

C. The thickness of the vessel walls increases.

D. The velocity increases.

E. None of the above

24. If an individual stands at attention for a prolonged period, it can be expected that his/her ? would be ? .

A. arterial blood pressure; moderately increased

B. venous pressure; moderately increased

C. blood pressure; uniformly increased

D. cardiac output; initially increased

25. Which of the following is a true statement?

A. Arteriosclerosis and atherosclerosis are synonymous.

B. The proportion: CO = BP/R was first used and explained by a great cardiac physiologist by the name of WM. Harvey.

C. A heart attack is the same as a CVA

D. If the mitral valve does not closed tightly, the amount of blood pumped into the aorta with each ventricular contraction tends to decrease.

E. All of the above

26. A student determines her blood type in the laboratory. She finds that clumping occurs in the Anti-D sera and in the Anti-A sera. What blood type does she have?

A. type A^+

B. type B^+

C. type C^+

D. type D^+

E. type O^+

27. The "right atrium is to the venae cavae" as the "left atrium is to

A. the pulmonary veins".

B. the coronary sinus".

C. the aorta".

D. the pulmonary artery".

E. the inferior vena cava".

28. Circulatory shock occurs whenever the ? or blood volume is too low to supply the tissues with oxygen and nutrients.

A. arterial blood pressure

B. venous blood pressure

C. cardiac output

D. heart rate

E. none of the above

29. The neutrophil function is to protect the body against infection. it's major weapon is ? and it works primarily in the ? .

A. phagocytosis, tissue spaces

B. immunity lymph nodes

C. antibody production, blood stream

D. coagulation; ruptured blood vessel

30. Sickle cell anemia is said to produce a vicious cycle since the stimulus, ? , causes the sickling to begin, and the resulting destruction produces low oxygen which causes ? .

A. hypoxia; hypoxia

B. precipitation of hemoglobin; more sickling

C. hypoxia; more sickling

D. RBC fragility; hemoglobin precipitation

31. Which of the following statement is "true"?

A. The myocardium is the name of the muscular portion of the arteries and veins.

B. Blood can be preserved for future use by adding water to it to thin it out.

C. Individuals with A^- blood can receive blood from others who have either A^- or O^- blood types.

D. The formation of a clot in a branch of the coronary artery is known as coronary occlusion or obstruction.

E. The principal function of the spleen is to destroy

lymphocytes.

32. One of the reasons that blood can not flow into the coronary arteries during systole of the heart is that

A. valve leaflets cover the coronary orifices during systole.

B. the force of the blood pressure is too weak to get the blood out during systole.

C. blood can only be driven out during diastole.

D. the coronary arteries only need blood when their tissues are experiencing hypoxia.

E. None of the above

33. Since mild shock is a "stress" to the body, the ? fires; this causes the adrenal medulla to release ? , thus further responding to the stress.

A. sympathetic nervous system; epinephrine

B. parasympathetic nervous system; adrenalin

C. central nervous system; ADH

D. peripheral nervous system; aldosterone

E. autonomic nervous system; renin

34. A differential blood count provides information concerning what?

A. the abundance of red blood cells

B. the viscosity of the blood

C. the clotting time

E. the number of white blood cells in a blood smear

35. During early atrial systole and late ventricular diastole,

A. the blood will flow directly from the vena cavae and pulmonary veins, respectively into the atria and then the ventricles of the heart.

B. atrial contractions will put a sizeable amount of push upon the blood to get it into the right and left ventricles.

C. Both A and B

D. Neither A nor B

36. Patients, with liver disease or defective gastrointestinal fat absorption, frequently have serious bleeding problems because

A. there is a deficiency of platelet cell fragments produced by the liver.

B. there is not enough ATP to synthesize fibrinogen.

C. there is a deficiency of Ca^{++} in the blood.

D. there is a deficiency of bile salts which are necessary for vitamin K absorption and vitamin K an essential factor in hepatic synthesis of prothrombin and other clotting factors.

E. All of the above

37. The lymphatic vessels transport particulate matter such as ? away from the interstitial spaces - such particles being too large for direct absorption into the blood capillaries.

A. glycogen

B. starch

C. amino acids

D. vitamins

E. large protein molecules

38. In the general feedback regulating red blood cell production, which of the following processes is out of order?

A. The stimulus, hypoxia, increases erythropoiesis.

B. Increased RBC production decreases hypoxia.

C. Increased oxygen again causes erythropoiesis.

D. All of the above.

E. None of the above.

39. The inability to provide sufficient platelets to initiate blood clotting is one of the most frightful aspects in the condition of:

A. hemolytic disease of the newborn.

B. sickle cell anemia.

C. leukemia.

D. atherosclerosis.

E. transfusion reactions.

40. The atrioventricular valve that is on the same side of the heart as the origin of the pulmonary artery is named the

A. tricuspid valve.

B. bicuspid valve.

C. mitral valve.

D. semilunar valve.

41. The "lubb-dup" sounds have practical clinical value because they provide information concerning the

A. strength of arterial contractions.

B. power of papillary muscles.

C. efficiency of heart valves.

D. foramen ovale.

E. venae cavae.

42. The lymphatic system:

A. drains fluid and proteins that form in the tissue spaces.

B. returns excess fluid from the interstitial spaces to the circulatory system.

C. includes the thoracic duct and numerous lymph nodes.

D. All of the above

E. None of the above

43. In which circulation do the arteries carry mainly oxygenated blood?

A. pulmonary circulation of adults

B. systemic circulation of adults

C. both A and B

D. neither A nor B

44. What would you call the cavity that lies between the lungs? The heart lies in this cavity and the diaphragm forms the floor:

A. abdominal cavity.

B. pleural cavity.

C. pelvic cavity.

D. peritoneal cavity.

E. mediastinum.

45. The period of time, in which the heart chambers are receiving blood and the myocardium is in a relaxed position, is termed:

A. a heart attack.

B. diastolic phase.

C. diastolic phase.

D. systolic phase.

E. bleeding time.

46. In the capillaries:

A. blood hydrostatic pressure (BHP) tends to cause filtration of fluid from the vessels, and interstitial fluid hydrostatic pressure tends to move fluid into the vessels.

B. blood hydrostatic pressure promotes filtration of fluid from the vessels and blood osmotic pressure promotes movement of fluid back into the blood stream.

C. Both A and B

D. Neither A nor B

47. These are events in clotting of blood ---

1. severing of a vessel
2. clot retraction
3. fibrin formation
4. agglutination of platelets

Put the answers in correct order

A. 1,2,3,4

B. 2,3,4,1

C. 3,4,1,2

D. 4,1,2,3

E. 1,4,3,2

48. Which of the following is "not" found in or attached to the ventricles?

A. trabeculae carnae

B. papillary muscles

C. pectinate muscles

D. fossa ovalis

E. semilunar valves

49. Systole is a term "usually" referring to:

A. the relaxation of the heart during the cardiac cycle.

B. the makeup of the wall of the heart.

C. the integrity (or makeup) of the pericardium.

D. the conduction system of the heart.

E. contraction of the ventricles of the heart.

50. Rate and direction of fluid exchange between capillaries and interstitial spaces are determined by the ? and ? pressures exerted by the blood plasma and blood pressure, respectively.

A. pushing; pulling

B. blood; water

C. osmotic; hydrostatic

D. all of the above

E. none of the above

51. The purpose of valves in larger lymph vessels is to:

A. stop or start lymph flow.

B. control overflow.

C. permit lymph to flow in one direction.

D. prevent lymph from returning to the interstitial spaces from which it was formed.

52. The rate of formation of thrombin from prothrombin is almost directly proportional to the amount of available:

A. prothrombin.

B. prothrombin activator.

C. vitamin K.

D. calcium ions.

E. fibrinogen.

53. Veins from the spleen, pancreas, stomach and intestines send their blood to the liver by means of tributaries of the:

A. hepatic veins.

B. hepatic portal vein.

C. mesenteric vein.

D. hepatic artery.

E. cisterna chili.

54. Which is false about the cardiac cycle?

A. Consists of contractions and relaxations of the atria and vent.

B. Is initiated by a spontaneous generation of an action potential in the S-A node.

C. Takes about 16 seconds to complete.

D. Initiates in the aria and spreads to the ventricles.

E. None of the above

55. You should calculate that, for this capillary exchange system. There is:

A. a net filtration pressure of 18 mm Hg.

B. a net osmotic pressure of 18 mm Hg.

C. a net filtration pressure of 10 mm Hg.

D. a net osmotic pressure of 10 mm Hg.

E. a state of exchange equilibrium.

56. Spasm of a severed blood vessel is a local reaction that:

A. reduces the flow of blood through the opening for about one minute.

B. varies in intensity directly as the severity of the trauma to the vessel.

C. occurs only after the clot has been formed.

D. activates the platelets to adhere to the vessel.

E. causes clot retraction.

57. Which of the following vessels and chambers are passed by blood in it's flow through the pulmonary circuit?

A. inferior vena cava, superior vena cava, right atrium

B. right ventricle, tricuspid valve, left ventricle

C. right ventricle, pulmonary artery, pulmonary vein, left atrium

D. inferior vena cava, right atrium, left atrium

58. Which of the following is/are true?

A. The force of contraction of the left ventricle is greater than that of the right ventricle.

B. The lowest velocity blood flow occurs in the capillaries.

C. The atrioventricular node is the only site at which electrical activity occurring in the atria can be conducted to the ventricles.

D. All of the above

E. None of the above

59. Which of the following is/are the most critical factor in maintaining arterial pressure?

A. total length of the vessel

B. peripheral resistance

C. cross sectional diameter

D. cardiac output

E. all of the above

60. Blood osmotic pressure due to colloids is more constant than blood osmotic pressure due to crystalloids because:

A. albumin is a larger molecule than sodium.

B. the pores in capillaries are permeable to albumin but not to sodium.

C. enough to let colloids in and out of the vessel but not big enough let crystalloids out.

D. blood pressure not osmotic pressure affects movement across capillary beds.

E. none of the above

61. Lymph nodes act as:

A. reservoirs for extra blood.

B. sites of red cell production.

C. scavengers of foreign matter picked up by white blood cells.

D. drainage depots for dying red blood cells.

E. All of the above

62. Probably the most important factor in preventing coagulation of blood in the normal, intact circulation is:

A. fibrinogen.

B. heparin.

C. the normal, smooth endothelial surface of the blood vessels.

D. vitamin K.

E. calcium ions.

63. "To allow 2 capillary beds for exchange of materials" is the function of the

A. pulmonary circulation.

B. ductus venosus.

C. portal circulation.

D. placenta.

E. right side of the heart.

64. The "Basic Principle" or cardiovascular reflexes is that the stimuli that causes these reflexes to occur in the first place will be ? by the ultimate result of that reflex.

A. reversed

B. inhibited

C. both A and B

D. Neither A nor B

65. Normally, there is no fluid in the tissue spaces of the lungs because

A. the pulmonary artery has no stretch and recoil.

B. the highest filtration pressure is in the pulmonary veins.

C. there is a very low blood pressure in the pulmonary capillaries to cause filtration into the alveoli.

D. All of the above

66. Since a number of anti-clotting factors, including antithrombin and heparin, are normally present in the plasma, the event that can initiate actual clotting is dependent upon the

A. ratio of clotting to anti-clotting factors present.

B. ratio of antithrombin to heparin in the blood.

C. Both A and B

D. Neither A nor B

67. Which description pertains to oxygen content per unit volume of blood in fetal circulation?

A. Blood in the pulmonary veins contains more oxygen than does blood in the pulmonary arteries.

B. Blood in the femoral veins contains more oxygen than does blood in the aorta.

C. Blood in the ductus arteriosus contains more oxygen than does blood in the ductus venosus.

D. Blood in the inferior vena cava contains more oxygen than does blood in the superior vena cava.

68. The heartbeat is slowed by:

A. the action of acetylcholine.

B. stimulation of it’s sympathetic nerves.

C. a decreases in blood pressure.

D. All of the above

E. A and B only

69. Starling's law of the heart states that within limits the strength of ventricular contraction is:

A. directly proportional to venous return.

B. inversely proportional to body temperature.

C. directly proportional to sex.

D. inversely proportional to cardiac output.

E. None of the above

70. The partial pressure of oxygen is highest in the:

A. blood in the pulmonary veins.

B. cells.

C. lungs.

D. blood in the pulmonary arteries.

E. atmosphere.

71. What would happen if an opening were made into the thoracic wall so that air entered the pleural cavity but not the pulmonary cavity?

A. The intra pleural pressure becomes subatmospheric pressure.

B. The intra alveolar pressure becomes subatmospheric pressure.

C. The intra pleural pressure becomes atmospheric pressure.

D. The intra alveolar pressure becomes atmospheric pressure.

E. The lungs will burst.

72. Carbon monoxide is harmful because it:

A. has been shown to cause cancer.

B. interferes with phagocytosis.

C. causes atelectasis.

D. combines rapidly with hemoglobin and is not readily released.

E. speeds up the process of electron transport.

73. Which of the following is not a characteristic of the large intestine?

A. Absorbs much of the water remaining in the waste material of undigested foods.

B. It is divided into ascending, transverse, and descending portions.

C. Contains bacteria which synthesize certain nutritional factors such as vitamins.

D. Serves as the main absorptive surface for digested foods.

E. All of the above

74. Which of the following is not a factor in the movement of lymph?

A. arterial pulsations

B. squeezing action of skeletal muscles

C. breathing

D. contraction of smooth muscle in the walls of the trunk

E. negative pressure in thoracic cavity

75. Which of the following could best be termed "cellular respiration"?

A. The passage of gasses in and out of the lung alveoli

B. Utilization of oxygen by a liver cell with the release of energy.

C. The entry of food materials into cells.

D. The act of breathing itself.

E. all of the above

76. Exercise causes an increase in the respiratory rate because:

A. nerve impulses from stretched muscles directly stimulate the respiratory center to fire.

B. oxygen is burned up and the individual needs more glucose.

C. Both A or B

D. Neither A nor B

77. Normally, most of the contents of the small intestine have been absorbed by the time chyme has reached the

A. end of the duodenum.

B. middle of the jejunum.

C. end of the jejunum.

D. middle of the ileum.

E. end of the ileum.

78. The fluid in the pleural cavity is there to:

A. dissolve the gases that normally enter the pleural cavity.

B. carry oxygen to the most distal parts of the bronchial tree.

C. allow cohesion of the visceral to parietal layers of pleura.

D. prevent friction of the lungs during breathing.

E. C and D only

79. Emphysema is devastating disease because every breath is painful. Emphysema is most commonly related to long term:

A. lack of exercise.

B. anemia.

C. cigarette smoking.

D. All of the above

E. None of the above

80. The major stimulus for the initiation of the "defecation reflex" is:

A. a small amount of feces in the large intestine.

B. stimulation of proprioreceptors (stretch receptors) in the rectum.

C. Both A and B

D. Neither A nor B

81. In passive immunity:

A. antibodies made by another person are injected into the patient as a form of treatment.

B. the patient produces T lymphocytes and antibodies in response to an infection.

C. immunity lasts for many years because memory cells are produced.

D. All of the above

E. A and B only

82. In the male, going through puberty, testosterone causes an increased ? to make the voice deeper and the pitch lower.

A. tension on the vocal cords

B. tautness on the vocal cords

C. size of the thyroid cartilages to overstretch the vocal cords

D. all of the above

E. A and B only

83. Which of the following reactions occurs just before CO_2 diffuses from the pulmonary capillary bed to the alveoli?

A. $CO_2 + H_2O \rightarrow H_2CO_3$

B. $CO_2 + H_2O$ --carbonic anhydrase--> H_2CO_3

C. $H_2CO_3 \rightarrow H^+ + HCO_3^-$

D. $H_2CO_3 \rightarrow H_2O + CO_2$

E. none of the above

84. Edema in the lungs interferes with air exchange over the respiratory membrane by

A. significantly decreasing the volume of the lung.

B. greatly increasing the resistance of the conduction vessels.

C. increasing the distance over which the gas must travel.

D. reducing the surface area available for diffusion.

E. mixing too much water and other fluids with oxygen and carbon dioxide.

85. Which one of the following is/are functions of saliva in the mouth?

A. Helps to lubricate food so it can be swallowed.

B. The enzyme ptyalin or salivary amylase initiates carbohydrate digestion.

C. both A and B

D. neither A nor B

86. The following processes, A to E, occur in getting humoral immunity. Which is first out of order?

A. Production of stem cells in bone marrow.

B. Potentiation at thymus and other areas, such as the liver.

C. Cloning in response to microbial introduction.

D. Antigenicity by plasma cells.

E. Antibody production to specific antigens.

87. If atmospheric pressure is 745 mm HG and the air is 20% 02, what is the partial pressure of oxygen?

A. 740 mm HG

B. 38 mm HG

C. 149 mm HG

D. 144 mm HG

E. 37.25 mm HG

88. Which of the following listed substances is greatest as a result of cellular respiration?

A. oxygen

B. carbon dioxide

C. glucose

D. water

E. B and D only

89. The functions of the digestive tract are enhanced by it's accessory organs. They are the:

A. tongue, teeth, salivary glands, liver and pancreas.

B. cecum, lips, fauces, spleen and colon.

C. mouth, pharynx, esophagus, stomach and small intestines.

d. ascending colon, transverse colon, descending colon, sigmoid colon and rectum.

90. Which of the following is not a function of the pancreas?

A. Secretes insulin as well as glucagon into pancreatic duct.

B.Secretes alkaline juice which neutralizes chyme while chyme is stored in the stomach.

C. Secretes both endocrine and exocrine substances.

D.Secretes lipase which acts on bile-emulsified fats to convert them to fatty acids and glycerol.

E. Secretes amylase which acts on starches to convert them to maltose.

91. The idea that one's own antigens provide too much exposure to the thymus in the pre-processing time and thus destroy the ability to later provide lymphocyte cloning, is called:

A. phagocytosis.

B. coagulation.

C. autoimmunity.

D. tolerance.

92. Which of the following is/are true regarding the respiratory system?

A. The conducting airways contain gas which cannot be exchanged with blood; their volume is called "tidal volume".

B. The sum of the tidal, inspiratory reserve, and expiratory reserve volumes is the total lung volume.

C. Minute respiratory volume(MRV) is calculated as respiratory rate times respiratory reserve.

D. The change in intra pleural pressure from -4 MM HG to -12 MM HG during inspiration is due to compression of the thoracic cage.

E. None of the above

93. In comparison with that in the right atrium, blood in the left atrium has a:

A. lower concentration of oxygen.

B. lower concentration of carbon dioxide.

C. higher concentration of oxygen.

D. higher concentration of carbon dioxide.

E. B and C only

94. If an incision has to be made in the small intestine to remove an obstruction, the first layer of tissue to be cut into is the:

A. muscularis.

B. mucosa.

C. submucosa.

D. serosa.

95. The secretion of sodium bicarbonate from the pancreas is triggered by

A. the alkalinity of chyme in the stomach.

B. the alkalinity of chyme in the pancreas.

C. the alkalinity of food in the duodenum.

D. the acidity of chyme in the duodenum and stomach.

E. None of the above

96. Which of the following is the better definition of immunity?

A. Immunity refers to the resistance of the body to microbes: viruses, bacteria, and other unicellular and multicellular organisms.

B. Immunity constitutes all the physiological mechanisms which allow the body to recognize materials as foreign to itself and to neutralize or eliminate them.

97. The largest fraction of the carbon dioxide in the blood travels as

A. the oxygenated form of carbon dioxide.

B. bicarbonate ions.

C. carboxyhemoglobin.

D. Co_2 physically dissolved in the plasma of the blood.

E. None of the above.

98. To free the small intestine from the posterior abdominal wall, which of the following would have to be cut?

A. mesocolon

B. mesentery

C. lesser omentum

D. falciform ligament

99. Only one type of digestive juice contains carbohydrate, protein and fat-digesting enzymes. Which one is it?

A. pancreatic juice

B. saliva

C. bile

D. intestinal juice

E. gastric juice

100. As a ?, phagocytosis provides transitory protection until the immune system is activated.

A. first line of defense

B. second line of defense

C. third line of defense

D. fourth line of defense

E. fifth line of defense

101. The lungs inflate when the air pressure in the lungs is:

A. less than that of the atmosphere.

B. greater than that of the atmosphere.

C. equal to that of the atmosphere.

D. equal to that in the chest cavity.

E. None of the above

102. Hydrogen ion concentrations in the blood always parallel carbon dioxide concentration because:

A. H+ is the same as CO_2.

B. H+ forms from ionization of carbonic acid.

C. H_2O releases H+ ions during respiration.

D. the respiratory center only responds to H+ and CO_2.

E. B and C only

103. Which of the following lists digestive organs in the order that food matter passes through them?

A. esophagus, stomach, large intestine, small intestine

B. esophagus, stomach, pancreas, small intestine, large intestine

C. stomach, esophagus, liver, large intestine, small intestine

D. pharynx, esophagus, stomach, small intestine

104. The liver:

A. secretes bile as it's only digestive function.

B. has an important role in maintaining homeostasis of blood sugar.

C. plays an essential role in metabolism of carbohydrates, proteins, and fats.

D. is one of the most vital organs of the body.

E. All of the above

105. Metabolism is best describes as:

A. the build up of food molecules into more complex molecules from less complex ones.

B.the changes which foods undergo in order to be in a form in which they can be absorbed.

C. the breakdown of food molecules into simpler compounds from more complex compounds.

D. the chemical changes which the digestive end products undergo inside the cells of the body.

E. the transport of digestive food products in our blood stream.

106. The secondary or anamnestic response in immunity:

A. occurs after the primary response has activated specific B-cells.

B. is due to proliferation of plasma cells from stimulated T-cells.

C. is more effective than the primary response because more antibodies are produced in a shorter period of time.

D. results in the production of different classes of antibodies than the primary response.

E. are similar in function to plasma cells.

107. Which air pressure is the highest?

A. intra thoracic pressure during inspiration

B. pulmonary pressure during expiration

C. atmospheric pressure

D. pulmonary pressure during inspiration

E. intra thoracic pressure during expiration

108. In carbon monoxide poisoning

A. the arterial partial pressure of oxygen is decreased.

B. the arterial partial pressure of carbon monoxide is much greater than that of oxygen.

C. the arterial partial pressure of carbon dioxide is substantially increased above normal.

D. the venous partial pressure of oxygen is normal.

E. the oxygen-carrying ability of hemoglobin is substantially decreased.

109. What role does bile play in digestion?

A. Contains an enzyme which splits fat molecules into simpler compounds.

B. Increases the number of fat particles and hence their total surface area.

C. Releases the energy stored in fats, making it available to the body cells.

D. All of the above

E. None of the above

110. What is the most important outcome of cellular respiration?

A. carbon dioxide discharge

B. energy transformation from foodstuffs

C. food intake

D. oxygen intake

E. oxygen utilization

111. Which of the following actions would not result in inspiration?

A. decrease in intra pulmonic pressure to less than 760

mm HG.

B. elevation of the diaphragm

C. elevating the front part of the ribs

D. depression of the diaphragm

E. combines elevation of ribs and depression of diaphragm

112. A drop in the PO_2 of the blood is less of a stimulus to breathing than a rise of the PCO_2 level of the blood because:

A. excess of CO_2 would be toxic to the blood, causing irreversible damage, whereas oxygen deprivation can be remedied by addition of oxygen.

B.the respiratory center of the brain is more responsive to CO_2 than it is to oxygen levels.

C. Both A and B

D. Neither A nor B

113. In swallowing, all of the following events are automatic except:

A. pushing the bolus of food into the pharynx.

B. closure of the glottis.

C. relaxation of the lower esophageal constrictor muscle.

D. contraction of the pharyngeal muscles.

E. upward movement of the soft palate.

114. Which of the following is not one of the functions of the liver?

A. conjugation of steroid hormones

B. domination of amino acids

C. detoxification of poisons

D. production of red blood cells in the embryo

E. protein digestion through the action of bile

115. Cohesion of the visceral pleura to the parietal pleura occurs

A. just prior to inspiration

B. immediately after expiration.

C. when we are sleeping or resting.

D. in pleurisy and pneumonia.

E. All of the time

116. Changes in which of the following affect breathing rate the most?

A. degree to which exercise is being carried on

B. PO_2 of atmospheric air

C. heat produced in the body during respiration

D. pH of alveolar membranes

E. all affect respiration equally

117. Which one of the following would be pierced thirdly by the point of a pin entering a tooth from the surface of the crown?

A. pulp

B. root canal

C. dentin

D. enamel

118. Inability of the pyloric sphincter to open would prevent

A. food from entering the stomach.

B. stomach acid from being released.

C. digestive enzymes from being released.

D. food from entering the small intestines.

E. the mechanical breakdown of food in the stomach.

119. Which of the following provides the primary source of fuel for cellular processes?

A. carbohydrates

B. lipids

C. proteins

D. amino acids

120. The "negative" intra pleural pressure assists:

A. the flow of air to the nasal cavity from outside.

B. the inflow of blood into the right atrium from the inferior vena cava and other abdominal veins.

C. the formation of bubbles of nitrogen gas in muscular capillaries.

D. the entrance of air into the pleural cavity.

E. All of the above

121. The intestinal microvilli are:

A. folds of the wall of the small intestine.

B.finger like extensions of the intestinal mucosa that increase the surface area.

C. small extensions of the peritoneum.

D. projections of the cell membrane that increase the cell's surface area.

E. the major site of vitamin B and vitamin K formation by bacteria.

122. Why is it that one can eat and drink even though the head may be lower than their stomach?

A. The stomach exerts suction which pulls the food into it.

B. The cartilaginous rings in the trachea contract to push the food downward toward the stomach and abdomen.

C. Rhythmic relaxation and contraction of the esophagus forces the material toward the stomach.

D. Reverse peristalsis pushes the food and water toward the stomach.

E. Air pressure in the mouth forces the food and water into the stomach.

123. Suppressor T cells:

A. release lymhokines that increase the activity of cytotoxic T cells and activated B cells.

B. decrease their activity as antigenic stimulus decreases.

C. function in preventing autoimmune response.

D. are regulatory cells.

E. Two of the above are correct.

124. Probably the most important factor regulating the rate of diffusion of CO_2 through the "respiratory membrane" is the:

A. degree to which a gas dissolves in water.

B. thickness of the respiratory membrane.

C. surface area of the respiratory membrane.

D. gaseous pressure gradient.

E. All are equally important.

125. Chyme is produced principally by the action of ? in the stomach.

A. carbohydrate enzymatic action

B. ptyalin and protease

C. ptyalin and lipase

D. churning

E. pepsin and hydrochloric acid

126. The reason that the stomach mucosa is not digested by the enzymes within the lumen of that organ is because:

A. the enzymes do not stay that long within the stomach.

B. the enzymes are destroyed when the come in contact with the mucosa.

C.the enzymes are produced in an inactive form within the stomach and are not activated until they reach the intestine.

D. the microvilli of the stomach mucosa are constantly being replaced every two weeks.

E. None of the above

127. Active immunity is acquired by either infection with the live organism or by:

A. being given the antibody from a person or animal that had been infected.

B. exposure to histocompatible (or similar) antigens.

C. vaccination.

D. blood transfusions.

E. All of the above

128. When oxygen diffuses into the Red blood cells, it:

A. forms a strong chemical bond with hemoglobin.

B. forms a weak chemical bond with hemoglobin.

C. is dissolved in the plasma and transported principally in this fashion.

D. combines with carbon dioxide to form a special type of transport molecule.

E. causes the displacement of any carbon monoxide which may be combines with hemoglobin.

129. The stomach performs all of the following functions except:

A. temporary storage of food immediately after a meal.

B. secretion of hydrochloric acid.

C. mixing of food with gastric secretions.

D. emptying of the food in the small intestine.

E. segmentation and deglutition.

130. The greatest amount of absorption occurs in the ileum of the small intestine because:

A. blood and lymph vessels are very abundant there.

B. most of the food had been digested by the time it gets there.

C. Both A and B

D. Neither A nor B

131. Substances such as glycerol, fatty acids and proteins may sometimes be converted into acetoacetic acid and acetyl coa, for the purpose of getting energy. What is the name for this type of conversion?

A. anaerobic respiration

B. glycogenesis

C. glycogenolysis

D. Gluconeogenesis

E. glycolysis

132. The fact that hemoglobin provides almost 60% more oxygen-carrying capacity than could be done by simple dissolving of oxygen in plasma indicates that:

A. hemoglobin is an "oxygen buffer".

B. hemoglobin is an acid-base buffer.

C. Both A and B

D. Neither A nor B

133. Which one of the following is correct?

A.The carotid and aortic bodies are more important than the central chemoreceptors in terms of their effect on respiratory rate.

B.The chemical to which the central chemoreceptors respond directly is carbon dioxide.

C.The expulsion of carbon dioxide from the lungs can increase the pH of the blood.

D.Arterial pH is more important than arterial partial pressure of carbon dioxide in normal respiratory regulation.

134. Products of digestion are brought to the liver by:

A. tributaries of the superior mesenteric and hepatic portal vein.

B. branches of the hepatic vein.

C. branches of the hepatic artery.

D. branches of the celiac artery.

E. superior mesenteric artery and it’s branches.

135. Which of the following is/are true?

A. Secretion of insulin is inhibited by eating.

B.The rate of insulin secretion is controlled primarily by the glucose level of the blood flowing through the pancreas.

C. Both A and B

D. Neither A nor B

136. If blood samples were taken from right atrium, right ventricle and pulmonary artery, and analyzed for oxygen concentration:

A. all would contain about the same oxygen concentration.

B. the right atrial sample would be lowest in oxygen concentration.

C. all would contain more oxygen than pulmonary vein blood.

D. all would contain 20 ML 02 per 100 MLS. blood.

137. Because the inspiratory center of the medulla is so ? to hypoxia, it can:

A.sensitive; respond to very low levels of oxygen in the blood without being adversely affected.

B.responsive; cause rapid breathing to the state of hyperventilation with no trouble at all.

C. insensitive; withstand low oxygen levels for a long period of time.

D. None of the above

138. Sympathetic nerve innervation to the small intestine

A. stimulates peristalsis.

B. inhibits parasympathetic activity of the G.I. tract.

C. stimulates the secretion of enzymes.

D. inhibits the absorption of water.

E. None of the above

139. Cholecystokinin, produced by the intestinal wall in the presence of chyme, functions most directly to produce:

A. emulsification of bile.

B. contraction of the gallbladder.

C. concentration of bile in the gallbladder.

D. metabolism of fats.

140. Insulin:

A. is a steroid hormone.

B.is secreted by cells in the pancreas in response to decreased blood glucose levels.

C.increases glycogen synthesis by increasing glucose concentration within the cells and by increasing glucose phosphorylation.

D. increases blood concentration of glucose.

E. excess can cause the disease diabetes mellitus.

141. Oxygen and carbon dioxide are exchanged in the lungs by:

A. active transport mechanism.

B. diffusion.

C. filtration.

D. osmosis.

142. After hyperventilation for several seconds, a person experiences a short period of apnea(lack of breathing) because:

A. the level of oxygen has increased and inhibits the inspiratory center.

B. the oxygen in the lungs has not had time to diffuse into the blood.

C. the pH would drop and inhibit inspiration.

D.the level of carbon dioxide would drop below the level necessary to stimulate the inspiratory center.

E.the short, quick respirations would upset the timing of the apneustic center, resulting in a temporary lack of action potentials to the inspiratory center.

143. As a group, fat-soluble vitamins are:

A. absorbed more readily in the presence of bile salts.

B. excreted rapidly by the kidneys.

C. easily destroyed by heat during cooking.

D. All of the preceding

144. Glucagon increases blood sugar by:

A. increasing the secretion of insulin by alpha cells.

B.increasing epinephrine secretion to promote hepatic breakdown of glycogen.

C. promoting glucose transfer across cell membranes.

D. promoting glycogenesis.

145. Blood pressure in the glomerulus is higher than the arterial end of a non-renal capillary bed because: (HINT: remember cause and effect)

A. efferent arterioles offer more resistance to blood flow.

B. it needs to be higher in order to facilitate formation of the glomerular filtrate.

C. Both A and B

D. Neither A nor B

146. A woman will still continue to have her menstrual periods after surgical removal of:

A. both ovaries.

B. one ovary.

C. one ovary and the uterus.

D. both ovaries and the uterus.

E. uterus only.

147. In the makeup of the fetal membranes, the --?-- gives rise to the fetal part of the placenta, while the --?-- forms the fluid-filled cavity which cushions the embryo and fetus.

A. chorion; amnion

B. amnion; yolk sac

C. morula; blastula

D. amnion; chorion

E. umbilical cord; endometrium

148. Which of the following mechanisms, if any, exerts the greatest influence towards maintaining homeostasis of total fluid volume?

A. glomerular filtration rate

B. renal tubular water reabsorption

C. tubular secretion of urea

D. amount of water intake

E. reabsorption of water in the large intestine

149. The primary mechanism of fluid & electrolyte balance involves control of fluid --?--.

A. output

B. input

C. Both A and B

D. Neither A nor B

150. If sperm are not fully developed and motile by the time they leave the seminiferous tubules, the maturation process is finished in the:

A. testes

B. interstitial cells

C. vas deferens

D. epididymis

E. seminal vesicles

151. Which of these is probably least important in bringing about the conception of a new person?

A. Presence of hyaluronidase in acrosomes of the sperm.

B. Degree of peristalsis in fallopian tube of woman.

C. Size or shape of the uterus in the woman.

D. Reaching of orgasm in the man.

E. Sped at which the sperm move through the female tract.

152. Identical twins result when:

A. 2 eggs are fertilized by the same sperm.

B.cells at the 2-cell or 4-cell stage are separated and develop as two separate embryos.

C. coitus is accomplished with 2 different men.

D. 2 eggs are fertilized simultaneously by 2 different sperms.

E. None of the above

153. Which of the following is "not" true of the ureters?

A. They are capable of having peristalsis.

B. They carry urine from the renal pelvis to urinary bladder.

C. They enter the posterior wall of the bladder.

D. They aid in reabsorption of water.

E. All of the above are false.

154. Approximately what percent of the body is composed of water?

A. 5 to 6%

B. 10 to 20%

C. 70 to 80%

D. 95 to 96%

E. There is no water at all.

155. The reason that the seminal vesicles do not store sperm is because:

A.they are too small to possibly store all the sperm produced by the testes and store it for more than a day at a time.

B.as exocrine glands, they have no means of receiving materials from outside of itself.

C.the vas deferens, which carries sperm, does not come into close proximity to the seminal vesicles.

D.sperm would be destroyed in it because it, that is, the seminal vesicle is too close to the pelvic cavity where the temperature is considerably higher than in the testes.

E. None of the above

156. Which of these is/are the most detrimental to sperm in their reproductive task?

A. Sperm count of 120 - 150 million per milliliter.

B. Ejaculate volume of about three and one half milliliters.

C. Vaginal pH of about 3.5.

D. All of the above.

E. A and B only

157. The treatment of diabetes is commonly the administration of insulin; this must be given by injection rather than thru the mouth because:

A.the excessive pressure of peristalsis would distort the shape of the insulin molecule.

B.insulin would be digested and thus destroyed by the gastric enzymes.

C. injection into a muscle puts the insulin where it can do the most good.

D. many diabetics are overweight.

158. Which of the following statements concerning the urethra is "not" true?

A. It opens to the posterior wall of the vagina.

B. In males, it is both excretory and reproductive.

C. Possesses a sphincter muscle which can halt urination at mid-stream.

D. Its walls are composed of mucous membrane and epithelium.

159. The excretory system is better than the respiratory system in fixing acidosis because:

A. it does it automatically.

B. it can reverse the production of CO_2 that occurred during breathing.

C. Both A and B

D. Neither A nor B

160. Which of the following sequences lists the events of coitus in the correct order(in males)?

A. ejaculation - erection - orgasm

B. orgasm - erection - ejaculation

C. erection - emission - ejaculation

D. None of the above are correct

161. "First stage of labor is to amniotic fluid release" as second stage of labor is to:

A. estrogen decrease".

B. oxytocin".

C. parturition".

D. None of the above

162. Place the structures below in the proper sequence as the blood filtrate would pass through them.

1. loop of the nephron(loop of henle)
2. distal convoluted tubule
3. proximal convoluted tubule
4. Bowman's capsule
5. collecting tubules and ducts

A. 3, 2, 1, 4, and 5

B. 3, 4, 1, 2, and 5

C. 4, 3, 1, 2, and 5

D. 4, 3, 2, 1, and 5

E. 2, 3, 1, 4, and 5

163. Which of the following is not true of urine:

A. it can be alkaline or acid depending on the diet.

B. it has a specific gravity averaging 1.155.

C. the normal daily volume is 1.0 to 1.5 liters.

D. urea is one of the main organic constituents.

164. Puberty in humans occurs when the --?--; accordingly, it releases hormones that --?--.

A. pituitary starts working; start sexual cycles

B. ovaries start working; promote sex drive

C. hypothalamus ages prematurely; stimulate FSH/LH/ICSH release

D. B and C only

E. All of the above

165. The most important "hormonal" event at delivery of the afterbirth is:

A. the removal of the baby from the womb.

B. the removal of the placenta from the uterus.

C. the decrease in estrogen levels in the mother's blood.

D. the inhibition of prolactin secretion by progesterone.

E. None of the above

166. When energy input is greater than energy output a person may

A. gain weight.

B. lose weight.

C. maintain his weight.

D. increase his basal metabolic rate.

E. succumb to energy poisoning.

167. Place the vessels in the order that blood would flow through them toward the inferior vena cava.

1. arcuate vein
2. interlobar vein
3. peritubular venules
4. interlobular veins
5. renal vein

A. 3, 4, 1, 2, and 5

B. 1, 3, 4, 2, and 5

C. 3, 4, 2, 1, and 5

D. 3, 4, 5, 1, and 2

E. 1, 5, 2, 4, and 3

168. If blood is too acidic, which of these would occur?

A. Hydrogen ions would be excreted by the kidneys.

B. Sodium ions would be taken up by the kidneys.

C. The person's rate of breathing would increase.

D. Ammonia would be secreted by the cells of the kidney tubules.

E. All of the above would occur.

169. The passages of the female reproductive system differ from those of the male in that females have direct communication with:

A. the gonads.

B. mucous secreting glands.

C. the peritoneal cavity.

D. urinary system.

E. None of the above

170. If a young man was impotent, he could still:

A. perform normal sexual intercourse.

B. have an occasional ejaculation.

C. reach an orgasm now and then.

D. sustain an erection.

E. None of the above

171. An essential amino acid differs from other amino acids because it:

A. forms peptide linkages with other amino acids to form proteins.

B. is a product of hydrolysis of ingested proteins.

C. contains an amino and an acidic radical.

D. is absorbed from the gut by active transport.

E. cannot be synthesized by the body.

172. Whenever the plasma glucose concentration exceeds the renal threshold for glucose,

A. the glomerular filtration rate increases.

B. glucose will appear in the urine.

C. the volume of urine decreases.

D. glucose will be secreted into the peritubular capillary bed.

E. None of the above

173. If an individual has a bleeding ulcer, his/her kidney would shut down if it were not for the fact that --?-- is maintained by the --?-- of the efferent arteriole. This action is due to secretion of --?-- which activates angiotensinogen to angiotensin I in the blood.

A. glomerular filtration; constriction; renin

B. tubular reabsorption; dilation; rennin

C. filtration; pressure; aldosterone

D. pressure; closing; anti-diuretic hormone

E. None of the above

174. It is reasonable to assume that since the inner wall of the vagina is cornified or thickened, it also will

A. resist irritation from the penis during sexual intercourse.

B. resist infection upon exposure to pathogenic bacteria from the outside of the body.

C. Both A and B

D. Neither A nor B

175. The effect of suckling on milk release is to:

A. provide the chemical stimulus for milk release from the breasts.

B. initiate the nervous reflex that promotes oxytocin secretion and release, as well as continue the secretion of prolactin.

C. promote estrogen and progesterone secretion from the ovaries.

D. counteract the milk-producing effects of prolactin.

E. inhibit further contractions of the myometrium.

176. One of the most destructive aspects of protein breakdown is the production of --?--.

A. ammonia

B. ketones

C. both A and B

D. neither A nor B

177. The most important source of water for the normal adult is from:

A. beverages and liquids ingested.

B. moist food such as lettuce and tomatoes.

C. oxidative metabolism of nutrients.

D. proteins.

E. the oxidation of lipids and hormones.

178. Which of the following statements concerning the urination reflex is "incorrect"?

A. Distention of the bladder with over 300 cc stimulates stretch receptors in the inner wall of the bladder.

B. Sensory impulses pass over the lateral spinothalamic tract to the hypothalamus of the brain.

C. Motor impulses from the hypothalamus travel over the parasympathetic nervous system down the spinal cord toward the urinary bladder.

D. Forceful action of the detrusor muscle pushes urine through the contracted internal urethral sphincter.

E. None of the above

179. "Human development" begins with

A. birth.

B. the seventh week of pregnancy.

C. the second week of pregnancy.

D. fertilization.

E. implantation.

180. An increased loss of urea, uric acid and creatine, as during dieting and then starvation, would put a person initially in --?-- nitrogen balance and later in --?-- nitrogen balance.

A. negative; more negative

B. negative; positive

C. positive; negative

D. positive; more positive

181. The major role of the kidney in the maintenance of acid-base balance is to:

A. excrete hydrogen ions in exchange for sodium ions.

B. excrete carbonic acid and sodium chloride.

C. excrete sodium bicarbonate.

D. excrete sodium in exchange for hydrogen ions.

182. What would probably occur if the prostate gland had a tumor in it's central part?

A. The seminal duct would be obstructed.

B. An excessive secretion of testosterone would result.

C. An excessive number of spermatozoa would be produced.

D. The urethra would be constricted and urine would probably back up into the bladder.

183. The structure(s) that each month thickens and become(s) engorged with blood in preparation for receiving a fertilized ovum is/are the:

A. erectile tissues of the uterus.

B. stratum functionalist of the endometrium.

C. pelvic or urogenital diaphragm of the floor of the pelvis.

D. All of the above

184. Which of these is/are "true"?

A. Conception is most likely if coitus has occurred within one day before or two days after ovulation.

B. Fertilization of the ovum cannot occur unless the ovum enters the uterus.

C.The primary function of the uterine tubes is to provide a place for fertilization of the ovum.

D. A and C only

E. B and C only

185. The most effective method of blocking conception is:

A. the rhythm method.

B. the "pill".

C. constant condom use.

D. diaphragm.

E. abortion.

186. Basal metabolism refers to the energy output required to:

A. keep one alive.

B. for growth in a child.

C. during old age.

D. for normal activity of the thyroid gland.

E. to put one to sleep.

187. Urine formation will not occur if --?-- does not also occur.

A. tubular reabsorption

B. tubular secretion

C. glomerular filtration

D. All of the above

188. Diabetes mellitus is characterized by polyuria. This is due to the fact that

A. insulin acts as an inhibitor of ADH secretion.

B. renal cells fail to reabsorb glucose resulting in increased use of glucose as an osmotic diuretic in the filtrate.

C. hyperglycemia results in increased filtration rate at all capillary beds in the body.

D. All of the above

189. Which of the following situations or conditions would promote the formation of female genitalia in a person with "XX" genetic sex?

A. lack of fetal estrogen

B. lack of fetal androgen

C. Both A and B

D. Neither A nor B

190. Sperm and ova are similar in that:

A. they are about the same size.

B. both are motile cells.

C. both have equal amounts of cytoplasm.

D. both are haploid cells.

E. All of the above

191. Which of these pairs of terms are least similar?

A. abortion = contraception

B. decidualization = implantation

C. fertilization = conception

D. afterbirth = placenta

E. newborn = neonate

192. The primary mechanism for the production of fever in the body during an infection is:

A. a resetting of the hypothalamic thermostat at a higher level.

B. a direct effect of foreign protein on the heat loss mechanism.

C. a direct effect of foreign protein on the heat production mechanism.

D. a total loss of any regulatory function of the hypothalamus.

E.direct effect of foreign protein on vasoconstriction of the cutaneous blood vessels.

193. Mature sperm first appear in the ejaculatory fluid:

A. at age 8-9 in most boys.

B. at an earlier age than most girls begin to menstruate.

C. at about age 12-13.

D. long before any of the external signs of puberty appear.

E. at the time that skeletal growth in length ceases.

194. Menstruation is initiated by a(n):

A. sudden release of FSH from the hypothalamus.

B. sudden burst of LH from the anterior pituitary.

C. increased release of estrogen and progesterone from the corpus luteum.

D. imbalance between FSH and LH.

E. decreasing levels of both estrogen and progesterone blood.

195. If a man had a serious accident in which 75% of his penis and all of his right testis was destroyed, due to a devastating tumor, which of the following could he still have?

A. normal sexual intercourse

B. sexual desire

C. libido

D. All of the above

E. B and C only

196. The most effective way to raise body temperature in response to cold is:

A. shivering.

B. vasodilation of arterioles in the skin.

C. lowering the hypothalamic thermostat to the cold temperature level.

D. A and B only

E. B and C only

197. Of the 180 liters or so filtered across the glomeruli each day, how much is reabsorbed back into the plasma of the blood?

A. None

B. 10%

C. 50%

D. 75%

E. 99%

198. How are accessory sexual characteristic different from accessory sex organs?

A. The former are found only in females.

B. Accessory sex organs produce the sex cells.

C.Accessory sex organs produce either testosterone in the male or estrogen and progesterone in the female.

D. The former include generalized features such as body contours and libido.

E. They are both the same.

199. Early mitotic divisions of the embryo occur in the fallopian tube rather than the uterus because:

A. the woman is not yet pregnant.

B. the uterus is not ready yet to accept the embryo.

C. the placenta has not been formed yet.

D. HCG secretion stimulates estrogen secretion.

E. progesterone inhibits peristalsis in the tubes.

200. A "chancre" near the external genitalia is an indication of:

A. gonorrhea.

B. the late stage of syphilis.

C. the early stage of syphilis.

D. indecent thoughts.

E. aggressive sexual stimulation.

201. The following is a hypothetical example of pressures in the glomerulus and in Bowman's capsule of a typical PGCC nursing student's kidney. Glomerular BLOOD.PRESSURE = 70 mm HG; glomerular osmotic pressure = 28 mm HG; capsular hydrostatic pressure = 13 mm HG; capsular osmotic pressure = 2 mm HG. What is the effective filtration pressure for our student?

A. 31 mm HG

B. 64 mm HG

C. 35 mm HG

D. 23 mm HG

E. 75 mm HG

202. The scrotum functions to:

A. maintain the sperm at a temperature higher than body temperature.

B. maintain the sperm at a temperature lower than body temperature.

C. prevent diffusion of six hormones directly into the blood.

D.chemically protect the testes due to it’s thick skin and think layers of insulating fat tissue.

E. A and D only

203. "Necrosis of blood vessels, sloughing off or desquamation of tissues, and detritus formation" are all events related to:

A. the ovarian cycle.

B. sexual intercourse.

C. menstruation.

D. parturition.

E. menopause.

204. The hormone responsible for a positive pregnancy test is:

A. testosterone.

B. estrogen.

C. human chorionic gonadotrophin.

D. follicle-stimulating hormone.

E. prolactin.

205. Which of the following is/are characteristic of the kidney?

A. At the upper or proximal end of the ureter is the pelvis, a wide collecting area for urine from the major calices.

B. The kidney exhibits an inner darkened area, the medulla, and an outer pale area, the cortex.

D. All of the above

206. Which of the following mechanisms modify the volume and composition of glomerular filtrate after passage from the glomerulus?

A. secretion

B. filtration

C. reabsorption

D. All of the above

E. A and C only

207. The ovary is insensitive to follicle stimulating hormone:

A. during the first third of pregnancy.

B. after pregnancy.

C. during the ovarian or menstrual cycles.

D. after menopause.

208. The fertilized ovum is in what stage of development at implantation?

A. early cleavage

B. morula

C. blastocyst

D. neural groove

E. gill slit stage

209. Much of the endocrine system is regulated by:

A. blood calcium.

B. feed backs mechanisms.

C. nervous system interactions.

D. a security system.

E. the solar system.

210. The glomerular membrane differs from a typical capillary membrane in which of the following ways?

A. More permeable to blood cells.

B. More permeable to water and small molecular solutes.

C. More permeable to plasma proteins.

D. Uses active rather than passive transport.

E. None of the above

211. What effect does antidiuretic hormone have on the kidney?

A. It helps it to rebuild kidney tissue.

B. It helps it to conserve water by enhancing it's reabsorption.

C. It initiates the excretion of urine.

D. It stops urine production by causing the medulla to contract.

212. About how many ovarian Graafian follicles reach maturity in a healthy young woman, in the course of a year?

A. One if she becomes pregnant, none if she does not.

B. About 12 if she does not become pregnant.

C. A highly variable number depending upon sexual stimulation.

D. Several thousand in the absence of pregnancy.

213. The --?-- functions as the "lungs" for the nonbreathing fetus; on the other hand, a minimal amount of blood circulates through the --?--.

A. umbilical cord; placenta

B. placenta; fetal lungs

C. umbilical cord; umbilical cord

D. foramen ovale; ductus arteriosus

E. kidney; placenta

214. Which of the following best describes how the kidney handles sodium?

A. NA+ is filtered and then actively reabsorbed.

B. NA+ follows passively as water is reabsorbed.

C. The rate of sodium ion reabsorption is related to the rate of erythropoietin secretion by the kidney.

D. The rate of sodium reabsorption is controlled by ADH secretion.

215. Most of the volume of semen is accounted for by:

A. the sperm cells themselves.

B. secretions of the prostate and seminal vesicles.

C. secretions of small glands in the walls of the penis and vagina.

D. secretions of the bulbourethral glands.

E. secretions from the testes.

216. Ovulation ordinarily occurs:

A. about 14 days before the beginning of the next menses.

B at the time when the basal body temperature shows a sudden rise.

C. after luteinizing hormone secretion reaches a peak level.

D.approximately 9 days after the end of the previous menstrual flow, in a 28 day cycle.

E. All of the above

217. The most important hormone in initiating and maintaining lactation is

A. estrogen.

B. follicle stimulating hormone.

C. prolactin.

D. progesterone.

E. mammoglandin.

218. Which of the following is not a function of the urinary system?

A. Maintenance of pH of interstitial fluid and blood.

B. Maintenance of water balance.

C. Endocrine stimulation of red blood cell production.

D. Elimination of CO_2.

E. All of the above are functions of the urinary system.

219. Which of the following changes is brought about by an increase in the blood level of aldosterone?

A. An increase in blood glucose.

B. The retention of potassium by the kidney.

C. The retention of sodium and water by the kidney.

D. An increase in calcium absorption from the digestive tract.

220. At ovulation, the

A. endometrium is continuing to grow into a decidua.

B. production of progesterone is at it's highest level.

C. follicular wall is ruptured and secondary oocyte released.

D. LH level in the blood stream is at it's lowest level.

221. If a given hormone acts on another endocrine gland and causes that gland to secrete it's hormones, then the first hormone is called a(n):

A. feedback hormone.

B. accelerator hormone.

C. tropic hormone.

D. inhibiting hormone.

1. Which of these does not trigger erythropoietin formation?

A. Decreased tissue demands for oxygen

B. Declining number of RBC's

C. Increased metabolic rate

D. Rapid consumption of oxygen by active cells

2 Of the following, the most dangerous kind of transfusion reaction (due to incompatible blood) results from agglutination of

A. recipient's serum by donor's cells.

B. the donor's cells by recipient's cells.

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3 Blood plasma

A. is mostly water.

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A. The rate, in part, depends on the physical activity.

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C. The hemocytoblast is stimulated by erythropoietin.

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A. all cells in the body.

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A. Oxygen binds with hemoglobin but it also is given up easily when needed by the cells.

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D. Type A and O are the most common types of blood groups, respectively.

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A. stimulates the production of erythrocytes.

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12. When an RH negative mother and a RH positive husband produce an RH negative baby, which of the following responses always occurs?

A. The mother may develop RH antibodies unless she is treated with Rhogam within 72 hours after the birth of the baby.

B. The baby will be born with a yellowish color.

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15. Which of these have almost nothing to do with blood clotting?

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C. Second child of RH- mother and RH+ father

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B. Carbon monoxide poisoning

C. Polycythemia vera

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32 . Sickle cell anemia is said to produce a vicious cycle since the stimulus, --?-- , causes the sickling to begin, and the resulting destruction produces low oxygen which causes --?--.

A. hypoxia; hyperopia

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1. In inflammation, both ? leave the capillaries to promote edema.

A. red and white blood cells

B. plasma proteins and leukocytes

C. water and proteins

D. phagocytes and tissue fluid

2. A red marrow biopsy is ordered for two patients -- one a child and the other an adult. The specimen is taken from the tibia of the child but from the iliac crest of the adult. Explain why different sites are used to obtain marrow samples in adults and children.

A. In adults, red marrow is found chiefly in the flat bones of the skull and

pelvis, ribs, sternum and proximal epiphyses of the humerus and femur.

B. In children, red marrow is found in the bone marrow cavities of all the

long bones.

C. Both A and B

D. Neither A nor B

3. Which sequence is CORRECT concerning hemostasis?

1. Fibrinogen ---> fibrin

2. Clot retraction

3. Release of platelet activating factors

4. Prothrombin ---> thrombin

A. 3, 4, 1, 2

B. 1, 2, 3, 4

C. 4, 3, 1, 2

D. 3, 2, 1, 4

E. 3, 4, 2, 1

4. Blood cells are "crenated" when:

A. The plasma surrounding them is hypertonic.

B. Fluid from the plasma enters them and causes their cell membranes to rupture

C. Both A and B

D. Neither A nor B

5. RhOGAM works by:

A. Preventing the build up of Rh positive red blood cells in the mother's blood.

B. Stopping the build up of Rh antibodies in the mother's blood following delivery.

C. Both A and B

D. Neither A nor B

6. Which of the following statements is/are TRUE?

A. Heparin is a drug clinically used as an anticoagulant

B. Antithrombin is an anticoagulant

C. Anticoagulants prevent spontaneous coagulation within the body

D. Heparin occurs naturally in vascular and extra vascular spaces

E. All of the above

7. If you add anti-A agglutinin to a blood sample and agglutination, or clumping occurs, the presence of which antigen or agglutinogen is indicated?

A. Antigen A

B. Antigen B

C. Antigen O

D. Antigen D

8. "AB" is the universal recipient blood type because it has __?__ To clump with other blood __?__.

A. AB agglutinogens; agglutinogens

B. At least two antigens; two or more blood antibodies

C. Both A and B

D. Neither A and B

9. All of the following choices are compatible pairs of donor & recipients, respectively,"except":

A. A & AB

B. B & O

C. B and AB

D. O & O

10. If a father is Rh- and a mother is Rh+, and both father and mother are homozygous for the Rh factor, what will their offspring be as far as Rh factor is concerned?

A. All will be Rh+.

B. None of the children will have the Rh factor

C. All the girls will be Rh+ and all the boys will be Rh-.

D. All will be Rh-.

11. Mixing Rh+ cells with serum that contains anti-Rh agglutinins results in:

A. Agglutination of the positive cells

B. Clumping of the red blood cells

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12. If the blood pressure in a capillary bed of the liver is 65 mmHg and the hydrostatic pressure of the interstitial spaces of the kidney is 15 MmHg, then the pressure gradient is:

A. 80 MmHg.

B. 50 MmHg.

C. 975 MmHg.

D. 4.3 MmHg.

E. Can't be determined

13. Acute bacterial infection is usually characterized by an increase in the number of:

A. Eosinophils

B. Erythrocytes

C. Neutrophils

D. Basophils

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15. These are events in clotting of blood:

1. Severing of a vessel

2. Clot retraction

3. Fibrin formation

4. Agglutination of platelets

Put the answers in CORRECT order.

A. 1,2,3,4

B. 2,3,4,1

C. 3,4,1,2

D. 4,1,2,3

E. 1,4,3,2

16. Which of the following is/are correct for the regulation of red blood cell production?

A. The rate, in part, depends on the physical activity

B. Hypoxia stimulates the kidneys to release an erythropoietic factor

C. The hemocytoblast is stimulated by erythropoietin

D. All of the above

E. B and C only

17. Neutrophils:

A. Are the most powerful phagocytes in the body

B. Are cells which can digest up to five times more microorganisms, i.e., bacteria, than any other phagocyte.

C. Release heparin during acute infections

D. Are always increased in number in allergic reactions

E. Are the most active phagocytic cell in inflammation and infections.

18. Which of the following blood groups has no agglutinogens in its red blood cells?

A. Type O-

B. Type A+

C. Type B-

D. Type AB+

C. Type AB-

19. The following is the list of basic events in hemostasis. Put the list in the proper order by choosing the correct letter below the dotted line.

1. Blood vessels is cut

2. Platelet plug is formed

3. Fibrin threads formed

4. Clot retracts

A. 4, 3, 2, 1

B. 3, 2, 1, 4

C. 2, 1, 4, 3

D. 1, 2, 3, 4

BLOOD-6 ANSWERS

1. In inflammation, both ? leave the capillaries to promote edema.

A. red and white blood cells

B. plasma proteins and leukocytes

C. water and proteins

D. phagocytes and tissue fluid

2. A red marrow biopsy is ordered for two patients -- one a child and the other an adult. The specimen is taken from the tibia of the child but from the iliac crest of the adult. Explain why different sites are used to obtain marrow samples in adults and children.

A. In adults, red marrow is found chiefly in the flat bones of the skull and

pelvis, ribs, sternum and proximal epiphyses of the humerus and femur.

B. In children, red marrow is found in the bone marrow cavities of all the

long bones.

C. Both A and B

D. Neither A nor B

3. Which sequence is CORRECT concerning hemostasis?

1. Fibrinogen ---> fibrin
2. Clot retraction
3. Release of platelet activating factors
4. Prothrombin ---> thrombin

A. 3, 4, 1, 2

B. 1, 2, 3, 4

C. 4, 3, 1, 2

D. 3, 2, 1, 4

E. 3, 4, 2, 1

4. Blood cells are "crenated" when:

A. The plasma surrounding them is hypertonic.

B. Fluid from the plasma enters them and causes their cell membranes to rupture

C. Both A and B

D. Neither A nor B

5. RhOGAM works by:

A. Preventing the build up of Rh positive red blood cells in the mother's blood.

B. Stopping the build up of Rh antibodies in the mother's blood following delivery.

C. Both A and B

D. Neither A nor B

6. Which of the following statements is/are TRUE?

A. Heparin is a drug clinically used as an anticoagulant

B. Antithrombin is an anticoagulant

C. Anticoagulants prevent spontaneous coagulation within the body

D. Heparin occurs naturally in vascular and extra vascular spaces

E. All of the above

7. If you add anti-A agglutinin to a blood sample and agglutination, or clumping occurs, the presence of which antigen or agglutinogen is indicated?

A. Antigen A

B. Antigen B

C. Antigen O

D. Antigen D

8. "AB" is the universal recipient blood type because it has __?__ To clump with other blood __?__.

A. AB agglutinogens; agglutinogens

B. At least two antigens; two or more blood antibodies

C. Both A and B

D. Neither A and B

9. All of the following choices are compatible pairs of donor & recipients, respectively,"except":

A. A & AB

B. B & O

C. B and AB

D. O & O

10. If a father is Rh- and a mother is Rh+, and both father and mother are homozygous for the Rh factor, what will their offspring be as far as Rh factor is concerned?

A. All will be Rh+.

B. None of the children will have the Rh factor

C. All the girls will be Rh+ and all the boys will be Rh-.

D. All will be Rh-.

11. Mixing Rh+ cells with serum that contains anti-Rh agglutinins results in:

A. Agglutination of the positive cells

B. Clumping of the red blood cells

C. Hemolysis of the positive cells

D. All of the above

E. A and B only

12. If the blood pressure in a capillary bed of the liver is 65 mmHg and the hydrostatic pressure of the interstitial spaces of the kidney is 15 MmHg, then the pressure gradient is:

A. 80 MmHg.

B. 50 MmHg.

C. 975 MmHg.

D. 4.3 MmHg.

E. Can’t be determined

13. Acute bacterial infection is usually characterized by an increase in the number of:

A. Eosinophils

B. Erythrocytes

C. Neutrophils

D. Basophils

14. Which of the following is/are a TRUE statement?

A. Oxygen binds with hemoglobin but it also is given up easily when needed by the cells

B. Heparin serves as an anticoagulant by interfering with the formation of prothrombinase from ruptured platelets

C. Red blood cells usually live about 190 days after they are produced in the bone marrow

D. Type A and O are the most common types of blood groups, respectively

15. These are events in clotting of blood:

1. Severing of a vessel

2. Clot retraction

3. Fibrin formation

4. Agglutination of platelets

Put the answers in CORRECT order.

A. 1,2,3,4

B. 2,3,4,1

C. 3,4,1,2

D. 4,1,2,3

E. 1,4,3,2

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