ALQUSOUR ACADEMY

أكاديمية القصور

PHYSIOLOGY

لطلبة الطب البشري

Subject	Second Exam - Past Years & Suggested Questions + Additional Notes On Lecture Five.

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ALQUSOUR ACADEMY

اعلان هام جداً :

نود اعلامكم بأن الدكتور بالجامعة شرح بناءً على تفاريغ الطلبة لغاية الصفحة الثامنة من المحاضرة الخامسة بأكاديمية القصور , و لكن المحاضرة الخامسة كاملة بناءً على سلايدات الدكتور...لذلك اقتضى الاعلان.

**يوجد في نهاية الاسئلة اضافات الى المحاضرة الخامسة.

Questions :

1. **What percentage of ventricular filling is normally accomplished before atrial contraction begins:**
   a. 0%
   b. 20%
   c. 50%
   d. 80%
   e. 100%

2. **Sympathetic stimulation of the heart:**
    a. Increase the heart rate.
    b. Increase the contractility of the heart muscle.
    c. Shift Frank-Starling curve to left.
    d. A+B.
    e. All of the above.

3. **As the heart rate increases, the time available for filling the ventricles of the heart, called diastolic filling, is:**
    a. Increased.
    b. Decreased.
    c. Not affected.
    d. Stable, dose not change.

4. **Blood flows directly into the ventricles from the atria during:**
    a. Early atrial systole and late ventricular diastole.
    b. Late atrial systole and early ventricular systole.
    c. Early atrial diastole and late ventricular systole.
    d. All of the above.

5. **Pressure in the atria is greater than pressure in the ventricles during:**
    a. Atrial diastole.
    b. Atrial systole.
    c. Late ventricular diastole.
    d. All of the above.
    e. B+C only.

6. **Starling's law of the heart can be stated:**
    a. Cardiac output= stroke volume × heart rate.
    b. Pressure= flow × resistance.
    c. The heart pumps all the blood delivered to it within physiological limits.
    d. The rate of epinephrine release is directly related to the speed of the heart rate.

7. **The tricuspid valve is closed:**
    a. While the right ventricle is in diastole.
    b. By the movement of blood from the right atrium into the right ventricle.
    c. While the right atrium is contracting.
    d. When the right ventricle is in early systole.
    e. When the right ventricle is relaxing.

8. **The two distinct heart sounds, described phonetically as lubb and dup, represent the:**
    a. Contraction of the ventricles and the relaxation of the atria.
    b. Contraction of the atria and the relaxation of the ventricles.
    c. Closing of the atrioventricular and semilunar valves.
    d. Surging of blood into the pulmonary artery and aorta.

9. **The most important vessel which determines blood flow to an organ is:**
    a. Large arteries.
    b. Small arteries.
    c. Arterioles.
    d. Capillaries.
    e. Veins

10. **The cardiac output is affected by all the following <u>except</u>:**
    a. Sleeping.
    b. The heart rate.
    c. Stroke volume.
    d. The venous return.
    e. Skeletal muscle pump.

11. **The resistance of which of the following has the biggest influence on blood pressure:**
    a. Arteries.
    b. Lymph vessels.
    c. Arterioles.
    d. Venules.
    e. Capillaries.

12. **The fastest blood pressure adjustment mechanism is:**
    a. Blood volume adjustments.
    b. Renal excretion of water.
    c. Rennin-angiotensin system.
    d. Capillary fluid shift.
    e. Baroreceptor reflex.

13. **Diastolic blood pressure usually present during diastolic period in:**
    a. Left ventricle.
    b. Left atrium.
    c. Arterioles.
    d. Veins.
    e. Aorta.

14. **The ECG is most useful in determining which component of cardiac output:**
    a. Stroke volume.
    b. Heart rate.
    c. Ejection fraction.
    d. End-diastolic volume
    e. End-systolic volume.

15. **Turbulent flow and sounds, occur when the cuff pressure is:**
    a. Greater than diastolic and less than systolic blood pressure.
    b. Greater than diastolic and greater than systolic blood pressure.
    c. Less than diastolic and less than systolic blood pressure.
    d. Less than diastolic and greater than systolic blood pressure.
    e. None of the above.

16. **During isovolumetric ventricle contraction:**
    a. Rapid filling of the ventricles occurs.
    b. No blood enters or leaves the ventricles.
    c. The maximum volume of blood is ejected.
    d. The maximum rate of ejection occurs.
    e. None of the above is correct.

17. **The heart valves open and close due to:**
    a. Attachment to the heart muscle.
    b. Na^+ and K^+ fluxes during ventricular depolarization.
    c. Turbulent flow in the atria and ventricles.
    d. A pressure difference on the two sides of the valve.
    e. At the start of systole.

18. **The first heart sound immediately follows the occurrence of the:**
    a. P wave
    b. T wave
    c. QRS complex
    d. Q wave

19. **The largest capacity to blood is found in:**
    a. The aorta.
    b. The large arteries.
    c. The capillaries.
    d. The arterioles.
    e. The veins

20. **Blood pressure can be increased by <u>increase</u> all the following <u>except</u>:**
    a. Peripheral resistance.
    b. Cardiac output.
    c. Ventricular contraction.
    d. Length of blood vessels.
    e. Radius of blood vessels

21. **Cardiac output can be increased by increase of:**
    a. Length of blood vessels.
    b. Peripheral resistance.
    c. Viscosity of blood.
    d. Blood volume.
    e. All of the above.

22. **Baroreceptor are sensitive to the change----- in the body directly or indirectly:**
    a. Blood pressure.
    b. Cardiac output.
    c. Heart rate.
    d. Peripheral resistance.
    e. All of the above.

23. **The elastic recoil of blood vessels enable them to act as:**
    a. Resistance site.
    b. A site for exchange.
    c. Blood reservoir.
    d. Blood passageway.
    e. Pressure reservoir.

24. **During diastolic period, which of the following has the least pressure:**
    a. Left ventricle.
    b. Aorta.
    c. Arteries.
    d. Capillaries.

25. **Which of the following is highly distensible vessel:**
    a. Aorta.
    b. Large artery.
    c. Capillary.
    d. Arteriole.
    e. Vein.

26. **During isovolumetric contraction, which of the following is <u>wrong</u>:**
    a. Semilunar cardiac valve are closed.
    b. Pressure increase significantly in left ventricle.
    c. AV valves are closed.
    d. Most of the blood pumped from left ventricle to aorta.
    e. None of the above.

27. **Plasma useful in which of the following:**
    a. Transport hormones.
    b. Distribute heat.
    c. Carry gases.
    d. Buffer blood pH
    e. All of the above.

28. **All of the following are functions of plasma proteins <u>except</u>:**
    a. Oncotic (Colloid) Pressure.
    b. Membrane excitability.
    c. Buffering systems.
    d. Antibodies (Immunoglobulin).
    e. Clotting Factors.

29. **RBCs contain which of the following:**
    a. Mitochondria.
    b. Nucleus.
    c. Ribosomes.
    d. Lysosomes.
    e. None of the above.

30. **One of the following is <u>correct</u>:**
    a. Hemoglobin is a pigment.
    b. Hemoglobin is present in WBCs & aids in defense.
    c. Heme is a protein group.
    d. Globin is the iron containing group that binds O_2.
    e. Hemoglobin can't bind CO_2.

31. **Erythropoietin:**
    a. Is synthesized in the Kidney.
    b. Is synthesized in the Liver.
    c. Induces synthesis of new RBCs
    d. A&C are true.
    e. B&C are true.

32. **In the hematocrit tube the top layer is made of:**
    a. Plasma.
    b. RBCs.
    c. Blood.
    d. Puffy coat.

33. **One of the following associations is <u>wrong</u>:**
    a. Aplastic anemia → Bone marrow failure.
    b. Nutritional anemia → Folate deficiency.
    c. Pernicious anemia → Intrinsic Factor deficiency.
    d. Hemorrhagic anemia → Erythropoietin deficiency.
    e. Nutritional anemia → Iron deficiency.

34. **Hemoglobin, all true <u>except</u>:**
    a. Can carry 6 atoms of oxygen when fully oxygenated.
    b. Contain four iron atoms.
    c. Each RBCs contain millions of hemoglobin.
    d. Carry most of blood oxygen.

35. **regarding control of gastric secretion :**
    a. Gastric acid is secreted by parietal cells of gastric glands in response to hormonal stimulation
    b. Most of acid & pepsinogen secreted by stomach occurs during intestinal phase of gastric secretion
    c. Gastric secretion does not begin until food enters the stomach
    d. Secretin secreted by the duodenum stimulates gastric secretions.

36. **regarding bile :**
a. Bile is diluted in the gallbladder\
b. Bile salts are hydrophobic molecules
c. Most bile salts are absorbed in terminal ileum
d. Bile salts are the products of hemoglobin breakdown.

37. **regarding pancreatic secretions:**
a. Pancreatic secretion inhibited by gastrin secreted by G cells in antrum
b. Pancreatic acinar cells contains trypsin
c. CCK inhibits secretion from exocrine pancreas
d. The introduction of acid into duodenum stimulates pancreatic secretion

38. **regarding gastric motility :**
a. Gastric emptying is inhibited by enterogastric reflex
b. The antral region of stomach is important for storage of food
c. Contraction of stomach wall doesn't begin until food enters stomach
d. The contraction of stomach depends on the activity of vagus nerve

39. **regarding digestion & absorption in small intestine:**
a. Intestinal digestive enzymes are secreted by cells of the crypts of Lieberkuhn
b. About half of the digested carbohydrates is absorbed in the small intestine
c. Small peptides are absorbed in small intestine
d. The liver is the first organ to receive digestion products of dietary fats

40. regarding gastrointestinal function:

a. The presence of large amount of fat in chyme will accelerate gastric emptying.
b. Distention of the ileum stimulates gastric motility
c. Total gastrectomy leads to malabsorption of vitamin B12
d. Aldosterone inhibits absorption of sodium & water in large intestine

41. The left ventricle is stronger than the right one because:

a. More blood is needed to supply tissue than to supply lungs.
b. Higher pressure, higher resistance system is supplied by the left ventricle.
c. All of the above.
d. None of the above.

42. During ventricular filling, ventricular pressure must be---- atrial pressure, while during ventricular ejection, ventricular pressure must be --- aortic pressure:

a. Greater than, less than.
b. Less than, greater than.
c. Greater than, greater than.
d. Less than, less than.
e. The same as, the same as.

43. ---- is an overly irritable area that takes over pacemaker activity:

a. Heart block.
b. Ectopic focus.
c. Ventricular fibrillation.
d. Atrial fibrillation.
e. None of the above.

44. If the cardiac output is 5.0 liters per minute and the stroke volume is 0.05 liters per beat, what is the heart rate:

a. 100 beats per minute.
b. 0.001 beats per minute.
c. 25 beats per minute.
d. 0.25 beats per minute.

45. Which of the following represents the correct sequence of parts through which blood moves in passing from the vena cava to the lungs:

a. Right atrium, pulmonary valve, right ventricle, tricuspid valve.
b. Right atrium, tricuspid valve, right ventricle, pulmonary valve.
c. Tricuspid valve, right atrium, pulmonary valve, right ventricle.
d. Pulmonary valve, right atrium, tricuspid valve, right ventricle.

46. **Which of the following statements about the ventricle is <u>true</u>:**
    a. They are completely filled prior to atrial contraction.
    b. They are both filled with blood of relatively high oxygen concentration.
    c. The left ventricle wall is more massive than is the right ventricle wall.
    d. Chordae tendonae are attached to the mitral valve of the right side and to the tricuspid valve of the left side.

47. **If the cardiac output is 5.4 liters/min. and the heart rate is 100 beats/min, what is the stroke volume:**
    a. 540 beats/liter.
    b. 27.0 beats/liter.
    c. 54.0 ml/beat
    d. 27.0 liters/stroke.
    e. It can not be calculated from the data in the question.

48. **Which of the following conditions would most likely lead to an increase in heart rate:**
    a. Decrease blood oxygen.
    b. Tissue hypoxia.
    c. Increasing blood concentration of epinephrine.
    d. All of the above.
    e. A and B only.

49. **An increased stroke volume during exercise is caused by:**
    a. Increase ventricular contraction.
    b. Increased activity of the cardio-inhibitory center.
    c. Both A and B.
    d. Neither A or B.

50. **Which one of the following listed does not increase heart rate and force of contraction of the heart:**
    a. Epinephrine.
    b. Sympathetic stimulation.
    c. Norepinephrine.
    d. Acetylcholine.

51. Which of the following endocrine glands secrete only peptide hormones?

a. Anterior pituitary
b. Posterior pituitary
c. Pancreas
d. All of the above
e. Only A and B

52. All of the following hormones enhance growth EXCEPT:

a. Glucocorticoids
b. Growth hormone
c. Thyroid hormone
d. Insulin

53. Regarding hormones and their action, which of the following are INCORRECTLY paired?

a. Increasing metabolic rate ..... Thyroxine
b. Decreasing Na+ levels in ECF ..... Aldosterone
c. Decreasing blood glucose ..... Insulin
d. Increasing milk production ..... Prolactin
e. Constricting blood vessels ..... Antidiuretic hormone

54. LH action include all of the following EXCEPT:

a. Stimulation of testosterone production
b. Early growth of ovarian follicles
c. Ovulation
d. Formation of corpus luteum
e. Stimulation of estrogen production

55. Concerning aldosterone, which of the following is TRUE?

a. ACTH is the major regulator of its secretion
b. It increases potassium reabsorption
c. It is secreted by zona fasciculate of the adrenal cortex
d. Hyperkalemia stimulates its secretion
e. It is a glucocorticoid

56. The largest capacity to blood is found in:

a. The aorta
b. The large arteries
c. The capillaries
d. The arterioles
e. The veins

57. Which of the following would produce a decrease in blood pressure:

a. Inhibition of parasympathetic activity
b. Decreased baroreceptors activity
c. Inhibition of sympathetic activity
d. Increased cardiac output
e. Increased total peripheral resistance

58. Hypothalamic Osmoreceptor respond by secretion of:

a. ACTH
b. LH
c. Prolactin
d. ADH
e. CRH

59. T3 and T4 are secreted by:

a. Oxyphil cell
b. Chief cell
c. Follicular cell
d. Colloid
e. Parafollicular cell

60. All of the following statement about Frank-Starling law are correct EXCEPT:

a. It describes the contractility of the heart
b. Can explain the equal output of both ventricles
c. Can explain the increase in cardiac output in transplanted heart
d. Is affected by autonomic nervous system activity
e. It describes the extrinsic control of the heart by hormones

61. Ions primarily responsible for the generation of resting membrane potential are:

a. Na^+, Cl^-, K^+.
b. Na^+, protein (-), K^+.
c. Na^+, Ca^{+2}, K^+.
d. Na^+, protein (-), Ca^{+2}
e. Ca^{+2}, Cl^-, K^+.

62. Which of the following is <u>wrong</u> about the membrane during resting:

a. Is close to the equilibrium potential of K^+ (E_{k+})
b. Has negative potential on the inside.
c. The Na-K pump is inhibited.
d. Na^+ can leak through the membrane to the inside.
e. Is more permeable to K^+ than to Na^+.

63. All of the following contribute to the genesis of the resting membrane potential <u>except</u>:

a. The Na-K pump activity.
b. The diffusion of K ion down its concentration gradient.
c. The diffusion of Na ion down its concentration gradient.
d. The opening & closing of the Na voltage-gated channels during resting.
e. The selective permeability of the membrane to ions of Na^+ & K^+.

64. **Saltatory conduction:**

a. Occurs in myelinated nerve fibers.
b. Is slower than conduction by local current flow because of the myelin.
c. Involves the impulse jumping from one node of Ranvier to the adjacent node.
d. More than one of the above are correct.

65. **The membrane is more permeable to K^+ than to Na^+ at all of the following <u>except</u>:**
    a. At resting membrane potential.
    b. During the rising phase of action potential.
    c. During the falling phase of an action potential.
    d. During hyperpolarization.
    e. During an IPSP signal.

66. **Threshold potential**:
    a. Is the potential achieved when two opposing forces acting upon an ion to achieve a state of equilibrium.
    b. Is the peak potential achieved during an action potential.
    c. Is the point at which there is an explosive increase in Na+ permeability.
    d. Is the potential at which the permeability to K+ increases.
    e. Is always positive in potential.

67. **Which of the following statement concerning the absolute refractory period is <u>wrong</u>:**
    a. It refer to the period of time during which the neuron can not be stimulated again no matter how strong the stimulus.
    b. It corresponds to the time period during which the Na^+ gates are first opened and then closed and inactivated.
    c. It assures the unidirectional spread of the action potential down the nerve fiber away from the initial site of activation.
    d. It is longer in duration than relative refractory period.
    e. It is much longer for muscle than it is for neuron.

68. **During depolarization stage of the action potential**:
    a. There is net outward current and the cell interior becomes more negative.
    b. There is net outward current and the cell interior becomes less negative.
    c. There is net inward current and the cell interior becomes more negative.
    d. There is net inward current and the cell interior becomes less negative.

69. **The Na-K pump which is present in the cell membrane**:
    a. Concentrates Na ions inside the cell.
    b. Pumps K ions out of the cell down its concentration gradient.
    c. Maintain the low intracellular concentration of K ions.
    d. Are also called electrogenic.
    e. Cause cell swelling.

70. **Membrane potential**:
    a. Refers to a separation of charges across the membrane.
    b. In measured in units of millivolt with the (-) sign always refers to the charge inside.
    c. Becomes less negative during depolarization.
    d. All of the above are correct
    e. Only A & B are correct.

71. **Which of the following is responsible for the <u>falling phase</u> of the action potential:**
    a. Opening of Na^+ gates.
    b. Activation of outward movement of Ca^{+2}.
    c. Activation of outward K^{+2} current.
    d. Inactivation of Na^+ gates.
    a. C & D are correct.

72. **The resting membrane potential**:
    a. Is much closer to the equilibrium potential for Na^+ than to the equilibrium potential for K^+.
    b. Is much closer to the equilibrium potential for K^+ than to the equilibrium potential for Na^+.
    c. Is halfway between the equilibrium potential for Na^+ and the equilibrium potential for K^+.
    d. Is always negative inside and equal to -90 mV in all tissue of the body.

73. **All the following contribute to the resting membrane potential <u>except</u>:**
    a. The different ionic distribution for sodium and potassium in body fluids.
    b. The selective permeability of the membrane to Na^+ and K^+.
    c. The action of the Na^+-K^+ ATPase pump.
    d. The free movement of Cl^-.

74. The amplitude of the end plate potential can be increased by:

a. Administration of curare.
b. Administration of acetylcholine esterase inhibitors.
c. Large amount of Acetylcholine.
d. B & C are correct.

75. During the fast depolarization phase of the action potential, the membrane permeability to:

a. K^+ is much greater than to Na^+.
b. Na^+ is much more than that to K^+.
c. Both Na^+ and K^+ are equal.
d. Cl^- is highest than any other ion.
e. Ca^{2+} is highest than any other ions.

76. **An IPSP**:

a. Is produced by increased permeability to Na^+ and K^+.
b. Is produced by increased permeability to K^+ and/or Cl^-.
c. Is a small depolarization of postsynaptic cell.
d. Occur only at synaptic but not at NM junction.
e. Both B & D are correct.

77. Read the following events which occur in synaptic transmission to answer the question below:

1. Entry of Ca2+ into presynaptic terminal.
2. Change of postsynaptic membrane permeability to Na+ & K+.
3. Discharge of neurotransmitter.
4. Formation of action potential in postsynaptic neuron.
5. Binding of neurotransmitter to it's specific receptor.

Which of the following order of the above events is correct during synaptic transmission?

a. 1, 2, 3, 4, 5.
b. 1, 3, 2, 4, 5.
c. 1, 3, 5, 2, 4.
d. 2, 3, 4, 5, 1.
e. 2, 3, 1, 5, 4.

78. **Temporal summation**:
    a. Takes place when two EPSPs from the same presynaptic input occur so closely together in time that they add together or sum
    b. Takes place when an EPSP and an IPSP occur simultaneously in time and cancel each other out
    c. Takes place when two EPSPs that occur simultaneously from different presynaptic inputs add together or sum on the same cell body
    d. Takes place when action potentials occurring in two presynaptic inputs simultaneously converge upon the postsynaptic cell
    e. Occur in smooth muscle only

79. **The conduction velocity of the nerve fibers is increased by:**
    a. Decreased temperature
    b. Increased concentration of the external sodium ions
    c. Decrease axon diameter
    d. Myelination

Answers :

1.	D. 80%
2.	E. All of the above.
3.	B. Decreased.
4.	A. Early atrial systole and late ventricular diastole.
5.	E. B+C only.
6.	C. The heart pumps all the blood delivered to it within physiological limits.
7.	D. When the right ventricle is in early systole.
8.	C. Closing of the atrioventricular and semilunar valves.
9.	C. Arterioles.
10.	**A. Sleeping.**
11.	**C. Arterioles.**
12.	**E. Baroreceptor reflex.**
13.	**E. Aorta.**
14.	**B.heart rate**
15.	**A. Greater than diastolic and less than systolic blood pressure.**
16.	**B. No blood enters or leaves the ventricles.**
17.	**D. A pressure difference on the two sides of the valve.**
18.	**C. QRS complex**
19.	**E. The veins**
20.	**E. Radius of blood vessels.**
21.	**D. Blood volume.**
22.	**A. Blood pressure.**
23.	**E. Pressure reservoir.**
24.	**A. Left ventricle.**
25.	**E. Vein.**
26.	**D. Most of the blood pumped from left ventricle to aorta.**
27.	**E.All of the above.**
28.	**B.Membrane excitability.**
29.	**E.None of the above.**
30.	**A.Hemoglobin is a pigment.**
31.	**D.A&C are true.** / IF There is an all of The above option it will be more Correct
32.	**A.Plasma.**

33.	**D .Hemorrhagic anemia → Erythropoietin deficiency.**
34.	**A .Can carry 6 atoms of oxygen when fully oxygenated.**
35.	**A.Gastric acid is secreted by parietal cells of gastric glands in response to hormonal stimulation**
36.	**C.Most bile salts are absorbed in terminal ileum**
37.	**D. The introduction of acid into duodenum stimulates pancreatic secretion**
38.	**A.Gastric emptying is inhibited by enterogastric reflex**
39.	**C. Small peptides are absorbed in small intestine**
40.	**C. Total gastrectomy leads to malabsorption of vitamin B12**
41.	**b.** Higher pressure, higher resistance system is supplied by the left ventricle.
42.	**b.** Less than, greater than.
43.	**b.** Ectopic focus.
44.	**A.** 100 beat per minute.
45.	**B.** Right atrium, tricuspid valve, right ventricle, pulmonary valve.
46.	**C.** The left ventricle wall is more massive than is the right ventricle wall.
47.	**C.** 54.0 ml/beat.
48.	**d.** All of the above.
49.	**A.** Increase ventricular contraction
50.	**D.** Acetylcholine.
51.	**D.** All of the above
52.	**A.** Glucocorticoids
53.	**B.** Decreasing Na+ levels in ECF ..... Aldosterone
54.	**B.** Early growth of ovarian follicles
55.	**D.** Hyperkalemia stimulates its secretion
56.	**E.** The veins
57.	**C.** Inhibition of sympathetic activity
58.	**D.** ADH
59.	**C.** Follicular cell
60.	**E.** It describes the extrinsic control of the heart by hormones
61.	**B. Na+, protein (-), K+.**
62.	**C. The Na-K pump is inhibited.**
63.	**D. The opening & closing of the Na voltage-gated channels**

	during resting.
64.	D. More than one of the above are correct.
65.	B. During the rising phase of action potential.
66.	C. Is the point at which there is an explosive increase in Na+ permeability.
67.	B. It correspond to the time period during which the Na+ gates are first opened and then closed and inactivated.
68.	D. There is net inward current and the cell interior becomes less negative.
69.	D. Are also called electrogenic.
70.	D. All of the above are correct.
71.	E. C & D are correct.
72.	B. Is much closer to the equilibrium potential for K+ than to the equilibrium potential for Na+.
73.	D. The free movement of Cl-.
74.	D. B & C are correct.
75.	B. Na+ is much more than that to K+.
76.	E. Both B & D are correct.
77.	C. 1, 3, 5, 2, 4.
78.	A. Takes place when two EPSPs from the same presynaptic input occur so closely together in time that they add together or sum
79.	D. Myelination

انتهت مادة الامتحان الثاني و تشمل
محاضرات اكاديمية القصور من 1-6
المحاضرات 7,8 مادة ال action potential من سلايدات الدكتور
بالإضافة إلى اسئلة سنوات سابقة ومقترحة

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