YR 1 PHYSIOLOGY 1 UNIT EXAMINATION -- February 10, 1997.

CHOOSE THE SINGLE BEST ANSWER FOR QUESTIONS 1 - 72.

1. The most important factor leading to the development of summation in a particular skeletal muscle is:

   A. the size of the parallel elastic component.

   B. the frequency of muscle action potentials.

   C. the duration of the muscle action potential.

   D. the kind of myosin ATPase present.

   E. the amount of acetylcholine released at the neuromuscular junction per action potential in the motor neuron.

2. Which is NOT a characteristic that enables skeletal muscle to rapidly contract?

   A. gap junctions between cells

   B. Ca^{2+} channels in the sarcoplasmic reticulum

   C. extensive system of transverse tubules

   D. cooperative binding of Ca^{2+} to troponin C

   E. thick filaments already interdigitating with thin filaments

3. Which is FALSE during an isotonic contraction?

   A. The series elastic component is stretched before the load is moved.

   B. The delay that occurs between the stimulus for contraction and muscle shortening is in part due to the time it takes for the force to develop to the point that it can move the load.

   C. The preload has no effect on the rate of tension development.

   D. Once the muscle begins to shorten, the initial velocity of shortening is maximum.

   E. For a given muscle, the velocity of shortening decreases with heavier loads.

4. The length-tension relationship of skeletal muscle during isometric contraction helped establish that:

   A. the velocity of shortening is a function of the type of myosin present.

   B. crossbridges can hang on to actin even when they cannot move to produce shortening.

   C. the velocity of shortening is a function of the rate of crossbridge cycling.

   D. as the load on the muscle increases, the rate of crossbridge cycling decreases.

   E. the active tension that develops is determined by the number of crossbridges formed.

5. Which is NOT generally found in a type II motor unit?

   A. muscle fibers with higher than average density of mitochondria

   B. large, fast conducting axons

   C. large numbers of muscle fibers per motor unit

   D. muscle fibers with fast myosin ATPase

   E. axons with large cell bodies that are difficult to excite

6. Which would decrease the velocity of shortening in smooth muscle?

   A. increased binding of Ca^{2+} to calmodulin

   B. activation of myosin light chain kinase

   C. an increase in the affinity of myosin light chain kinase for calmodulin

   D. formation of latch bridges

   E. an increase in myosin ATPase activity

7. Which is FALSE concerning the "pump/leak" model of the cellular membrane?

   A. Leaks use potential energy in the form of ion gradients.

   B. Na^+/H^+ exchange and Na^+/Ca^{2+} exchange are both pumps.

   C. Pumps use metabolic energy.

   D. The phospholipid bilayer is a barrier that stores potential energy in the form of concentration gradients.

   E. The Ca^{2+} pump creates a transmembrane Ca^{2+} concentration gradient that is used during cell signaling to produce changes in intracellular Ca^{2+}.

8. Ion channels:

   A. can create and maintain concentration gradients.

   B. must be activated by ligand binding.

   C. can open and close rapidly and transport millions of ions per second.

   D. are permeable to only one ion species.

   E. None of the above

9. If a typical red blood cell containing an osmotic concentration of 300 mOsm were placed in a solution containing only 320 mOsm urea, what would happen to the volume of the cell? (Hints: Urea is permeable and the values of i and
the volume of the extracellular solution is very large compared to the volume of the cell.)

A. The volume of the cell would not change, because initially the concentration of water in the cell is the same as outside.

B. The volume of the cell would decrease and remain smaller because the osmotic concentration outside is greater than inside.

C. The volume the cell would increase until the intracellular osmotic concentration was 320 mOsm.

D. The volume of the cell would initially decrease, but then increase, and the cell would lyze.

E. The volume of the cell would increase until the concentration of urea was 160 mOsm on both sides of the plasma membrane.

10. Which is FALSE if a typical cell has a constant volume?

A. $[K]_i < [K]_o$

B. $[Na]_i < [Na]_o$

C. Intracellular and extracellular fluids have equal osmotic pressure.

D. Intracellular and extracellular fluids are electroneutral.

E. $[Cl]_i < [Cl]_o$

11. If potassium were at equilibrium across the plasma membrane of a cell that had a resting membrane potential of -61 mV, which would be true?

A. $[K]_i = 100$ mM
$[K]_o = 10$ mM

B. $[K]_i = 10$ mM
$[K]_o = 100$ mM

C. $[K]_i = 140$ mM
$[K]_o = 4$ mM

D. $[K]_i = 10$ mM
$[K]_o = 140$ mM

E. $[K]_i = [K]_o$

12. In most cells, the resting membrane potential is determined primarily by:

A. the Na^+, K^+, and Cl^- permeability coefficients and electrochemical gradients.

B. the electrogenic contribution of the Na^+-K^+ pump.

C. the charge on the impermeant anions.

D. the removal of Cl^- ions via a Cl^- pump.

E. the presence of stationary negative charges on the heads of the phospholipids on the inner half of the plasma membrane.

13. Which is FALSE concerning the all-or-none (all-or-nothing) principle of nerve excitation?

A. If the stimulus intensity is above threshold, activation of Na^+ channels in an axon will lead to a regenerative process known as the Hodgkin cycle.

B. A compound action potential does not obey the all-or-none principle.

C. If the stimulus intensity is below threshold, there will be a localized depolarization of the membrane which does not obey the all-or-none principle.

D. If the stimulus intensity is below threshold, the nerve cell will have no detectable change in membrane potential.

E. If the intensity of a depolarizing stimulus is below threshold, a net efflux of cations (mainly K^+) will restore the resting membrane potential after the stimulus is discontinued.

14. A unique feature of an excitable cell such as a neuron is:

A. its plasma membrane contains Na^+-K^+ ATPase.

B. its plasma membrane contains voltage-gated ion channels.

C. a transmembrane Na^+ gradient exists.

D. there is a non-zero resting potential across its plasma membrane.

E. its plasma membrane is selectively permeable to certain cations.

15. Which is FALSE?

A. Using a stimulator to pass an inward current through the axonal membrane will hyperpolarize the membrane.

B. Increased Na^+ permeability increases the Na^+ Nernst (equilibrium) potential.

C. The local circuit current (action current) generated at an excited region of the axon membrane causes the adjacent inactive regions to depolarize.

D. Increasing extracellular Na^+ will increase the amplitude of the overshoot of an action potential.

E. Increasing extracellular K^+ will depolarize the resting membrane potential.

16. Which is true?

A. The cell membrane has a negative resting potential mainly because the cytoplasm contains a high concentration of impermeable anions.

B. An action potential exhibits temporal summation and spatial summation.

C. A mysterious drug renders the Na^+-K^+ pump non-electrogenic. The affected nerve cell is still able to maintain a negative resting membrane potential if the K^+ permeability remains much greater than the Na^+ permeability.

D. A metabolic poison inhibits the Na^+-K^+ pump of a neuron. Within 10 milliseconds, the neuron can no longer conduct an action potential.

E. The generator potential obeys the all-or-none principle.

17. Which is true?

A. The reversal potential of the Na^+ current is equal to the Na^+ Nernst potential.

B. The end plate potential (EPP) is a localized membrane depolarization caused by ion channel opening of acetylcholine receptors.

C. The miniature end plate potential (MEPP) is caused by spontaneous quantal release of acetylcholine.

D. The repolarization phase of an action potential is the result of passive K^+ efflux rather than active Na^+ transport.

E. All the above.

18. Which is FALSE concerning an excitable membrane?

A. During the relative refractory period, an action potential cannot be generated no matter how large the stimulus is.

B. During the absolute refractory period, an action potential cannot be generated no matter how large the stimulus is.

C. During the absolute refractory period, an action potential cannot be generated because most Na^+ channels are inactivated.

D. During the after-depolarization phase of an action potential, the excitability is above normal because the Na^+ channels have recovered but the membrane potential is still somewhat depolarized.

E. During the after hyper-polarization phase of an action potential, the excitability is below normal because the membrane potential is hyperpolarized.

19. Which is FALSE?

A. The membrane conductance of an axon does not change significantly when it is depolarized by 5 mV.

B. The membrane capacitance of an axon does not change significantly when it is depolarized by a subthreshold stimulating current.

C. The membrane of an axon responds to a stimulus that is well above threshold by a rapid and significant increase in Na^+ permeability.

D. The membrane of an axon responds to a stimulus that is well above threshold by a rapid and significant increase in membrane capacitance.

E. During the course of an action potential, both Na^+ and K^+ permeabilities change significantly from their resting values.

20. Which is the most likely reversal potential of K^+ in an excitable cell?

A. 0 mV.

B. +100 mV.

C. -95 mV.

D. +55 mV.

E. -15 mV.

21. Which is true?

A. Glutamate is the most prevalent inhibitory neurotransmitter in the central nervous system.

B. Nicotine is an agonist for the postsynaptic membrane both at an autonomic ganglion and at a skeletal muscle neuromuscular junction.

C. Gamma-aminobutyric acid is an excitatory transmitter found in a large number of synapses in the central nervous system.

D. Presynaptic inhibition results in an increased release of transmitter from the excitatory presynaptic terminals.

E. There are both excitatory and inhibitory synaptic inputs at the mammalian skeletal muscle neuromuscular junction.

22. Which is FALSE?

A. The enzyme acetylcholine esterase is an integral protein that is inserted in the postjunctional membrane of the skeletal muscle neuromuscular junction.

B. Acetylcholine esterase hydrolyzes acetylcholine and therefore shortens the duration of its action on the acetylcholine receptor.

C. The density of acetylcholine receptors at the skeletal muscle neuromuscular junction is lower than normal in myasthenia gravis.

D. Blocking acetylcholine esterase decreases symptoms of myasthenia gravis but does not cure the disease.

E. The acetylcholine receptor is a ligand-gated ion channel, which responds to binding of acetylcholine by becoming permeable to Na^+ and K^+.

23. Norepinephrine is the major secretory product of:

A. the adrenal medulla.

B. sympathetic active vasodilator fibers innervating the cutaneous vasculature.

C. preganglionic nerve fibers at the sympathetic ganglia.

D. postganglionic sympathetic nerve fibers innervating cardiac pacemaker cells.

E. postganglionic parasympathetic nerve fibers innervating the iris constrictor muscle.

24. In an extraterrestrial world called Krypton, the Hodgkin-Huxley theory still applies. The ionic composition of a Kryptonite nerve cell is:

	Extracellular (mM)	Intracellular (mM)
Br^-	130	10
Cs^+	125	12
Rb^+	5	93
An^-	0	95

where An^- is an impermeable ion.

At the **resting state**, the permeabilities for Br^-, Cs^+, and Rb^+ are **50, 1, 1**, respectively (in arbitrary units). At the **peak of the action potential**, the permeabilities become, instead, **50, 1000, 2**, respectively.

Which is true?

A. The resting potential is inside positive and outside negative.

B. Increasing extracellular Br^- renders the cell membrane more excitable by bringing the membrane potential closer to the threshold.

C. Increasing intracellular An^- increases the peak (overshoot) amplitude of the action potential.

D. The peak of the action potential (overshoot) is inside negative and outside positive.

E. Increasing extracellular Cs^+ increases the peak (overshoot) amplitude of the action potential.

25. Which pathway does conduction proceed through the normal heart?

A. SA node Purkinje AV node ventricle

B. SA node AV node Purkinje ventricle

C. AV node Purkinje atrium ventricle

D. Purkinje AV node ventricle atrium

E. atrium Purkinje fiber ventricle AV node

26. During Phase 2 of ventricular action potentials, the inward current is mainly the:

A. Na^{+} current, $I_{Na}+$

B. Hyperpolarizing current

C. Ca^{2+} current, I_{S}

D. "Funny" current, I_{f}

E. Delayed rectifier current, $I_{K}+$

27. The mechanism underlying automaticity in the SA node is due to the presence of a:

A. maximum diastolic potential.

B. slow diastolic depolarization.

C. positive overshoot potential.

D. plateau phase.

E. fast V_{max} of phase 0.

28. Under normal circumstances, cardiac muscle (fast fibers) cannot be tetanized due to the long duration of the action potential. Where does the supernormal period occur in Weidmann's Curve of Responsiveness?

A. Between +20 and -50 mV

B. Between +10 and +20 mV

C. Between -50 and -70 mV

D. Between -70 and -90 mV

E. Between -20 and -50 mV

29. Stimulation of sympathetic nerve fibers to the primary pacemaker region (sino-atrial node) _____ heart rate by _____ which occurs due to _____ .

A. decreases; lowering the maximum diastolic potential; norepinephrine

B. increases; increasing the slope of phase 4; decreased inactivation of I_P

C. decreases; lowering the threshold potential; decreased I_f

D. increases; increasing the slope of phase 4; increased inactivation of I_P

E. decreases; lowering the threshold potential; acetylcholine

30. Which arrhythmia is characterized by normal P waves but not always followed by QRS complexes?

A. second degree A-V block

B. atrial fibrillation

C. ventricular fibrillation

D. sinoatrial block

E. respiratory sinus arrhythmia

31. An emergency room patient at Detroit Receiving Hospital is experiencing a drug-induced arrhythmia. In lead aVF the Q-wave = - 6 mV; the R-wave = +5 mV and the S-wave -3 mV. In lead 1 the net voltage of the QRS complex is +2 mV. The MVA of this patient is approximately _____ which would indicate the existence of _____.

A. +45 degrees; no axis deviation

B. -110 degrees; left axis deviation

C. +90 degrees; no axis deviation

D. -70 degrees; left axis deviation

E. +130 degrees; right axis deviation

32. Which does NOT increase isometric tension development in the heart?

A. stretch toward L_{max}

B. number of fibers per motor unit

C. positive inotropic agents

D. increasing stimulation frequency (Treppe)

E. increased availability of Ca^{2+} to contractile proteins

33. Parasympathetic stimulation shifts the cardiac force-velocity curve:

A. upwards and to the right.

B. upwards and to the left.

C. downwards and to the left.

D. downwards and to the right.

E. straight down.

34. In working up cardiac data on a patient, a physician notes the following: left ventricular volume is decreasing, left ventricular pressure is rising, and the first heart sound has just ended. What phase of the cardiac cycle is this?

A. Early ejection

B. Rapid filling

C. Mid-ejection

D. Isovolumic ventricular diastole

E. Late ejection

35. Regarding mitral valve motion:

A. The posterior leaflet is the most mobile.

B. The valve annulus area decreases during valve closure.

C. Papillary muscle contraction plays no role in valve closure.

D. Closure is entirely due to the increase in ventricular pressure.

E. The valve leaflets remain far apart throughout ventricular diastole.

36. The second heart sound in the adult human is caused by:

A. atrial contraction.

B. ejection of blood from the ventricle.

C. closure of the aortic and pulmonic valves.

D. ventricular contraction.

E. closure of the A-V valves (tricuspid & mitral).

37. A shifting upward and to the left of a Frank-Starling or ventricular function curve may result from:

A. heart failure.

B. decreased heart rate.

C. increased ventricular preload.

D. increased inotropicity.

E. increased venous return.

38. Which is FALSE concerning ventricular performance?

A. Bundle-branch block increases the pre-ejection period (PEP).

B. Increased preload increases end-diastolic volume, elevates mean ejection pressure, and increases stroke volume.

C. Decreased afterload increases stroke volume, decreases end-systolic volume, and prolongs ejection.

D. Increased inotropicity is defined as a shift of the Frank-Starling curve upward and to the left.

E. An increase in stroke volume always indicates an increase in ventricular inotropicity.

39. Drugs that have a positive inotropic action on the heart:

A. increase the ejection fraction.

B. increase the PEP (pre-ejection period)/LVET (left ventricular ejection time) ratio.

C. decrease the left ventricular $V_{max.}$

D. decrease left ventricular maximum dP/dt.

E. All the above

40. Tissue oxygen utilization is:

A. the product of blood oxygen content and blood flow.

B. the product of A-V oxygen content difference and blood flow.

C. the product of blood percent oxygen saturation and blood flow.

D. the same as tissue oxygen delivery.

E. unrelated to blood flow.

41. Which is NOT an effect of endurance exercise training?

A. Decreased body fat content

B. Increased number of METS available

C. Increased skeletal muscle mass

D. Increased maximal A-V oxygen difference

E. Increased skeletal muscle capillary density

42. Which is FALSE concerning coronary blood flow?

A. It occurs during systole in the right ventricle.

B. It is greatest during diastole in the left ventricle.

C. It is about 1 ml/g of myocardium through each of the three major coronary arteries, at rest.

D. It is dependent upon the difference between arterial blood pressure and central venous pressure during systole.

E. It is dependent upon the difference between arterial blood pressure and ventricular luminal pressure.

43. Which best characterizes the ductus venosus of the fetus?

A. It sends its blood to the liver.

B. It receives most of its blood from the umbilical vein.

C. It contains blood of a lower oxygen content than the blood in the umbilical arteries.

D. A and B above

E. A and C above

44. The P50 of fetal blood is lower than that of adult blood because:

A. fetal blood contains no 2,3-DPG.

B. 2,3-DPG has less effect on the affinity of fetal blood hemoglobin for oxygen.

C. fetal blood contains only hemoglobin F.

D. A and B above

E. A and C above

45. Which congenital heart defects usually do NOT produce cyanosis?

A. Tetralogy of Fallot

B. Transposition of the great vessels

C. ASD with critical pulmonic stenosis

D. Uncomplicated patent ductus arteriosus

E. Large long-standing VSD with severe pulmonary vascular disease

46. Which is FALSE concerning total fluid energy of the blood (per ml)?

A. It is not represented in the Poiseuille equation.

B. It is much greater in the aorta than in the vena cavae.

C. It is primarily dissipated against gravitational forces.

D. It is the sum of pressure, kinetic, and gravitational potential energies.

E. In the vena cavae, it is made up of a large fractional contribution by kinetic energy relative to pressure energy.

47. Which is FALSE concerning the Poiseuille equation?

A. Physiologically, perfusion pressure is the second most important factor in determining flow.

B. Turbulence and distensible tubes do not violate assumptions implicit in the equation.

C. Flow is directly proportional to radius to the fourth power.

D. Flow is inversely proportional to vessel length.

E. Flow will increase when viscosity decreases.

48. Resistance to blood flow:

A. is usually expressed in ohms.

B. can be calculated from measurements of blood pressure alone.

C. of the large veins usually represents less than 1% of total systemic peripheral resistance.

D. of the pulmonary circulation is about equivalent to that of the systemic circulation.

E. of several resistances in a series is equal to the sum of each of the individual resistances.

49. Turbulence:

A. is normal in the aorta during systolic ejection.

B. always occurs when the Reynolds number exceeds 1000 (equation using r).

C. is determined only by the variables in the Reynolds equation.

D. A and B above.

E. A and C above.

50. The blood volume, determined using a dye-dilution technique, is 6,600 ml. The plasma volume is 4,600 ml. What are the erythrocyte volume and the whole-body hematocrit?

A. 2,000 and 30.3%

B. 2,500 and 26.8%

C. 3,000 and 22.7%

D. 11,200 and 15.2%

E. They cannot be determined

51. Which is FALSE concerning the A-V oxygen content difference?

A. Oxygen utilization can be determined by multiplying A-V oxygen content difference by blood flow rate.

B. It is normally greater for the resting myocardium than for resting skeletal muscle.

C. When A-V oxygen content difference is decreased, ischemia is indicated.

D. The best mixed (average) value is calculated by obtaining mixed venous blood from the pulmonary artery.

E. Cardiovascular Reserve is accessed by increasing A-V oxygen content difference and cardiac output.

52. Which best describes why most of the blood volume is within the venous circulation?

A. The venous system has a higher compliance than the other portions of the circulatory system.

B. The venous system has a higher transmural pressure than the other systems.

C. The high resistance of the arterial system forces blood volume into the venous system.

D. Autoregulatory vasodilation of the capillaries moves blood into the venous system.

E. All the above.

53. Which would be expected to occur in the first few minutes following a moderate hypotensive hemorrhage?

A. Autoregulatory vasoconstriction of the kidney due to the reduction in perfusion pressure.

B. A decrease in the rate of the spontaneous depolarization of the sino-atrial node pacemaker fibers.

C. An active change in compliance of the veins.

D. An increase in parasympathetic nerve activity to the heart.

E. Active vasodilation of skeletal muscle.

54. The large, rapid increase in blood flow to a tissue after release of an occlusion is due to:

A. activation of an active vasodilator system.

B. a decrease in sympathetic vasoconstrictor nerve activity.

C. an increase in the interstitial concentration of metabolic vasodilators.

D. autoregulatory vasoconstriction due to the decrease in transmural pressure.

E. All the above.

55. A patient comes to the emergency ward after a major traffic accident. The patient has lost a substantial amount of blood due to an internal hemorrhage. Vital signs are blood pressure: systolic = 70, diastolic = 42 , heart rate = 51 beats per minute. Blood samples show signs of endotoxins. You suspect that:

A. plasma epinephrine levels are very high.

B. parasympathetic nerve activity to the heart is elevated.

C. sympathetic vasoconstrictor nerve activity to skeletal muscle is depressed.

D. cardiac vagal "C" fibers are likely active.

E. All the above.

56. The initial rapid increase in heart rate at the initiation of exercise likely is mainly due to:

A. central command causing a rapid increase in sympathetic nerve activity.

B. activation of skeletal muscle afferents causing an increase in parasympathetic nerve activity.

C. activation of pacemaker cells in the bundle of His.

D. a rapid decrease in parasympathetic nerve activity due to central command.

E. resetting of the baroreflex to a lower arterial pressure.

57. With the transition from a supine to an upright posture:

A. perfusion pressure in the feet increases.

B. compliance in the leg veins decreases.

C. central venous pressure immediately rises due to translocation of blood volume from the legs to the chest.

D. arterial baroreceptor nerve activity increases abruptly.

E. All the above.

58. A sustained decrease in perfusion pressure within the autoregulatory range to an organ which displays autoregulation will induce:

A. an increase in sympathetic nerve activity causing vasoconstriction within that organ.

B. a decrease in vascular resistance within that organ causing blood flow to be little different from normal in the steady-state.

C. an increase in vascular resistance causing blood flow to return to the normal level.

D. vasodilator metabolites will be washed away causing resistance to decrease to a lower steady-state level.

E. myogenic vasoconstriction which will decrease vascular resistance and lower blood flow.

59. An increase in blood oncotic pressure within a capillary will favor:

A. an increase in absorption of fluid from the interstitium into the capillary.

B. passive vasoconstriction.

C. a decrease in hydrostatic pressure within the venous end of the capillary.

D. an increase in filtration of fluid from the capillary into the interstitium.

E. a decrease in the filtration coefficient causing swelling of the tissue.

60. Between which two points of the cardiovascular system is the difference in transmural pressure the greatest?

A. the aorta to the femoral artery

B. the femoral artery to the arterial end of the capillary

C. the arterial end of a capillary to the venous end of the capillary

D. the venous end of the capillary to the vena cava

E. the aorta to the vena cava

61. The marked and sustained increase in skeletal muscle blood flow during exercise is mainly due to:

A. the large increase in circulating epinephrine causing activation of beta one receptors thus causing vasoconstriction within the muscle.

B. myogenic autoregulatory vasodilation due to the reduction in arterial pressure.

C. a decrease in resistance below basal tone due to the accumulation of metabolic vasodilators.

D. activation of active vasodilator fibers to the skeletal muscle.

E. an increase in parasympathetic nerve activity to the skeletal muscle thus causing the release of EDRF.

62. During ventricular systole, blood flow in the left coronary artery:

A. decreases to virtually zero due to the increase in intramural pressure within the left ventricular wall.

B. increases markedly due to the large increase in systolic perfusion pressure.

C. is directed mainly to the endocardium due to the lower intramural pressure.

D. increases markedly due to the higher resistance.

E. None of the above.

63. A patient with peripheral sympathetic autonomic dysfunction (inability to adequately change peripheral sympathetic vasoconstrictor nerve activity) becomes markedly hypotensive during whole body exercise. This is likely MAINLY due to:

A. impaired cardiac output responses to exercise.

B. inability to restrain the vasodilation within the active skeletal muscle.

C. inability to vasoconstrict the kidney.

D. abnormal activation of sympathetic active vasodilator fibers to the skin.

E. myogenic autoregulatory increases in total peripheral resistance.

Match the item in column I with the best descriptor in column II (Descriptors may be used once, more than once or not at all).

I			II	
64.	(_____)	Thrombin formation	A.	Activity increased in presence of heparin
65.	(_____)	Platelet Plug Formation	B.	First key or basic reaction in coagulation cascade.
66.	(_____)	Fibrinogen -$_{thrombin}$- Fibrin	C.	Second key or basic reaction in coagulation cascade.
67.	(_____)	ADP	D.	Presence in serum indicative of fibrinolysis.
68.	(_____)	FDP's D & E	E.	Fibrinogen
69.	(_____)	Primary (1_) Fibrinolysis	F.	Requires Ca^{2+}
70.	(_____)	Vitamin K dependent protein	G.	Prothrombin
71.	(_____)	D-D (D dimer)	H.	$Fibrin_s$
72.	(_____)	Antithrombin III	I.	Disseminated Intravascular Coagulation (DIC)
			J.	ACD
			K.	Phase 2 of hemostasis
			L.	Phase 3 of hemostasis
			M.	Does NOT require Ca^{2+}
			N.	Release stimulates aggregation
			O.	Inhibits polymerization of fibrin monomers