HSC 205: Second Continuous Assessment
2009-2010 Academic Year

(1)Gap junctions are: (a) zona occluddens (b) junctions between gaps (c) attachments between cells (d) components of cell membrane (e) none of the above

(2) Carrier mediated transport is characterized by (a) stereospecificity (b) saturation (c) competition (d) a, b and c (d) none of the above

(3). A red blood cell initially contains 200 mOsm of impermeant solute. It is dropped into a large bath containing 200 mOsm of permeant solute and 100 mOsm of impermeant solute. The steady-state cell volume will: (a) remain constant (b) increase by 3/2 (c) decrease by 2/3 (d) increase by 2 (e) decrease by ½.

(4) The value of osmotic pressure can be measured using (a) Nernst Equation (b) Van't Hoff's law (c) reflection coefficient (d) diffusion potential (e) action potential.

(5). A toxin attacks a cell by inserting a nonselective channel in the membrane, causing the cell's voltage to depolarize to near 0 mV. As a result, what will happen to cell volume? (a) remain constant (b) increase (c) decrease (d) decrease then increase (e) cannot be determined

(6) Voltage-gated channels are opened or closed by (a) changes in membrane potential (b) hormones (c) neurotransmitters (d) second messenger (e) sodium ions.

(7) The value of diffusion potential can be measured using (a) Nernst Equation (b) Van't Hoff's law (c) reflection coefficient (d) diffusion potential (e) action potential.

(8) Typical value of equilibrium potentials in the nerve for sodium ion is (a) -85 mV (b) +120 mV (c) +40 mV (d)-65 mV (e) +65 mV

(9). Which of the following is not true about the way Na^+ crosses cell membranes? (a) by diffusion through lipid (b) by active transport through a protein (c) by diffusion through protein channels (d) by exchange for Ca^{2+} via a protein (e) by exchange for H^+ via a protein

(10). A Nernst or equilibrium potential: (a) is always negative to the resting voltage (b) is due to diffusion (c) is equal to the resting voltage (d) is always positive to the resting voltage (e) depends on the membrane capacitance.

(11) Which of the following would not change the K^+ current crossing a cell membrane? (a) a change in intracellular voltage (b) a change in extracellular K^+ concentration (c) a change in the open probability of the memberane's K^+ channels (d) a change in the number of the membrane's K^+ channels (e) a change in the membrane's capacitance

(12). The rapid depolarization and overshoot of the axonal action potential is due to: (a) a rapid increase in K^+ conductance (b) a rapid increase in Ca^{2+} conductance (c) a rapid reduction in inactivation of Na^+ conductance (d) a rapid inactivation of Na^+ conductance (e) a rapid activation of Na^+ conductance

(13). The relative refractory period is mostly due to: (a) an elevated K^+ conductance (b) an elevated Na^+ conductance (c) an inactivated K^+ conductance (d) an increase in membrane capacitance (e) an influx of Ca^{2+}

(14). A reduction in ACh esterase at the NMJ will cause: (a) a higher frequency of MEPPS (b) a lower frequency of MEPPS (c) a block in transmission of action potentials (d) exceptionally large MEPPS with near normal time courses (e) exceptionally long MEPPS with near normal amplitudes