

Burton David Rose pp 15-28

- 1) Osmotic pressure generated by solution is proportional to
 - a) The number of particles per weight of solvent
 - b) The number of particles per dissolved cation concentration in solvent
 - c) The number of particles per volume of solvent**
 - d) The total molecular weight of dissolved particles
- 2) The discrepancy between the measured osmolality vs. effective osmolality is due to
 - a) Measured osmolality does not account for variability by temperature
 - b) Measured osmolality includes solutes freely permeable to the cell membrane**
 - c) Measured osmolality does not account for pH differences
 - d) Measured osmolality does not account for contribution from red blood cells
- 3) The concept of electrochemical equivalence refers to
 - a) The presence of electrochemical gradient across the glomerular basement membrane
 - b) The net negative charge across the cellular membrane
 - c) Ability of ions to combine based on their valence**
 - d) Net weight of cations equals net weight of anions in plasma fluids
- 4) Name the three layers of the glomerular capillary wall
 - a) The fenestrated endothelium**
 - b) Glomerular basement membrane**
 - c) Epithelial cells**
 - i) Attach by the foot processes
- 5) Place the following labels on the diagram to the right:
 - a) Glomerulus-6
 - b) Efferent arteriole-2
 - c) Afferent arteriole-3
 - d) Proximal tubule-4
 - e) Bowman's space-1
 - f) Epithelial cells of Bowman's capsule-5
- 6) Glomerular filtration is
 - a) Size dependent with molecules smaller in size than inulin freely filtering
 - i) Inulin is freely filtered
 - b) Charge selective with anionic molecules freely filtering
 - i) Cationic molecules more likely to be filtered
 - c) Limited by the electronegativity of the glomerular capillary wall**
 - i) Predominantly due to the heparin sulfate proteoglycans
 - d) Limited by the pore size of the endothelium
 - i) Endothelium fenestrata are wide, mostly limited by the glomerular basement membrane
- 7) Intrinsic mesangial cells
 - a) Synthesize prostaglandin in the cycle of activation of RAAS**
 - b) Have significant phagocytic activity to remove macromolecules entering the capillary wall
 - i) Mostly done by circulating monocytes/macrophages
 - c) Produce large amounts of angiotensin II as response to decreased renal hypoperfusion which acts locally to regulate glomerular hemodynamics
 - i) Respond to angiotensin but not significant producer
 - d) Play a protective role in immune mediated glomerular disease with production of anti-inflammatory mediators limiting expansion of the mesangium

