

(13) Questions provided with answers:

1. Based on MW and concentration only; which one has more osmotic effect: 2 grams of albumin/dl (MW 70KD) or 3 grams of globulin/dl (MW 140KD): I leave this question
A. Albumin
B. Globulin
C. Both has equal osmotic effect
D. Osmotic pressure has nothing to do with MW.
E. Cannot be predicted from the above data
2. In a normal human who has a diuresis due to drinking a large volume of water; all the following statements are true EXCEPT:
A. The osmolarity of the urine is less than 300 mosmol per liter.
B. The renal venous blood has a higher osmolarity than the renal arterial blood.
C. Creatinine clearance may be 50% above that in the nondiuretic situation.
D. Vigorous (severe) muscular exercise will inhibit the diuresis.
E. Plasma antidiuretic hormone (ADH) levels are decreased.
3. We must excrete, at least half liter of urine/day? The reason behind that is:
A. Half liter is the minimum daily water intake.
B. The ability of the kidney to make concentrated urine is limited to 1200-1400 mOsm/liter.
C. GFR is equal to 125 ml/min.
D. The proximal tubule cannot reabsorb this extra half liter.
E. Due our body metabolism, half liter of water is produced daily.
4. Choose the WRONG statement. The cells of the distal convoluted tubule
A. Reabsorb some of the water filtered by the glomeruli
B. Secrete hydrogen ions into the tubular lumen
C. Form NH_4^+ ions
D. Reabsorb sodium in exchange for hydrogen or potassium ions
E. Determine the final composition of urine.
5. Loop diuretics which inhibits NaCl reabsorption in thick ascending limb will
A. Decrease osmolality of tubular fluid leaving the thick ascending limb.
B. Increase maximum urine osmolality.
C. Increase glucose clearance.
D. Increase NaCl clearance.
E. Decrease K^+ excretion.

6. Q.6 In normal individual under normal diet and normal physical activity; compared to plasma, urine has (↑: higher ↓lower →equal)

	[K ⁺]	pH	[Urea]	SG
A.	↑	↑	↑	↑
B.	↓	↓	↓	↓
C.	→	↑	↑	↑
D.	↑	↓	↑	↑
E.	↓	→	↑	↑

7. Which of the following does NOT contribute to the formation of maximally concentrated urine?

- A. Active NaCl transport in the proximal convoluted tubule**
- B. Active NaCl transport in the thick ascending limb of the loop of Henle
- C. Impermeability of the thick ascending limb of the loop of Henle to water
- D. High water permeability of the collecting duct due to presence of ADH
- E. Presence of urea in the inner medullary interstitium

8. Minimum obligatory urine output in a 6 y old child (20 kg body weight) is equal to:

- A. 1 ml/min
- B. 300 ml/m² body surface area/day
- C. 500 ml/day
- D. 1 ml/kg/h**
- E. There is no minimum obligatory urine output in children

9. In the presence of high concentration of ADH most of the filtered H₂O is reabsorbed at:

- A. Proximal tubule**
- B. Thick ascending limb
- C. Early distal tubule
- D. Late distal tubule
- E. Collecting tubules and ducts

10. Concerning urinary concentration, one of the following statements is CORRECT:

- A. The thick loop of Henle generates most of the osmotic gradient needed for reabsorption of water in the collecting duct.**
- B. The tubular urine that reaches the collecting duct is generally hypertonic with respect to plasma
- C. In the absence of ADH, urine is more concentrated.
- D. Osmolarity of urine is not affected by food intake
- E. If we drink sea water our urine osmolarity might reach as high as 2000 mOsm/l

11. Regarding minimum daily obligatory volume of urine, all the following are true EXCEPT: We have two answers. This question was deleted
- A. **Is more if a person eats protein-rich diet.**
 - B. In general it is equal to 300 ml/m² body surface area/Day
 - C. **Roughly speaking it is around 20 ml/h in an adult.**
 - D. Is increased if a person is under diuretic therapy.
 - E. Is depressed if blood flow to vasa recta is increased.
12. Concerning normal renal function in diluting and concentrating urine, which of the following is TRUE?
- A. The maximum concentration of urine that the human kidney can make is enhanced by taking diuretics.
 - B. Urine osmolarity can be estimated from urine [Na⁺] * 2.1
 - C. Human can survive by drinking sea water instead of fresh water.
 - D. **The lowest concentration of urine that the human kidney can produce is still less than the osmolarity of plasma.**
 - E. Specific gravity depends on the number of the particles present in a given volume of urine.
13. Inhibition of NaCl reabsorption in thick ascending limb will lead to all the following EXCEPT :
- A. Decrease medullary osmolarity
 - B. **Increase maximum urine osmolarity.**
 - C. Increase urine output.
 - D. Increase NaCl clearance.
 - E. Increase NaCl excretion per day