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AZRA NAHEED MEDICAL COLLEGE LAHORE

PHYSIOLOGY DEPARTMENT
2ND YEAR MBBS 2017-18

UNIT TEST; KIDNEY I

90
Samira Qadi's

MARKS= 30
TIME = 40min

Volume	osmolarity
ICF ↓	ICF ↑
ECF ↑	ECF ↓

DATED: 21-12-2017

- SEQs (SHORT EASSY TYPE QUESTIONS)
ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.
- Q1.A) Compare & contrast the ionic composition of ICF & ECF body fluid compartments. (2)
B) One person who is brought to hospital whose initial plasma osmolarity is 280 mOsmole/L, is infused with hypertonic solution in ECF, what would be net effect in the ICF & ECF volumes & osmolarities after osmotic-equilibrium. (3)
- Q2.A) Draw & label different segments of Nephron. (2.5)
B) Compare the cortical and medullary nephrons in kidney. (2.5)
- Q3.A) Draw & label the glomerular capillary membrane. (2)
B) Define & give formula of GFR also Calculate the Net filtration pressure. (3)
- Q4. A) Describe the "Micturition reflex". (3.5)
B) Describe Automatic & Uninhibited Neurogenic bladder. (1.5)
- Q5.A) Describe Tubuloglomerular feedback mechanism for regulating GFR. (3)
B) Write down the Clearance methods to Quantify the kidney functions. (1.5)
- Q6.A) A patient is found to have urine creatinine concentration of 280 mg/ml; plasma creatinine concentration of 1 mg/ml; and urine-flow of 1ml/min, what will be creatinin clearance of this patient? (3)
B) Explain Tm Maximum with examples. (2)

32/30

Forces favouring filtration (mmHg)

Glomerular hydrostatic pressure = 60
Bowman's capsule colloid osmotic pressure = 0

Forces opposing filtration (mmHg)

Bowman's capsule hydrostatic pressure = 18
Glomerular capillary colloid osmotic pressure = 32

Net filtration pressure = 60 - 18 - 32 = +10 mmHg

UNIT TEST: Kidney 1

**SEQs (SHORT EASSY TYPE QUESTIONS)
ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

**MARKS= 30
TIME = 40min**

DATED: 19-12-2016

Q1.A). Draw and label different segments of Nephron. (328) ✓ (2.5)

B). Compare and contrast cortical and medullary nephrons in kidney. (328) ✓ (2.5)

Q2.A). Enumerate the autoregulatory mechanisms for regulation of GFR in kidney. (1.5) (342) ✓

B). Describe Tubuloglomerular feedback mechanism for regulating GFR. 343 (3.5)

Q3.A). Draw & Explain the "Micturition Reflex". 330 (4)

B). Describe the Atonic bladder. (1)

Q4.A). Give the types and causes of Hyponatremia. 314 (3)

B). What will be effects observed due to Hyponatremia? (2)

Q5.A). Draw & label the Glomerular capillary membrane? 336 (1.5)

B). Define GFR. Describe the factors (Determinants) increasing and decreasing the GFR, also calculate the Net filtration pressure. 333 (3.5)

Q6.A). A patient is found to have urine creatinine concentration of 196 mg/ml; plasma creatinine concentration of 1.4 mg/ml; and urine flow of 1ml/min. what will be creatinin clearance of this patient?

$$C = \frac{U \times V}{P} = \frac{1 \times 196}{1.4} = \frac{196}{1.4} = 140 \text{ ml/min}$$

B). Explain Tm Maximum with examples.

"When Plasma Sodium Concentration is below normal (1.42 mEq/L)"

Types of hyponatremia dehydration // over //

[Disseminated Venitig excess water secretion]

→ inc Glomerular capillary filtration coefficient inc GFR
 → inc glomerular hydrostatic pressure inc GFR
 → inc Bowman's capsule hydrostatic pressure inc GFR
 → inc Glomerular capillary colloid osmotic pressure ↓ GFR