Chapter Seven
MULTIPLE CHOICE QUIZ

Name: ____________________________

In the box write the letter of the choice that is the definition of the term or best answers the question. There is only one correct answer for each question.

1. Portion of the urinary bladder:
   A. Hilum
   B. Pylorus
   C. Fundus
   D. Medulla
   E. Trigone

2. Glomerular:
   A. Pertaining to a tube leading from the kidney to the bladder
   B. Pertaining to small balls of capillaries in the kidney
   C. Pertaining to a tube in the bladder
   D. Pertaining to a collecting chamber in the kidney
   E. Pertaining to the urinary bladder

3. Meatal stenosis:
   A. Enlargement of an opening
   B. Stoppage of blood flow to the kidney
   C. Incision of an opening
   D. Widening of the bladder orifice
   E. Narrowing of the urethral opening to the outside of the body

4. Electrolyte:
   A. Bilirubin
   B. Creatinine
   C. Albumin
   D. Sodium
   E. Glucose

5. Nitrogenous waste:
   A. Creatinine
   B. Fatty acid
   C. Lipid
   D. Carbon dioxide
   E. Sugar

6. Renal pelvis:
   A. nephri/o
   B. cyst/o
   C. ren/o
   D. py/o
   E. pyel/o

7. A term that means no urine production is:
   A. Diuresis
   B. Anuria
   C. Voiding
   D. Micturition
   E. Nocturia

8. Surrounding the urinary bladder:
   A. Suprarenal
   B. Infrarenal
   C. Perivesical
   D. Perivesical
   E. Perinephric

9. Uremia:
   A. Azotemia
   B. Hematuria
   C. Dysuria
   D. Cystitis
   E. Hemorrhage

10. X-ray of the urinary tract:
    A. Renal ultrasonography
    B. KUB
    C. BUN
    D. Cystoscopy
    E. Renal dialysis

11. Oliguria:
    A. Nocturia
    B. Polyauria
    C. Scanty urination
    D. Bacteriuria
    E. Pus in the urine

12. Diabetes insipidus is characterized by all of the following EXCEPT:
    A. Polydipsia
    B. Glycosuria
    C. Polyuria
    D. Pituitary gland malfunction
    E. Insufficient ADH
13. Hernia of the tube connecting the kidney and urinary bladder: 
   A. Herniorrhaphy  
   B. Urethrocystocele  
   C. Ureterocystocele  
   D. Urethroileostomy  
   E. Urethrostomy  

14. Artificial kidney machine: 
   A. Renal biopsy  
   B. CAPD  
   C. Lithotripsy  
   D. Hemodialysis  
   E. Renal transplantation  

15. Nephrolithotomy: 
   A. Hardening of a stone  
   B. Removal of the urinary bladder and kidney stones  
   C. Removal of the kidney and stones  
   D. Bladder calculi  
   E. Incision to remove a renal calculus  

16. Protein in the urine: 
   A. Ketonuria  
   B. Acetonuria  
   C. Hyperbilirubinemia  
   D. Bilirubinuria  
   E. Albuminuria  

17. Renal abscess may lead to: 
   A. Diabetes mellitus  
   B. Pyuria  
   C. Nephroptosis  
   D. Ascites  
   E. Diabetes insipidus  

18. Alkaline: 
   A. Acidic  
   B. pH  
   C. Basic  
   D. Acetone  
   E. Water  

19. A group of symptoms marked by edema, proteinuria, and hypoalbuminemia: 
   A. Renal ischemia  
   B. Essential hypertension  
   C. Polycystic kidney  
   D. Nephrotic syndrome  
   E. Diabetes mellitus  

20. High levels of ketones in the blood can lead to: 
   A. High pH of urine  
   B. Acidosis  
   C. Excessive elimination of fats  
   D. Diabetes insipidus  
   E. Low specific gravity  

21. Childhood renal carcinoma: 
   A. Hypernephroma  
   B. Polycystic kidney  
   C. Glomerulonephritis  
   D. Wilms tumor  
   E. Phenylketonuria  

22. Urine is held in the bladder: 
   A. Urinary incontinence  
   B. Pyuria  
   C. Polyuria  
   D. Nocturia  
   E. Urinary retention  

23. Test that measures the amount of urea in the blood: 
   A. CT scan  
   B. RP  
   C. BUN  
   D. VCU  
   E. Creatinine clearance test  

24. Nephrosclerosis: 
   A. Hardening of blood vessels in the kidney  
   B. Loss of protein in the urine  
   C. A test of kidney function  
   D. Prolapse of the kidney  
   E. Excess fluid in the kidney  

25. Lithotripsy: 
   A. Renal transplant  
   B. Shock waves crush urinary tract stones  
   C. Radioscopic study  
   D. Panendoscopy  
   E. Foley catheterization
Chapter Seven
VOCABULARY QUIZ

Name: __________________________

A. *Match each vocabulary term listed with its meaning below:*

<table>
<thead>
<tr>
<th>Arteriole</th>
<th>Cortex</th>
<th>Erythropoietin</th>
<th>Glomerulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calyx</td>
<td>Creatinine</td>
<td>Filtration</td>
<td>Hilum</td>
</tr>
<tr>
<td>Catheter</td>
<td>Electrolyte</td>
<td>Glomerular (Bowman) capsule</td>
<td>Kidney</td>
</tr>
</tbody>
</table>

1. Cup-like collecting region of the renal pelvis
2. Nitrogenous waste excreted in urine
3. Depression in an organ where blood vessels and nerves enter and leave
4. Small artery
5. Process whereby some substances, but not all, pass through a filter
6. Outer region of an organ
7. Chemical element that carries an electrical charge
8. Tiny ball of capillaries in the kidney
9. Hormone secreted by the kidney to stimulate the production of red blood cells by bone marrow
10. One of two bean-shaped organs on either side of the backbone
    in the lumbar region
11. Tube for injecting or removing fluids
12. Enclosing structure surrounding each glomerulus

B. *Match each vocabulary term listed with its meaning below:*

<table>
<thead>
<tr>
<th>K+</th>
<th>Nitrogenous waste</th>
<th>Renal pelvis</th>
<th>Trigone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meatus</td>
<td>Reabsorption</td>
<td>Renal tubules</td>
<td></td>
</tr>
<tr>
<td>Nephron</td>
<td>Renal artery</td>
<td>Renal vein</td>
<td></td>
</tr>
</tbody>
</table>

1. Substance containing nitrogen and excreted in urine
2. Blood vessel that carries blood to the kidney
3. Triangular area in the urinary bladder
4. Potassium; an electrolyte regulated by the kidney; essential for muscle and nerve function
5. Combination of glomerulus and renal tubule where urine is formed
6. Opening or canal
7. Process whereby renal tubules return materials necessary to the body back into the 
   blood vessel ______________________________________________________________

8. Blood vessels that carries blood away from the kidney ____________________________

9. Microscopic tubes in the kidney where urine is formed after filtration ________________

10. Central collecting region in the kidney ____________________________________________

C. Match each vocabulary term listed with its meaning below:

<table>
<thead>
<tr>
<th>medulla</th>
<th>urea and uric acid</th>
<th>urinary bladder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na⁺</td>
<td>ureters</td>
<td>urination (voiding)</td>
</tr>
<tr>
<td>renin</td>
<td>urethra</td>
<td></td>
</tr>
</tbody>
</table>

1. Hormone secreted by the kidney ________________________________________________

2. Inner region of an organ _____________________________________________________

3. Nitrogenous wastes excreted in urine __________________________________________

4. Hollow, muscular sac that holds and stores urine ________________________________

5. Process of expelling urine ___________________________________________________

6. Tube leading from the urinary bladder to the outside of the body ________________

7. Tubes leading from the kidneys to the urinary bladder __________________________

8. Sodium; an electrolyte regulated in the blood and urine by the kidneys ____________
A. Match the following terms with their meanings below:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>calciestasis</td>
<td>New opening of the urinary bladder to the outside of the body</td>
</tr>
<tr>
<td>caliceal</td>
<td>Prolapse (dropping) of a kidney</td>
</tr>
<tr>
<td>cystectomy</td>
<td>Pertaining to a calyx</td>
</tr>
<tr>
<td>cystitis</td>
<td>Narrowing of the opening of the urethra to the outside of the body</td>
</tr>
<tr>
<td>glomerular capsule</td>
<td>Widening, dilation of a calyx</td>
</tr>
<tr>
<td>meatal stenosis</td>
<td>Enclosing and collecting structure surrounding each glomerulus</td>
</tr>
<tr>
<td>nephropathy</td>
<td>Disease of a kidney</td>
</tr>
<tr>
<td>nephroptosis</td>
<td>Removal of the urinary bladder</td>
</tr>
<tr>
<td>paranephric</td>
<td>Pertaining to near the kidney</td>
</tr>
<tr>
<td></td>
<td>Inflammation of the urinary bladder</td>
</tr>
</tbody>
</table>

B. Compose medical terms from the meaning given below:

1. new opening of the kidney to the outside of the body ________________________
2. incision to remove a stone from the kidney ________________________
3. abnormal condition of water (fluid) in the kidney ________________________
4. incision to remove a stone from the renal pelvis ________________________
5. inflammation of the trigone ________________________
6. surgical repair of a ureter ________________________
7. new opening between the ureters and a segment of the ileum ________________________
8. inflammation of the urethra ________________________
9. surgical repair of the urethra ________________________
10. pertaining to within the urinary bladder ________________________
C. Match the following terms with their meanings below:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>albuminuria</td>
<td>Condition of excess nitrogen in the blood</td>
</tr>
<tr>
<td>azotemia</td>
<td>Spasms of pain from stones in the kidney</td>
</tr>
<tr>
<td>bacteriuria</td>
<td>Condition of ketones in the blood and tissues</td>
</tr>
<tr>
<td>ketonuria</td>
<td>Frequent, excessive urination at night</td>
</tr>
<tr>
<td>ketosis (ketoacidosis)</td>
<td>Condition of much thirst</td>
</tr>
<tr>
<td>nocturia</td>
<td>Returning (backing up) of fluid from the urinary bladder to the ureters</td>
</tr>
<tr>
<td>polydipsia</td>
<td>Protein present in the urine</td>
</tr>
<tr>
<td>renal colic</td>
<td>Holding back blood from the kidney</td>
</tr>
<tr>
<td>renal ischemia</td>
<td>Microorganisms in the urine</td>
</tr>
<tr>
<td>urethral stricture</td>
<td>Ketones in the urine</td>
</tr>
<tr>
<td>vesicoureteral reflux</td>
<td>Abnormal narrowing of the urethra</td>
</tr>
<tr>
<td></td>
<td>Abnormal condition of kidney stones</td>
</tr>
</tbody>
</table>

D. Compose medical terms from the meanings given below:

1. high potassium in the blood
2. low sodium in the blood
3. scanty urination
4. difficult, painful urination
5. excessive urination
6. pus in the urine
7. sugar in the urine
8. blood in the urine
9. crushing of stones
10. no production of urine

E. Match the following medical terms with their meanings below:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>antidiuretic hormone</td>
<td>Loss of control of the passage of urine from the bladder</td>
</tr>
<tr>
<td>diuresis</td>
<td>Increased excretion of urine</td>
</tr>
<tr>
<td>erythropoietin</td>
<td>Bedwetting</td>
</tr>
<tr>
<td>urinary incontinence</td>
<td>Hormone produced by the kidney to increase formation of red blood cells</td>
</tr>
<tr>
<td>urinary retention</td>
<td>Hormone that promotes the kidney to reabsorb water</td>
</tr>
<tr>
<td></td>
<td>Urine is held within the bladder and not released</td>
</tr>
</tbody>
</table>
Chapter Seven
PATHOLOGY QUIZ

Name: ___________________________

A. Match the following abnormal conditions with their descriptions below:

glomerulonephritis
interstitial nephritis
nephrolithiasis
nephrotic syndrome
polycystic kidney disease
pyelonephritis

1. inflammation of the lining of the renal pelvis and renal parenchyma ______________________
2. kidney stones (renal calculi) ______________________
3. inflammation of the connective tissue that lies between the renal tubules ______________________
4. multiple fluid-filled sacs within and on the kidney ______________________
5. inflammation of the glomeruli within the kidney ______________________
6. group of clinical signs and symptoms caused by excessive protein loss in urine ______________________

B. From the following descriptions, name the pathologic condition:

1. high blood pressure that results from kidney disease ______________________
2. cancerous tumor of the kidney in adulthood ______________________
3. malignant tumor of the kidney occurring in childhood ______________________
4. malignant tumor of the sac that holds urine ______________________
5. high blood pressure of unknown cause ______________________
6. kidneys decrease excretion of wastes due to impaired filtration function ______________________
7. insulin is not secreted adequately or not used properly in the body ______________________
8. antidiuretic hormone is not secreted adequately or the kidney is resistant to its effect ______________________
A. Match the following with their meanings below:

<table>
<thead>
<tr>
<th>Creatinine clearance test</th>
<th>MRI</th>
<th>Ultrasonography</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT scan</td>
<td>renal angiography</td>
<td>VCUG</td>
</tr>
<tr>
<td>Cystoscopy</td>
<td>renal scan</td>
<td></td>
</tr>
<tr>
<td>KUB</td>
<td>RP</td>
<td></td>
</tr>
</tbody>
</table>

1. X-ray examination (with contrast) of the kidneys, ureters, and bladder ______________________
2. X-ray imaging of the renal pelvis and ureters after injection of contrast through a catheter into the urethra from the bladder ______________________
3. X-ray images show multiple cross-sectional and other views of organs and issues _____________
4. Changing magnetic field produces images of the kidney and surrounding structures in three planes of the body ______________________
5. Measurement of the rate at which a nitrogenous waste is cleared from the blood by the kidney ______________________
6. X-ray record (with contrast) of the urinary bladder and urethra obtained while the patient is voiding ______________________
7. Image of the kidney after injecting a radioactive substance into the bloodstream ______________
8. Direct visualization of the urethra and urinary bladder with an endoscope ______________________
9. Imaging urinary tract structures using high-frequency sound waves ______________________
10. X-ray examination (with contrast) of the blood vessels of the kidney ______________________

B. Give the names of the procedures described below:

1. Urinary tract stones are crushed ______________________
2. Separating nitrogenous wastes from the blood using an artificial kidney machine ______________
3. Separating nitrogenous wastes from the blood using a catheter to introduce fluid into the abdominal cavity ______________________
4. Passage of a flexible, tubular instrument through the urethra into the urinary bladder __________
5. Dilation of narrowed areas in renal arteries ____________________________________________
6. Surgical transfer of a kidney from a donor to a recipient ________________________________
7. Removal of kidney tissue for microscopic examination _________________________________
A. On the line provided, give meanings for the following abbreviations, then write each abbreviation next to its explanation below:

1. ADH 
2. BILI 
3. BUN 
4. CAPD 
5. Cath 
6. Ccr 
7. CRF 
8. C&S 
9. Cysto 
10. HD 
11. K⁺ 

a. ________ Direct visualization of the urethra and urinary bladder with an endoscope
b. ________ Determine the antibiotic effectiveness against bacteria
c. ________ Use of an artificial kidney machine to eliminate nitrogenous wastes from blood
d. ________ Progressive loss of kidney function
e. ________ Blood test of nitrogenous waste
f. ________ An electrolyte excreted by the kidney
g. ________ Pigment excreted from the body in urine
h. ________ Method of dialysis by continuously inserting fluid in and out of the peritoneal cavity
i. ________ Hormone secreted by the pituitary gland and acting on the kidney to retain water
j. ________ Tube for withdrawing or inserting fluid
k. ________ Rate at which creatinine is cleared from the blood by the kidney
B. On the line provided, give meanings for the following abbreviations, then write each abbreviation next to its explanation below:

1. ESWL
2. GFR
3. KUB
4. Na⁺
5. pH
6. PKD
7. PKU
8. RP
9. UA
10. UTI
11. VCUG

a. ________ Examination of urine to determine its contents
b. ________ An electrolyte necessary for proper functioning of muscles and nerves
c. ________ Use of ultrasonic waves to crush stones in the urinary tract
d. ________ Cysts form in and on the kidneys
e. ________ X-ray of the kidneys, ureters and bladder without contrast
f. ________ X-ray images are taken of the urethra and urinary bladder after contrast is injected through the urethra
g. ________ Bacterial infection of the urinary tract
h. ________ Infants are born lacking an enzyme and phenylketones accumulate in blood and urine
i. ________ X-rays of the urethra and bladder are taken while a patient is voiding
j. ________ Scale to indicate the degree of acidity or alkalinity of a fluid
k. ________ Rate at which the glomerulus filters fluid from the blood
Chapter Seven  
EXERCISE QUIZ

A. Using the following terms, trace the path of urine formation from afferent renal arterioles to the point at which urine leaves the body:

<table>
<thead>
<tr>
<th>Term</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>glomerular (Bowman) capsule</td>
<td>filtration</td>
</tr>
<tr>
<td>renal pelvis</td>
<td>collection</td>
</tr>
<tr>
<td>renal tubule</td>
<td>reabsorption</td>
</tr>
<tr>
<td>ureter</td>
<td>transport</td>
</tr>
<tr>
<td>urethra</td>
<td>excretion</td>
</tr>
<tr>
<td>urinary bladder</td>
<td>storage</td>
</tr>
<tr>
<td>urinary meatus</td>
<td>exit</td>
</tr>
</tbody>
</table>

1. ________________________________ 5. ________________________________
2. ________________________________ 6. ________________________________
3. ________________________________ 7. ________________________________
4. ________________________________ 8. ________________________________

B. Give the meanings for the following medical terms:

9. caliceal ________________________________ 12. medullary ________________________________
10. urinary meatal stenosis ________________________________ 13. cystocele ________________________________
11. creatinine ________________________________ 14. vesicoureteral reflux ________________________________

C. Match the following terms that pertain to urinalysis with their meanings below:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>bilirubinuria</td>
<td>bilirubin in urine</td>
</tr>
<tr>
<td>hematuria</td>
<td>red blood cells in urine</td>
</tr>
<tr>
<td>glycosuria</td>
<td>sugar in urine</td>
</tr>
<tr>
<td>ketonuria</td>
<td>ketones in urine</td>
</tr>
<tr>
<td>pH</td>
<td>acidity or alkalinity of urine</td>
</tr>
<tr>
<td>proteinuria</td>
<td>protein in urine</td>
</tr>
<tr>
<td>pyuria</td>
<td>white blood cells in urine</td>
</tr>
<tr>
<td>sediment</td>
<td>particles or residue in urine</td>
</tr>
</tbody>
</table>

15. Sugar in the urine; a symptom of diabetes mellitus ________________________________
16. Color of the urine is smoky red owing to presence of blood ________________________________
17. Urine is turbid (cloudy) owing to presence of WBCs and pus ________________________________
18. Abnormal particles are present in urine—cells, bacteria, casts ________________________________
19. Urine test that reflects the acidity or alkalinity of urine ________________________________
20. Dark pigment accumulates in urine as a result of liver disease ________________________________
21. High levels of acids and acetones accumulate in urine ________________________________
22. Leaky glomeruli can produce this accumulation of albumin in urine ________________________________

D. Give the meanings for the following terms that relate to urinary symptoms:

23. azotemia ________________________________ 28. urinary retention ________________________________
24. polydipsia ________________________________ 29. polyuria ________________________________
25. nocturia ________________________________ 30. anuria ________________________________
26. oliguria ________________________________ 31. bacteriuria ________________________________
27. dysuria ________________________________ 32. enuresis ________________________________
E. Match the following terms with their meanings below:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>abscess</td>
<td>Edema</td>
</tr>
<tr>
<td>catheter</td>
<td>Essential hypertension</td>
</tr>
<tr>
<td>diabetes insipidus</td>
<td>Hypernephroma</td>
</tr>
<tr>
<td>edema</td>
<td>Secondary hypertension</td>
</tr>
<tr>
<td>essential hypertension</td>
<td>Stricture</td>
</tr>
<tr>
<td>hypernephroma</td>
<td></td>
</tr>
<tr>
<td>High blood pressure that is idiopathic</td>
<td></td>
</tr>
<tr>
<td>Malignant tumor of the kidney</td>
<td></td>
</tr>
<tr>
<td>High blood pressure caused by kidney disease</td>
<td></td>
</tr>
<tr>
<td>Tube for withdrawing or giving fluid</td>
<td></td>
</tr>
<tr>
<td>Collection of pus</td>
<td></td>
</tr>
<tr>
<td>Swelling, fluid in tissues</td>
<td></td>
</tr>
<tr>
<td>Inadequate secretion of ADH</td>
<td></td>
</tr>
<tr>
<td>Narrowed area in a tube</td>
<td></td>
</tr>
</tbody>
</table>

F. Identify the following tests, procedures, or abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;S</td>
<td></td>
</tr>
<tr>
<td>BUN</td>
<td></td>
</tr>
<tr>
<td>cysto</td>
<td></td>
</tr>
<tr>
<td>Na⁺</td>
<td></td>
</tr>
<tr>
<td>UTI</td>
<td></td>
</tr>
<tr>
<td>MRI</td>
<td></td>
</tr>
<tr>
<td>hemodialysis</td>
<td></td>
</tr>
<tr>
<td>CAPD</td>
<td></td>
</tr>
<tr>
<td>renal biopsy</td>
<td></td>
</tr>
<tr>
<td>renal angiography</td>
<td></td>
</tr>
</tbody>
</table>
A. Dictation of Terms

1. ____________________________ 11. ____________________________
2. ____________________________ 12. ____________________________
3. ____________________________ 13. ____________________________
4. ____________________________ 14. ____________________________
5. ____________________________ 15. ____________________________
6. ____________________________ 16. ____________________________
7. ____________________________ 17. ____________________________
8. ____________________________ 18. ____________________________
9. ____________________________ 19. ____________________________
10. ____________________________ 20. ____________________________

B. Comprehension of Terms: Match number of the above term with its meaning below.

____ X-ray record of the renal pelvis and urinary tract
____ Blood is held back from the kidney
____ A tube for withdrawing and inserting fluid
____ Act of urination
____ Hormone secreted by the kidney to increase production of red blood cells
____ Narrowing of the opening of the urinary tract to the outside of the body
____ Sodium and potassium are examples
____ High blood pressure due to kidney disease
____ Swelling or fluid in tissue spaces
____ Collection of pus
____ Hardening of arterioles in the kidney
____ Visual examination of the urinary bladder
____ Protein in the urine
____ High levels of nitrogenous waste in the blood
____ Inability to hold urine in the bladder
____ A nitrogenous waste excreted in the urine
____ Renal calculi
____ Inflammation of the small balls of capillaries in the kidney
____ Blood in the urine
____ An anastomosis
Chapter Seven

SPELLING QUIZ

Name: ________________________________

A. Circle the term that is spelled correctly and write its meaning in the space provided:

1. nitrogenous
   nitrogenious _____________________________

2. urinalysis
   urinanalysis ___________________________

3. meatis
   meatus _________________________________

4. dysuria
   dysurea _______________________________

5. abscess
   abscess ________________________________

6. dialysis
   dyalysis _______________________________

7. medulla
   medula _________________________________

8. pyleogram
   pyelogram ______________________________

9. vesicorectal
   visicorectal ___________________________

10. creatinine
    creatinine ______________________________

B. Circle the term that is spelled correctly. The meaning of each term is given.

11. Swelling; fluid in tissues ................. edemaemia
t    edema ______________________________ edemaemia

12. Visual examination of the bladder........... cystoscope
    cystascopy __________________________ cystoscope

13. Hardening of vessels in the kidney........ nephrosclerosis
    nephrosclerosis ______________________ nephrosclerosis

14. Protein in the urine........................... albuminuria
    albuminurea __________________________ albumenuria

15. Stone ........................................... calkuls
    calculus ______________________________ calculus

16. Excessive thirst............................... polydipsia
    polydipsia ___________________________ polidipsia

17. Collecting area in the kidney.............. calics
    kalyx ________________________________ calyx

18. Inability to hold urine in bladder........... incontinence
    incontinence __________________________ incontinence

19. Chemical that carries an electrical charge ................................ electrolite
    electrolyte ___________________________ electrolyte

20. Hormone secreted by the kidney to increase red blood cells..................... erythropoetin
    erythropoiatin ________________________ erythropoetin
A. Underline the accented syllables in the following terms:

1. cystourethrogram
2. meatotomy
3. edema
4. hilum
5. nephrolithotomy
6. trigone
7. urethroplasty
8. ureterocele
9. glycosuria
10. creatinine

B. Match the term in Column I with its meaning in Column II:

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>hematuria</td>
<td>A. Painful urination</td>
</tr>
<tr>
<td>diuresis</td>
<td>B. Bedwetting</td>
</tr>
<tr>
<td>abscess</td>
<td>C. Collection of pus</td>
</tr>
<tr>
<td>uremia</td>
<td>D. Pertaining to the outer section of an organ</td>
</tr>
<tr>
<td>perivesical</td>
<td>E. Blood in the urine</td>
</tr>
<tr>
<td>dysuria</td>
<td>F. Excessive urination</td>
</tr>
<tr>
<td>cortical</td>
<td>G. Pertaining to the inner section of an organ</td>
</tr>
<tr>
<td>medullary</td>
<td>H. Excessive urea in the bloodstream</td>
</tr>
<tr>
<td>renal cell carcinoma</td>
<td>I. Malignant tumor of the kidney</td>
</tr>
<tr>
<td>enuresis</td>
<td>J. Pertaining to surrounding the urinary bladder</td>
</tr>
</tbody>
</table>

C. Complete the following terms from their definitions:

1. cali
2. __________________________ uria
3. nephro __________________________
4. bacteri __________________________
5. poly __________________________
6. __________________________ lithotomy
7. __________________________ uria
8. __________________________ scopy
9. litho __________________________
10. __________________________ uria

Dilation of a calyx
Scanty urination
Disease of the kidney
Bacteria in the urine
Excessive thirst
Incision to remove a stone from the renal pelvis
Protein in the urine
Visual examination of the urinary bladder
Crushing of a stone
Sugar in the urine
Chapter Seven
DIAGRAM QUIZ

Name: ____________________________

Label the diagram below using the terms listed below:

Kidney
Ureter
Urethra
Urinary bladder

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Chapter Seven

A. Give meanings for the following combining forms:

1. cyst/o ________________________
2. pyel/o ________________________
3. vesic/o ________________________
4. lith/o ________________________
5. ren/o ________________________
6. albumin/o ________________________
7. hyd/o ________________________
8. py/o ________________________
9. azot/o ________________________
10. olig/o ________________________

B. Give meanings for the following suffixes:

1. -ptosis ________________________
2. -tripsy ________________________
3. -stenosis ________________________
4. -lysis ________________________
5. -ectasis ________________________
6. -megaly ________________________
7. -poietin ________________________
8. -uria ________________________
9. -sclerosis ________________________
10. -ole ________________________

C. Give meanings for the following prefixes:

1. anti- ________________________
2. peri- ________________________
3. retro- ________________________
4. poly- ________________________
5. dys- ________________________
6. dia- ________________________
7. en- ________________________
8. a-, an- ________________________

D. Give suffixes or combining forms for the following:

1. new opening ________________________
2. incision ________________________
3. disease condition ________________________
4. removal ________________________
5. record ________________________
6. surgical repair ________________________
7. blood condition ________________________
8. thirst ________________________
9. night ________________________
10. blood vessel ________________________
Chapter Seven
MEDICAL SCRAMBLE

Name: __________________________

Unscramble the letters to form urinary system terms from the clues. Use the letters in the squares to complete the bonus term.

1. Clue: Pus in the urine
   \underline{RAPIYU}  

2. Clue: Blood in the urine
   \underline{TAMIHUERA}  

3. Clue: Sugar in the urine
   \underline{CILASGUYSO}  

4. Clue: Protein in the urine
   \underline{NLIBAIMURAU}  

5. Clue: An electrolyte
   \underline{MIDOSU}  

BONUS TERM: Clue: Examination of urine to determine its contents
   \underline{}
Chapter Seven
CROSSWORD PUZZLE

Name: ________________________________

Fill in the crossword puzzle below using the clues listed underneath it.

Across Clues
4. Secreted by the kidney to stimulate red blood cell production.
5. Process whereby some substances pass through the walls of a glomerulus.
7. Notch on the medial surface of the kidney where blood vessels and nerves enter and leave.
8. Substance, made in the kidney, that increases blood pressure.
10. Cup-like collecting region of the renal pelvis.
13. Tiny ball of capillaries in cortex of the kidney.
16. Tube for injecting fluids into or removing fluids from the urinary tract.
17. Tube leading from the bladder to the outside of the body.
19. Malignant tumor of the kidney; another term.

Down Clues
1. A small artery _____.
2. The outer region of the kidney is the renal _____.
3. Another term for urination.
6. Opening or canal.
9. Triangular area in the bladder where the ureters enter and urethra exits.
11. Sac that holds urine.
12. The process of accepting again or taking back; substances needed by the body pass from the renal tubules back into the bloodstream.
14. One of two tubes leading from the kidney to the urinary bladder.
15. Urine cannot leave the bladder; urinary _____.
Chapter Seven
PRACTICAL APPLICATIONS

A. Patient History

The patient is a 75-year-old male with a history of hematuria, dysuria, chronic UTIs, and benign prostatic hyperplasia. At present, he has nocturia three times per night with slow urinary stream. A CT scan showed a distended urinary bladder with large postvoid residual. In the kidney there is evidence of cortical renal cysts. Cystoscopy was performed, revealing a diverticulum of the bladder with a neoplastic lesion within the diverticulum. A biopsy was performed, and it showed ulceration and chronic cystitis, but no malignancy.

1. The patient has a history of: ........................................
   A. Bladder cancer
   B. Prostate cancer
   C. Painful urination
   D. Protein in his urine

2. What x-ray test showed an abnormality of the bladder? .................................................................
   A. Cystoscopy
   B. Pelvic ultrasound
   C. Cystourethrogram
   D. Computed tomography

3. What is a diverticulum? ..........................................................
   A. Neoplastic lesion
   B. Outpouching of a wall of an organ
   C. Inflammatory region of an organ
   D. Sac of fluid in an organ

4. The biopsy revealed: ..........................................................
   A. Inflammation and defect in the bladder lining
   B. Carcinoma of the bladder
   C. Distended urinary bladder
   D. Hernia of the ureter

B. UTI in Children

The symptoms of urinary tract infections in older children are similar to those seen in adults. Cystitis manifests by suprapubic discomfort, burning, urgency, and polyuria. An upper UTI such as pyelonephritis manifests by chills, fever, and flank (the sides of the body, between the ribs and the ilium) pain. Any child previously toilet-trained who suddenly develops enuresis or daytime wetting should be evaluated. However, many UTIs in children are asymptomatic, and the younger the child, the more obscure the signs and symptoms. An infant with a UTI may present only with fever, lethargy, irritability, and/or failure to thrive.

1. A symptom of cystitis is: ........................................
   A. Inability to urinate
   B. Frequent urination
   C. Chest pain
   D. Jaundice and itching

2. An example of an upper UTI is: ........................................
   A. Nephrosclerosis
   B. Flank pain
   C. Lithotripsy
   D. Inflammation of the renal pelvis

3. Enuresis is: ..........................................................
   A. Bedwetting
   B. Nocturia
   C. Anuria
   D. Strong sensation of having to urinate throughout the day

4. What type of symptoms do young children with UTIs frequently manifest? ..................................
   A. Blood in the urine
   B. Protein in the urine
   C. Often no symptoms
   D. Elevated BUN
Chapter Seven

ANSWERS TO THE QUIZZES

Multiple Choice Quiz

2. B  5. A  8. D

Vocabulary Quiz

A
1. calyx
2. creatinine
3. hilum
4. arteriole
5. filtration
6. cortex
7. electrolyte
8. glomerulus
9. erythropoietin
10. kidney
11. catheter
12. glomerular (Bowman) capsule
7. nephropathy
8. cystectomy
9. paranephric
10. cystitis

B
1. nitrogenous waste
2. renal artery
3. trigone
4. K+
5. nephron
6. meatus
7. reabsorption
8. renal vein
9. renal tubules
10. renal pelvis
1. nephrostomy
2. nephrolithotomy
3. hydrocephrosis
4. pyelolithotomy
5. trigonitis
6. ureteroplasty
7. ureterolecetomy
8. urethritis
9. urethroplasty
10. intravesical

C
1. renin
2. medulla
3. urea and uric acid
4. urinary bladder
5. urination (voiding)
6. urethra
7. ureters
8. Na+
1. azotemia
2. renal colic
3. ketosis (ketoadosis)
4. nocturia
5. polydipsia
6. vesicoureteral reflux
7. albuminuria
8. renal ischemia
9. bacteriuria
10. ketonuria
11. urethral stricture
12. nephrolithiasis

Pathology Quiz

A
1. pyelonephritis
2. nephrolithiasis
3. interstitial nephritis
4. polycystic kidney disease
5. glomerulonephritis
6. nephrotic syndrome

B
1. secondary hypertension
2. renal carcinoma
3. Wilms tumor
4. bladder cancer
5. essential hypertension
6. chronic kidney disease
7. diabetes mellitus
8. diabetes insipidus

Laboratory Tests and Clinical Procedures Quiz

A
1. KUB
2. RP
3. CT scan
4. MRI
5. creatinine clearance test
6. VCUG
7. renal scan
8. cystoscopy
9. ultrasonography
10. renal angiography

B
1. lithotripsy
2. hemodialysis
3. peritoneal dialysis
4. urinary catheterization
5. renal angioplasty
6. renal transplantation
7. renal biopsy

Terminology: Structures, Substances, and Urinary Signs and Symptoms

A
1. cystostomy
2. nephroptosis
3. caliceal
4. mental stenosis
5. caliectasis
6. glomerular capsule

E
1. urinary incontinence
2. diuresis
3. enuresis
4. erythropoietin
5. antidiuretic hormone
6. urinary retention

Abbreviations Quiz

A
1. antidiuretic hormone
2. bilirubin
3. blood urea nitrogen
4. continuous ambulatory peritoneal dialysis
5. catheter, catheterization
6. creatinine clearance
7. chronic renal failure
8. culture and sensitivity testing
9. cystoscopy
10. hemodialysis
11. potassium

a. Cysto
b. C&S
c. HD
d. CRF
e. BUN
f. K-
g. BILI
h. CAPD
i. ADH
j. Cath
k. Cr

B
1. extracorporeal shock wave lithotripsy
2. glomerular filtration rate
3. kidney, ureter, and bladder
4. sodium
5. potential hydrogen
6. polycystic kidney disease
7. phenylketonuria
8. retrograde pyelogram
9. urinalysis
10. urinary tract infection
11. voiding cystourethrogram

a. UA
b. Na+
c. ESWL
d. PKD
e. KUB
f. RP
g. UTT
h. PKU
i. VCUG
j. pH
k. GFR

Exercise Quiz

A
1. glomerulus
2. Bowman capsule
3. renal tubule
4. renal pelvis
5. ureter
6. urinary bladder
7. urethra
8. urinary meatus

B
9. pertaining to a calyx
10. narrowing of the opening of the urethra to the outside of the body

11. nitrogenous waste
12. pertaining to the inner section of an organ
13. hernia of the urinary bladder
14. backflow of urine from the urinary bladder to the ureter

C
15. glycosuria
16. hematuria
17. pyuria
18. sediment
19. pH
20. bilirubinuria
21. ketonuria
22. proteinuria

D
23. nitrogenous wastes in the blood
24. excessive thirst
25. frequent urination at night
26. scanty urination
27. painful urination
28. urine is held in the bladder
29. excessive urination
30. no urination
31. bacteria in the urine
32. bedwetting

E
33. essential hypertension
34. hypernephroma
35. secondary hypertension
36. catheter
37. abscess
38. edema
39. diabetes insipidus
40. stenosis

F
41. culture and sensitivity
42. blood, urea, nitrogen
43. cystoscopy
44. sodium
45. urinary tract infection
46. magnetic resonance imaging
47. separation of wastes from the blood by removing the blood and filtering it through a machine
48. continuous ambulatory peritoneal dialysis
49. removal of tissue from the kidney and microscopic examination
50. x-ray record of the blood vessels in the kidney

Spelling Quiz

A
1. nitrogenous—pertaining to nitrogen
2. urinalysis—examination of urine
3. meatus—opening or canal
4. dysuria—painful urination
5. abscess—collection of pus
6. dialysis—separation of wastes from blood
7. medulla—inner section of an organ

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8. pyelogram—x-ray record of the renal pelvis
9. vesicorectal—pertaining to the bladder and rectum
10. creatinine—nitrogen-containing waste

**Pronunciation Quiz**

**A**
1. cystourethrogram
2. meatalgy
3. edema
4. hilum
5. nephrolithotomy
6. trigone
7. urethroplasty
8. ureterocele
9. glycosuria
10. creaturia

**B**
1. E
2. F
3. C
4. H
5. J
6. A
7. D
8. G
9. I
10. B

**C**
1. caliectasis
2. oliguria
3. nephropathy
4. bacteriuria
5. polydipsia
6. pyelolithotomy
7. albuminuria; proteinuria
8. cystoscopy
9. lithotripsy
10. glycosuria

**Diagram Quiz**
1. Kidney
2. Ureter
3. Urinary bladder
4. Urethra

**Review Sheet Quiz**

**A**
1. urinary bladder
2. renal pelvis
3. urinary bladder
4. stone
5. kidney
6. protein; albumin
7. water
8. pus
9. nitrogen
10. scanty

**B**
1. prolapse
2. crushing
3. narrowing
4. destruction; separation
5. widening; stretching; dilation
6. enlargement
7. formation
8. urine condition
9. hardening
10. small; little

**C**
1. against
2. surrounding
3. back; behind

**Medical Scramble**
1. Pyuria
2. Hematuria
3. Glycosuria
**BONUS TERM: URINALYSIS**

**Practical Applications**

**A**
1. C
2. D
3. B
4. A

**B**
1. B
2. D
3. A
4. C
### Terminology

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>caliectasis</td>
<td>Dilation of a calyx.</td>
</tr>
<tr>
<td>caliceal</td>
<td>Pertaining to a calyx.</td>
</tr>
<tr>
<td>cystitis</td>
<td>Inflammation of the urinary bladder.</td>
</tr>
<tr>
<td>cystectomy</td>
<td>Removal of the urinary bladder.</td>
</tr>
<tr>
<td>cystotomy</td>
<td>New opening of the bladder to the outside of the body.</td>
</tr>
<tr>
<td>glomerular capsule</td>
<td>Pertaining to the capsule surrounding each glomerulus; Bowman capsule.</td>
</tr>
<tr>
<td>meatal stenosis</td>
<td>Narrowing of the meatus (opening of the urethra to the outside of the body).</td>
</tr>
<tr>
<td>paranephric</td>
<td>Pertaining to near the kidney.</td>
</tr>
<tr>
<td>nephropathy</td>
<td>Disease of the kidney.</td>
</tr>
<tr>
<td>nephropothesis</td>
<td>Downward displacement of a kidney.</td>
</tr>
<tr>
<td>nephrolithotomy</td>
<td>Incision to remove a kidney stone.</td>
</tr>
<tr>
<td>hydrenephrosis</td>
<td>Condition of excess fluid (water) in the kidney.</td>
</tr>
<tr>
<td>nephrostomy</td>
<td>New opening of the kidney to the outside of the body.</td>
</tr>
<tr>
<td>pyelolithotomy</td>
<td>Incision of the renal pelvis to remove a stone.</td>
</tr>
<tr>
<td>renal ischemia</td>
<td>Holding back of blood flow to the kidney.</td>
</tr>
<tr>
<td>renal colic</td>
<td>Kidney pain resulting from a stone in the ureter or kidney.</td>
</tr>
<tr>
<td>trigonitis</td>
<td>Inflammation of the trigone (area in the bladder).</td>
</tr>
<tr>
<td>ureteroplasty</td>
<td>Surgical repair of a ureter.</td>
</tr>
<tr>
<td>ureteroneostomy</td>
<td>New opening between a ureter and the ileum (for removal of urine after cystectomy).</td>
</tr>
<tr>
<td>urethritis</td>
<td>Inflammation of the urethra.</td>
</tr>
<tr>
<td>urethroplasty</td>
<td>Surgical repair of the urethra.</td>
</tr>
<tr>
<td>urethral stricture</td>
<td>Narrowing of the urethra.</td>
</tr>
<tr>
<td>intravesical</td>
<td>Pertaining to within the bladder.</td>
</tr>
<tr>
<td>vesicoureteral reflux</td>
<td>Backflow of urine from the bladder into the ureters.</td>
</tr>
<tr>
<td>albuminuria</td>
<td>Protein in the urine.</td>
</tr>
<tr>
<td>azotemia</td>
<td>Nitrogen (increased amounts of nitrogenous waste) in the blood.</td>
</tr>
<tr>
<td>bacteriuria</td>
<td>Bacteria in the urine.</td>
</tr>
<tr>
<td>polydipsia</td>
<td>Condition of increased thirst.</td>
</tr>
<tr>
<td>hyperkalemia</td>
<td>High levels of potassium in the blood.</td>
</tr>
<tr>
<td>ketosis</td>
<td>Abnormal condition of ketones in the blood and body tissues.</td>
</tr>
<tr>
<td>ketonuria</td>
<td>Ketone bodies (acids and acetone) in the urine.</td>
</tr>
<tr>
<td>nephrolithiasis</td>
<td>Abnormal condition of kidney stones.</td>
</tr>
<tr>
<td>hyponatremia</td>
<td>Low levels of sodium in the blood.</td>
</tr>
<tr>
<td>nocturia</td>
<td>Excessive urination at night.</td>
</tr>
<tr>
<td>oliguria</td>
<td>Scanty urination.</td>
</tr>
<tr>
<td>erythropoietin</td>
<td>Hormone secreted by the kidney to increase red blood cell formation in the bone marrow.</td>
</tr>
<tr>
<td>pyuria</td>
<td>Pus in the urine.</td>
</tr>
<tr>
<td>lithotripsy</td>
<td>Process of crushing a stone in the urinary tract.</td>
</tr>
<tr>
<td>uremia</td>
<td>Urea (urine) in the blood; a potentially fatal condition.</td>
</tr>
<tr>
<td>enuresis</td>
<td>Bedwetting (literally, “in urine”).</td>
</tr>
<tr>
<td>diuresis</td>
<td>Condition of complete (excessive) urination.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>antidiuretic hormone</td>
<td>Secreted by the pituitary gland and helps reabsorb water from the renal tubules back into the bloodstream.</td>
</tr>
<tr>
<td>urinary incontinence</td>
<td>Inability to hold urine in the bladder.</td>
</tr>
<tr>
<td>urinary retention</td>
<td>Inability to release urine from the bladder.</td>
</tr>
<tr>
<td>dysuria</td>
<td>Difficult, painful urination.</td>
</tr>
<tr>
<td>anuria</td>
<td>No urine is produced.</td>
</tr>
<tr>
<td>hematuria</td>
<td>Blood in the urine.</td>
</tr>
<tr>
<td>glycosuria</td>
<td>Sugar in the urine.</td>
</tr>
<tr>
<td>polyuria</td>
<td>Excessive urination.</td>
</tr>
</tbody>
</table>