

NAME _____

LAB TIME/DATE _____

Urinalysis

Characteristics of Urine

1. What is the normal volume of urine excreted in a 24-hour period? _____
2. Assuming normal conditions, note whether each of the following substances would be (a) in greater relative concentration in the urine than in the glomerular filtrate, (b) in lesser concentration in the urine than in the glomerular filtrate, or (c) absent from both the urine and the glomerular filtrate.

- | | | |
|-------------------------|--------------------------|----------------------|
| _____ 1. water | _____ 6. amino acids | _____ 11. uric acid |
| _____ 2. phosphate ions | _____ 7. glucose | _____ 12. creatinine |
| _____ 3. sulfate ions | _____ 8. albumin | _____ 13. pus (WBCs) |
| _____ 4. potassium ions | _____ 9. red blood cells | _____ 14. nitrites |
| _____ 5. sodium ions | _____ 10. urea | |

3. Explain why urinalysis is a routine part of any good physical examination. _____

4. What substance is responsible for the normal yellow color of urine? _____
5. Which has a greater specific gravity: 1 ml of urine or 1 ml of distilled water? _____ Explain your answer. _____

6. Explain the relationship between the color, specific gravity, and volume of urine. _____

Abnormal Urinary Constituents

7. A microscopic examination of urine may reveal the presence of certain abnormal urinary constituents.
Name three constituents that might be present if a urinary tract infection exists. _____,
_____, and _____
8. How does a urinary tract infection influence urine pH? _____
How does starvation influence urine pH? _____
9. All urine specimens become alkaline and cloudy on standing at room temperature. Explain why. _____

10. Several specific terms have been used to indicate the presence of abnormal urine constituents. Identify each of the abnormalities described below by inserting a term from the key at the right that names the condition. Answer can be used more than once.

- | | | |
|-------|--|-------------------|
| _____ | 1. presence of erythrocytes in the urine | |
| _____ | 2. presence of hemoglobin in the urine | a. albuminuria |
| _____ | 3. presence of glucose in the urine | b. glycosuria |
| _____ | 4. presence of albumin in the urine | c. hematuria |
| _____ | 5. presence of ketone bodies (acetone and others) in the urine | d. hemoglobinuria |
| _____ | 6. presence of pus (white blood cells) in the urine | e. ketonuria |
| | | f. pyuria |

11. What are renal calculi, and what conditions favor their formation? _____

12. Glucose and albumin are both normally absent in the urine, but the reason for their exclusion differs. Explain the reason for the absence of glucose. _____
 Explain the reason for the absence of albumin. _____

13. The presence of abnormal constituents or conditions in urine may be associated with diseases, disorders, or other causes listed in the key. Select and list all conditions associated with each numbered item.

- | | | |
|-------|--------------------------|---|
| _____ | 1. low specific gravity | <i>Key:</i> |
| _____ | 2. high specific gravity | a. cystitis (inflammation of the bladder) |
| _____ | 3. glucose | b. diabetes insipidus |
| _____ | 4. albumin | c. diabetes mellitus |
| _____ | 5. blood cells | d. eating a 5-lb box of sweets for lunch |
| _____ | 6. hemoglobin | e. glomerulonephritis |
| _____ | 7. bilirubin | f. gonorrhea |
| _____ | 8. ketone bodies | g. hemolytic anemias |
| _____ | 9. casts | h. hepatitis, cirrhosis of the liver |
| _____ | 10. pus | i. kidney stones |
| | | j. pregnancy, exertion |
| | | k. pyelonephritis |
| | | l. starvation |

14. Name the three major nitrogenous wastes found in the urine. _____,
 _____, and _____

15. Explain the difference between organized and unorganized sediments. _____

