

Excretion Review

1. List the three main roles of the kidney.
2. What is deamination and what is the implication of the process for the body?
3. What waste compound is produced from the metabolism of protein?
4. What are the primary components of urine?
5. How does urine reach the bladder?
6. Through which tube does urine exit the body?
7. What are the tubes called that carry urine from the kidney to the bladder?
8. Name some ways water is lost from the body.
9. What is the role of thirst in maintaining homeostasis of the water in the body?
10. Where is the thirst center located?
11. Dragonfly larvae, which are aquatic, excrete ammonia, whereas adult dragonflies, which are terrestrial, excrete uric acid. Explain.
12. Where in the kidney would the glomeruli be found?
13. Into what part of the nephron do small molecules pass from the capillaries of the glomerulus?

14. List some of the molecules that leave the glomerulus and move into the nephron.
15. Describe the function of each of the following, and list them in the order that a molecule of urea would pass through them on its way from the blood to the outside of the body:
 - a) renal pelvis
 - b) loop of Henle
 - c) bladder
 - d) proximal tubule
 - e) collecting duct
 - f) urethra
 - g) ureter
 - h) Bowman's capsule
 - i) distal tubule
 - j) renal artery

16. Under what conditions would you produce very small quantities of urine?
17. Describe each of the three processes involved in the formation of urine, being sure to state the role of each.
18. How is diffusion involved in these processes?
19. How is active transport involved in these processes?
20. How is blood entering the nephron different from blood leaving the nephron?
21. What would be the result if the kidneys were unable to reabsorb water from the nephron?
22. Describe the process by which water returns from the kidney tubules to the blood.
23. Why are there so many capillaries inside Bowman's capsule?
24. What technique is used to clean blood if both kidneys have failed? How does it work?
25. Describe the role and effect of ADH.
26. What mechanism regulates the release of ADH?
27. What are kidney stones?
28. Describe the series of events which would occur if there were decreased water in the blood (*i.e.*, increased osmotic pressure).
29. Describe the behavioural adjustments made to compensate for decreased water in the blood (*i.e.*, increased osmotic pressure).
29. Your friend says the kidney is just a filter. What would you say to correct her?
31. How is active transport important in the proper functioning of a nephron?

32. Describe the problems caused by both diabetes mellitus and diabetes insipidus.
33. Imagine that a blood clot lodges in the renal artery and restricts blood flow to the kidney. Explain why this condition would lead to high blood pressure.
34. What is edema, and under what conditions might it occur?
35. For every 100 mL of seawater consumed, 150 mL of body water is lost. The solute concentration of seawater is greater than that of blood. Provide a physiological explanation for the loss of body water. (Hint: consider the threshold level for salt reabsorption by the cells of the nephron)
36. A variety of drugs make the cells of the collecting duct less permeable to water. How would this affect kidney function?
37. How would a decrease in blood pressure in the arteriole leading to the glomerulus affect the rate of filtration of blood within Bowman's capsule?
38. Excess alcohol can cause a hangover, the symptoms of which are believed to be caused by dehydration. Explain this by describing the way alcohol affects water balance in the body.
39. How can eating salty food affect kidney function?