

ANSWER KEY	Chapter 9 Test Answer Key	BLM 9.4.1A
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Answers to **Multiple Choice** Questions

1. b
2. c
3. d
4. a
5. c
6. d
7. a
8. c
9. b
10. b
11. a
12. d
13. b
14. c
15. d
16. a
17. c
18. a
19. c
20. c
21. d
22. a
23. b
24. b
25. d

Answers to **Numerical Response** Questions

1. 3, 2, 1, 4
2. 4, 1, 3, 2, 5
3. 2.00; 0.05

Sample Answers to **Written Response** Questions

1. a) If the glomeruli are damaged, the amount of waste and extra fluid that can be filtered from blood will be reduced. As the extra fluid accumulates in the body, it will increase the blood volume and cause an increase in blood pressure. The blood vessels (glomeruli) in the kidney are very sensitive to changes in blood pressure and can be further damaged by high blood pressure. (3 marks)

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b) The walls of the glomerulus act as a filtration device. Normally, the glomerulus is impermeable to large molecules such as proteins and to large cells such as red blood cells, because pores in these capillaries are too small to allow these substances to enter the filtrate. However, the permeability of these capillaries in a person with glomerulonephritis changes, allowing these larger molecules to pass out of the blood, into the glomerular filtrate, and subsequently into the urine. (4 marks)

c). Aldosterone stimulates the distal tubules and collecting ducts to reabsorb sodium (Na^+) ions. Because the reabsorption of Na^+ ions is followed passively by chloride ions and water, aldosterone has the net effect of retaining both salt and water. The increased retention of water in the body increases blood pressure. (3 marks)

d) Dialysis is the diffusion of dissolved substances through a semi-permeable membrane. These substances move across a membrane from an area of high concentration to an area of lower concentration. (3 marks)

e) Student diagrams should include the central ideas shown in Figure 9.10 (A) on page 322 of the student textbook. (6 marks)

Hemodialysis utilizes an artificial membrane in an external device that is connected to an artery and a vein in a person's arm. Blood is pumped from an artery to a dialysis machine and returned by way of a vein. Substances more concentrated in blood diffuse into the dialysis solution (dialysate). Substances more concentrated in the dialysate diffuse into the blood. In the dialyser, waste products filter from the blood through the artificial membrane and into the dialysate which is, in turn, discarded.

f) Students' answers should include the fact that a person undergoing hemodialysis must go to a hospital or dialysis centre three to four times per week and lie down or remain seated for 3 to 5 hours. This would have a major impact on work, child care, education, and personal time. (4 marks)