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# Biology Grade 10 — Chapter 4

Urinary System

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*Independent practice MCQs from the supplied Class 10 Biology notes pack. Total: 50 questions.*

## A. Important / Main Topics

**1. What is the process by which metabolic waste products are removed from the body called?**

(A) Excretion
(B) Digestion
(C) Respiration
(D) Circulation

**Correct Answer: A**

*Explanation: Excretion is the process by which metabolic waste products and toxic materials are removed from the body of an organism.*

**2. Which organ produces urine?**

(A) Liver
(B) Kidney
(C) Bladder
(D) Ureter

**Correct Answer: B**

*Explanation: Kidney — this correctly answers the question.*

**3. What is the structural and functional unit of the kidney called?**

(A) Neuron
(B) Alveolus
(C) Nephron
(D) Villus

**Correct Answer: C**

*Explanation: The nephron is the structural and functional unit of the kidney.*

**4. Which tube carries urine from the kidney to the urinary bladder?**

(A) Urethra
(B) Fallopian tube
(C) Vas deferens
(D) Ureter

**Correct Answer: D**

*Explanation: The ureter carries urine from the kidney to the urinary bladder.*

**5. What is the elastic muscular bag that stores urine called?**

(A) Urinary bladder
(B) Ureter
(C) Urethra
(D) Kidney

**Correct Answer: A**

*Explanation: The urinary bladder is an elastic muscular bag that stores urine.*

**6. Which tube carries urine out of the body?**

(A) Ureter
(B) Urethra
(C) Fallopian tube
(D) Vas deferens

**Correct Answer: B**

*Explanation: The urethra is a tube that leads out of the body from the urinary bladder.*

**7. What is the main nitrogenous waste material in the urine of man?**

(A) Ammonia
(B) Uric acid
(C) Urea
(D) Creatinine

**Correct Answer: C**

*Explanation: Urea is the main nitrogenous waste material in the urine of man.*

**8. In which organ is urea formed?**

(A) Kidney
(B) Bladder
(C) Ureter
(D) Liver

**Correct Answer: D**

*Explanation: Urea is formed in the liver and is carried to the kidney.*

**9. What is the cup-shaped structure that surrounds the glomerulus called?**

(A) Bowman's capsule
(B) Loop of Henle
(C) Collecting duct
(D) Renal pelvis

**Correct Answer: A**

*Explanation: Bowman's capsule is a cup-shaped structure that surrounds the glomerulus.*

**10. What is the network of capillaries in the nephron called?**

(A) Bowman's capsule
(B) Glomerulus
(C) Loop of Henle
(D) Collecting duct

**Correct Answer: B**

*Explanation: The glomerulus is a network of capillaries in the nephron.*

**11. What is the darker outer region of the kidney called?**

(A) Renal medulla
(B) Renal pelvis
(C) Renal cortex
(D) Renal pyramid

**Correct Answer: C**

*Explanation: Renal cortex is the darker outer region of the kidney.*

**12. What is the light inner region of the kidney called?**

(A) Renal cortex
(B) Renal pelvis
(C) Renal capsule
(D) Renal medulla

**Correct Answer: D**

*Explanation: Renal medulla is the light inner region of the kidney.*

**13. What is the hollow chamber that is the enlarged end of the ureter within the kidney called?**

(A) Renal pelvis
(B) Renal cortex
(C) Renal medulla
(D) Renal pyramid

**Correct Answer: A**

*Explanation: Renal pelvis is the hollow chamber and it is the enlarged end of the ureter within the kidney.*

**14. What is the process of removing waste and excess water from the blood called?**

(A) Filtration
(B) Dialysis
(C) Reabsorption
(D) Secretion

**Correct Answer: B**

*Explanation: Dialysis is a process for removing waste and excess water from the blood.*

**15. What is the non-surgical method of stone removal called?**

(A) Dialysis
(B) Transplant
(C) Lithotripsy
(D) Surgery

**Correct Answer: C**

*Explanation: Lithotripsy is a technique to break up stones that form in the kidney and ureter by shock waves targeted from outside the body.*

**16. Which of the following is NOT a part of the urinary system?**

(A) Kidney
(B) Ureter
(C) Urethra
(D) Liver

**Correct Answer: D**

*Explanation: The liver is not a part of the urinary system. The urinary system consists of kidneys, ureters, urinary bladder, and urethra.*

**17. What is the function of the renal artery?**

(A) Carry blood to kidney
(B) Carry blood away from kidney
(C) Carry urine to bladder
(D) Carry urine out of body

**Correct Answer: A**

*Explanation: The renal artery carries blood to the kidney from the dorsal aorta.*

**18. What is the function of the renal vein?**

(A) Carry blood to kidney
(B) Carry blood away from kidney
(C) Carry urine to bladder
(D) Carry urine out of body

**Correct Answer: B**

*Explanation: The renal vein carries blood away from the kidney to the inferior vena cava.*

**19. Which of the following is the correct order of urine flow?**

(A) Kidney → Bladder → Ureter → Urethra
(B) Kidney → Urethra → Bladder → Ureter
(C) Kidney → Ureter → Bladder → Urethra
(D) Kidney → Ureter → Urethra → Bladder

**Correct Answer: C**

*Explanation: Urine flows from the kidney to the ureter, then to the bladder, and finally out through the urethra.*

**20. What is the function of the loop of Henle?**

(A) Filtration
(B) Secretion

(C) Storage of urine
(D) Reabsorption of water and salts

**Correct Answer: D**

*Explanation: Reabsorption of water and salts — this correctly answers the question.*

**21. What is the function of the proximal convoluted tubule?**

(A) Reabsorption
(B) Filtration
(C) Secretion
(D) Storage of urine

**Correct Answer: A**

*Explanation: The proximal convoluted tubule is the site of most reabsorption.*

**22. What is the function of the distal convoluted tubule?**

(A) Filtration
(B) Reabsorption and secretion
(C) Storage of urine
(D) Production of urine

**Correct Answer: B**

*Explanation: Reabsorption and secretion — this correctly answers the question.*

**23. What is the function of the collecting duct?**

(A) Filtration
(B) Reabsorption
(C) Collects urine and passes to renal pelvis
(D) Production of urine

**Correct Answer: C**

*Explanation: The collecting duct collects urine from several nephrons and passes it to the renal pelvis.*

**24. What is the role of the kidney in osmoregulation?**

(A) Produce bile
(B) Produce insulin
(C) Digest food
(D) Regulate water and salt balance

**Correct Answer: D**

*Explanation: The kidneys are osmoregulatory organs which regulate the concentration of water and salts in the blood.*

**25. What is the cause of kidney stones?**

(A) High calcium in blood
(B) Low calcium in blood
(C) High water intake
(D) Low oxalate in blood

**Correct Answer: A**

*Explanation: High level of calcium in the blood can lead to the formation of kidney stones.*

## B. Less Important / Secondary Topics

**26. Which of the following is a treatment for kidney stones?**

(A) Lithotripsy
(B) Dialysis
(C) Transplant
(D) Radiation

**Correct Answer: A**

*Explanation: Lithotripsy is a non-surgical method of stone removal using shock waves.*

**27. What is the most common cause of kidney failure?**

(A) High blood pressure
(B) Diabetes
(C) Infection
(D) Kidney stones

**Correct Answer: B**

*Explanation: Diabetes is the most common cause of kidney failure.*

**28. What is the second most common cause of kidney failure?**

(A) Diabetes
(B) Infection
(C) High blood pressure
(D) Kidney stones

**Correct Answer: C**

*Explanation: High blood pressure is the second most common cause of kidney failure.*

**29. What is the process of removing waste and excess water from the blood using a machine called?**

(A) Peritoneal dialysis
(B) Lithotripsy
(C) Transplant
(D) Haemodialysis

**Correct Answer: D**

*Explanation: Haemodialysis is a process where blood is filtered through a machine called a dialyzer.*

**30. What is the process of using the peritoneum as a dialysis membrane called?**

(A) Peritoneal dialysis
(B) Haemodialysis
(C) Lithotripsy
(D) Transplant

**Correct Answer: A**

*Explanation: In peritoneal dialysis, the dialysis fluid is pumped into the peritoneal cavity, and the peritoneum functions as the dialysis membrane.*

**31. What is the function of the antidiuretic hormone (ADH)?**

(A) Decreases water reabsorption
(B) Increases water reabsorption
(C) Increases salt reabsorption
(D) Decreases salt reabsorption

**Correct Answer: B**

*Explanation: ADH increases the reabsorption of water from the distal convoluted tubule and collecting duct.*

**32. What is the condition called when the kidneys fail to function?**

(A) Diabetes
(B) Kidney stones
(C) Kidney failure
(D) UTI

**Correct Answer: C**

*Explanation: Kidney failure is a general term for declined kidney function.*

**33. Which of the following is a type of kidney failure?**

(A) Acute kidney injury
(B) Chronic kidney disease
(C) None of the above
(D) Both A and B

**Correct Answer: D**

*Explanation: Kidney failure can be acute (AKI) or chronic (CKD).*

**34. What is the treatment for kidney failure?**

(A) Both A and B
(B) Dialysis
(C) Kidney transplant
(D) None of the above

**Correct Answer: A**

*Explanation: Dialysis and kidney transplant are treatment options for kidney failure.*

**35. What is the role of the kidney in pH regulation?**

(A) Produce bile
(B) Regulate acid-base balance
(C) Produce insulin
(D) Digest food

**Correct Answer: B**

*Explanation: Regulate acid-base balance — this correctly answers the question.*

**36. A patient has a blocked ureter. What is the most likely effect?**

(A) Increased urine flow to bladder
(B) Increased filtration
(C) Reduced urine flow to bladder
(D) Increased reabsorption

**Correct Answer: C**

*Explanation: A blocked ureter would reduce urine flow from the kidney to the bladder.*

**37. A person has a condition where the glomerulus is damaged. What is the most likely effect?**

(A) Increased filtration
(B) Increased reabsorption
(C) Increased secretion
(D) Reduced filtration

**Correct Answer: D**

*Explanation: Reduced filtration — this correctly answers the question.*

**38. Which of the following would increase the volume of urine?**

(A) Decreased ADH
(B) Increased ADH
(C) Increased aldosterone
(D) Decreased blood pressure

**Correct Answer: A**

*Explanation: Decreased ADH — this correctly answers the question.*

**39. A patient has a condition where the loop of Henle is not functioning properly. What is the most likely effect?**

(A) Increased urine concentration
(B) Reduced urine concentration
(C) Increased filtration
(D) Increased reabsorption

**Correct Answer: B**

*Explanation: The loop of Henle is important for concentrating urine. If it is not functioning properly, urine concentration would be reduced.*

**40. Which of the following is the correct order of the parts of the nephron?**

(A) Glomerulus → Bowman's capsule → Loop of Henle → PCT → DCT → Collecting duct
(B) Bowman's capsule → Glomerulus → PCT → Loop of Henle → DCT → Collecting duct
(C) Glomerulus → Bowman's capsule → PCT → Loop of Henle → DCT → Collecting duct

(D) Bowman's capsule → Glomerulus → Loop of Henle → PCT → DCT → Collecting duct

**Correct Answer: C**

*Explanation: The correct order is glomerulus, Bowman's capsule, proximal convoluted tubule, loop of Henle, distal convoluted tubule, and collecting duct.*

**41. A person has a condition where the renal artery is blocked. What is the most likely effect?**

(A) Increased blood flow to kidney
(B) Increased urine production
(C) Increased filtration
(D) Reduced blood flow to kidney

**Correct Answer: D**

*Explanation: Reduced blood flow to kidney — this correctly answers the question.*

**42. Which of the following statements about the kidney is correct?**

(A) The right kidney is lower than the left
(B) The right kidney is higher than the left
(C) Both kidneys are at the same level
(D) The left kidney is lower than the right

**Correct Answer: A**

*Explanation: The right kidney is slightly lower than the left kidney due to the position of the liver.*

**43. A patient has a condition where the collecting duct is not responding to ADH. What is the most likely effect?**

(A) Increased water reabsorption
(B) Reduced water reabsorption
(C) Increased salt reabsorption
(D) Increased filtration

**Correct Answer: B**

*Explanation: ADH increases water reabsorption in the collecting duct. If the collecting duct is not responding to ADH, water reabsorption would be reduced.*

**44. Which of the following is a function of the kidney?**

(A) Production of bile
(B) Production of insulin
(C) Regulation of blood pressure
(D) Digestion of food

**Correct Answer: C**

*Explanation: The kidneys produce renin, which helps regulate blood pressure.*

**45. A person has a condition where the proximal convoluted tubule is damaged. What is the most likely effect?**

(A) Increased reabsorption
(B) Increased filtration
(C) Increased secretion
(D) Reduced reabsorption

**Correct Answer: D**

*Explanation: The proximal convoluted tubule is the site of most reabsorption. Damage would reduce reabsorption.*

**46. Which of the following is the correct composition of urine?**

(A) 95% water, 9.3 g/L urea
(B) 50% water, 9.3 g/L urea
(C) 95% water, 0.04% urea
(D) 50% water, 0.04% urea

**Correct Answer: A**

*Explanation: Urine is about 95% water and contains about 9.3 g/L urea.*

**47. A patient has a condition where the renal pelvis is blocked. What is the most likely effect?**

(A) Increased urine flow to ureter
(B) Reduced urine flow to ureter
(C) Increased filtration
(D) Increased reabsorption

**Correct Answer: B**

*Explanation: Reduced urine flow to ureter — this correctly answers the question.*

**48. Which of the following would decrease the glomerular filtration rate?**

(A) Increased blood pressure
(B) Increased blood volume
(C) Decreased blood pressure
(D) Increased cardiac output

**Correct Answer: C**

*Explanation: Glomerular filtration is driven by blood pressure. Decreased blood pressure would decrease the filtration rate.*

**49. Which of the following is a risk factor for kidney stones?**

(A) High water intake
(B) Low calcium intake
(C) Low oxalate intake
(D) Low water intake

**Correct Answer: D**

*Explanation: A decrease in water intake is a cause of kidney stones.*

**50. A patient has a condition where both kidneys fail. What is the most likely outcome?**

(A) Fatal without treatment
(B) Normal life
(C) Mild discomfort
(D) Increased urine production

**Correct Answer: A**

*Explanation: If both kidneys fail to work, it is fatal without treatment such as dialysis or transplant.*