Chapter: 11

Homeostasis

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Objective

1. Secretions secreted by conifers are called:

Ⓐ Gums Ⓑ Latex Ⓒ Mucilage **Ⓓ Resins**

2. What waste products are excreted by kidneys?

Ⓐ Urea & salts **Ⓑ Urea, water & salts**
Ⓒ Salts, water and carbon dioxide Ⓓ Urea & water

3. The plants which have broad leaves and a large number of Stomata's are called:

Ⓐ Halophytes **Ⓑ Hydrophytes** Ⓒ Bryophytes Ⓓ Xerophytes

4. Example of hydrophyte plants is:

Ⓐ water lily Ⓑ sea grass Ⓒ grass Ⓓ cactus

5. Which plants have succulent organs:

Ⓐ Halophytes **Ⓑ Xerophytes** Ⓒ Mesophytes Ⓓ Hydrophytes

6. The length of human kidney is:

Ⓐ 27 cm Ⓑ 4cm **Ⓒ 10cm** Ⓓ 15cm

7. Urine is temporarily stored in which of these until it is released from body:

Ⓐ Ureter Ⓑ Urethra Ⓒ Kidney **Ⓓ Urinary bladder**

8. Secretion of rubber plant is called:

Ⓐ resins Ⓑ mucilage **Ⓒ latex** Ⓓ gums

9. Which would NOT be present in the filtrate entering the Bowman's capsule of nephron?

Ⓐ Urea **Ⓑ Blood cells** Ⓒ Calcium ions Ⓓ Water

10. Excretion of water through special pores present at the margin of leaves is called:

Ⓐ Guttation Ⓑ Sublimation Ⓒ Transpiration Ⓓ Evaporation

11. Renal pelvis is a part of:

Ⓐ Lungs **Ⓑ Kidney** Ⓒ Testes Ⓓ Heart

12. Sea Grasses are:

Ⓐ Xerophytes Ⓑ Succulent **Ⓒ Halophytes** Ⓓ Hydrophytes

13. The core temperature of human body remains at about:

Ⓐ 40^0C Ⓑ 39^0C Ⓒ 38^0C **Ⓓ 37^0C**

14. Human Urinary system consists of:

Ⓐ Ureter Ⓑ Urinary bladder **Ⓒ All of these** Ⓓ Kidneys

15. The maintenance of water, salts, glucose and temperature in the body is called as:

Ⓐ Reabsorption **Ⓑ Homeostasis** Ⓒ Excretion Ⓓ Filtration

16. Functional unit of kidney is:

Ⓐ Nephron Ⓑ Bowman's Capsule Ⓒ Neuron Ⓓ nerve

17. In every kidney no of Nephrons is about:

Ⓐ More than5 Lac **Ⓑ More than 10** Ⓒ 10 Lac Ⓓ 5 Lac

18. Ribs which protect the kidneys are:

(A) last four (B) middle (C) last two (D) first two

19. What are not filtered through glomerular capillaries?

(A) Fate & Proteins (B) Fats & Salts (C) Salts Proteins (D) Blood Cells & Proteins

20. One of the main causes of kidney failure is?

(A) Urea (B) Creatinine (C) Hypertension (D) Hepatitis

21. Method for the removal of kidney stones:

(A) Dialysis (B) Lithotripsy (C) kidney transplant (D) Biopsy

22. Who is the writer of Encyclopedia "AI Tasrif":

(A) Abu-Al-Qasim (B) Jabir-bin-Hayan (C) Aristotle (D) Al-Farabi

23. During lithotripsy stone is removed by:

(A) electrical shock waves (B) non electrical shock waves
(C) medicines (D) surgery

24. Latex is released by which plant:

(A) Mustard (B) Rubber (C) Lady finger (D) Keekar

25. The maintenance of internal human body temperature is called:

(A) Guttation (B) Respiration (C) Thermoregulation (D) Osmoregulation

26. The example of halophytes plants is:

(A) cactus (B) rose (C) water lily (D) sea grass

27. Resins as waste material is excreted from:

(A) Rubber (B) Keekar (C) Conifers (D) Tomato

28. Plants store a large amount of water in their cells for:

(A) guttation (B) turgidity (C) photosynthesis (D) transpiration

29. The average life for donated kidney is:

(A) 10 to 15 years (B) 15 to 20 years (C) 5 to 10 years (D) 1 to 5 years

30. The process of guttation occurs in the plant:

(A) Keekar (B) grass (C) rubber plant (D) pine

31. Waste material that is removed by carnivorous plants and lady finger is:

(A) Latex (B) Gums (C) Mucilage (D) Resins

32. The example of xerophytes is:

(A) Sea grass (B) Water lilly (C) Funaria (D) Cactus

33. These plants have very deep roots:

(A) mesophytes (B) hydrophytes (C) xerophytes (D) halophytes

34. The elimination of metabolic waste from body is called:

(A) thermoregulation (B) excretion (C) respiration (D) osmoregulation

35. Which thing is reabsorbed by the descending limb of loop of Henle?

(A) water (B) urea (C) glucose (D) salts

36. Waste materials that are secreted by Keekar:

(A) Mucilage (B) Gums (C) Latex (D) Resins

37. U Shape Renal Tubules is called:

Ⓐ Cortex Ⓑ Neuron **Ⓒ Loop of Henle** Ⓓ Pyramids

38. The weight of human kidney is approximately:

Ⓐ 28 gm. Ⓑ 25gm. Ⓒ 26 gm. **Ⓓ 120gm.**

39. In an adult man the average urine formation in a day is:

Ⓐ 1.3 liter Ⓑ 3 liter **Ⓒ 1.4 liter** Ⓓ 4 liter

40. Plays role in maintaining body temperature:

Ⓐ Kidneys **Ⓑ Skin** Ⓒ Ear Ⓓ Lungs

41. The concave part of the kidney is towards:

Ⓐ toward vertebral column Ⓑ away from vertebral column
Ⓒ upper Ⓓ lower

42. The urine is carried out from Urinary Bladder to outside of body in human by:

Ⓐ Nephron **Ⓑ Urethra** Ⓒ Ureter Ⓓ Kidney

43. The plants which live completely or partially submerged in fresh water are called:

Ⓐ bryophytes Ⓑ xerophytes **Ⓒ hydrophytes** Ⓓ halophytes

44. …….. is the name of outer region of longitudinal section of human kidney.

Ⓐ renal pelvis Ⓑ renal pyramids Ⓒ renal medulla **Ⓓ renal cortex**

45. The appearance of drops of water on tips of leaves is called:

Ⓐ Osmoregulation Ⓑ Osmosis **Ⓒ Guttation** Ⓓ Diffusion

46. Mucilage is removed by plants:

Ⓐ Conifer **Ⓑ Lady finger** Ⓒ Keekar Ⓓ Rubber plant

47. What is the function of the ureter?

Ⓐ To remove waste from the blood Ⓑ To store urine
Ⓒ To carry urine from the kidney to the bladder Ⓓ To carry urine out of the body

48. In human, urine formation takes place in …….. steps.

Ⓐ 5 Ⓑ 4 **Ⓒ 3** Ⓓ 2

49. Which is a by-product of photosynthesis?

Ⓐ H_2 Ⓑ N_2 Ⓒ CO_2 **Ⓓ O_2**

50. Which organ temporarily stores urine in the body?

Ⓐ heart Ⓑ Kidneys **Ⓒ urinary bladder** Ⓓ liver

51. It is formed due to condensation of water vapours on the plant surface:

Ⓐ Sebum **Ⓑ Dew** Ⓒ Transpiration Ⓓ Guttation

52. Extra water is removed from plant body by:

Ⓐ Transpiration Ⓑ Condensation Ⓒ Kidney Ⓓ Evaporation

53. It is formed due to condensation of water vapours on the plant surface:

Ⓐ Sebum **Ⓑ Dew** Ⓒ Transpiration Ⓓ Guttation

54. Which organ is responsible for filtering the blood?

Ⓐ Stomachr Ⓑ Intestine **Ⓒ Kidney** Ⓓ Brain

55. Blood enters the kidney through:

(A) Bowman's Capsule (B) Renal vein (C) Glomerulus **(D) Renal Artery**

56. Cacti are example of:

(A) Mesophytes (B) Halophytes **(C) Xerophytes** (D) Hydrophytes

57. The tube between kidney and urinary bladder is the:

(A) Renal tubule **(B) Ureter** (C) Nephron (D) Urethra

58. Which organ is protected by last two ribs in man?

(A) Kidney (B) Liver (C) Heart (D) Stomach

59. The main function of kidney is the formation of:

(A) Fat **(B) Urine** (C) Blood (D) Food

60. Which one of the following is not an organ of homeostasis?

(A) Kidney (B) Lungs **(C) Heart** (D) Skin

61. The By- product of photosynthesis is:

(A) Oxygen Gas (B) Glucose (C) Carbon dioxide **(D) Water**

62. Which plants have deeper roots?

(A) Xerophytes (B) Mesophytes **(C) Halophytes** (D) Hydrophytes

63. The filtrate present in renal tubules is called:

(A) Urea **(B) Urine** (C) Filtrate (D) Blood

64. The human urinary system consists of:

(A) Kidneys, ureters,. urinary bladder, urethra (B) Skin, liver, lungs, kidneys
(C) Kidneys, ureters, urinary bladder (D) Rectum, lungs, kidneys, ureters

65. Percentage of water in human urine is:

(A) 90% **(B) 95%** (C) 70% (D) 75%

66. Which is the correct order for the path taken by urine after it leaves the kidneys?

(A) Bladder, urethra, ureters **(B) Ureters, bladder, urethra**
(C) Bladder, ureters, urethra (D) Urethra, bladder, ureters

67. The maintenance of the internal conditions of the body at equilibrium, despite changes in the external environment is called:

(A) Metabolism **(B) Homeostasis** (C) Osmoregulation (D) Thermoregulation

68. 'Body balance' of water, salts, temperature and glucose is termed as:

(A) Homeostasis (B) Re-absorption (C) Tubular secretion (D) Excretion

69. Normal urine contains amount of urea:

(A) 1.87 g / l (B) 1.17 g / l **(C) 9.3 g / l** (D) 95 / l

70. What is the function of the ureter?

(A) To carry urine out of the body (B) To store urine
(C) To carry urine from the kidney to the bladder (D) To remove waste from the blood

71. Colour of human kidney is:

(A) Dark Red (B) blue (C) Yellow (D) Pink

72. Halophytes live in:

(A) canal **(B) sea** (C) acrylic acid (D) pond

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Subjective

Q1: ***What is Difference between the terms of homeostasis and osmoregulation.***

Ans: Difference between homeostasis and osmoregulation is:

Homeostasis	Osmoregulation
It is defined as the maintenance of internal condition of body at equilibrium despite change in the external environment.	*It is the maintenance of the amount of water and salts in body fluid i.e. blood and tissue fluid.*

Q2: ***What is Difference between the terms of Thermoregulation and Excretion?***

Ans: Difference between Thermoregulation and Excretion is:

Thermoregulation	Excretion
The maintenance of internal body temperature is called Thermoregulation.	*In this process the metabolic wastes are eliminated form body to maintain the internal condition at equilibrium.*

Q3: ***How plants remove extra O_2 and CO_2?***

Ans: The extra O_2 is removed by the mesophyll cells of the plants through stomata and the extra CO_2 are removed by the tissue cell of the plants with the help of diffusion.

This diagram is just for information.

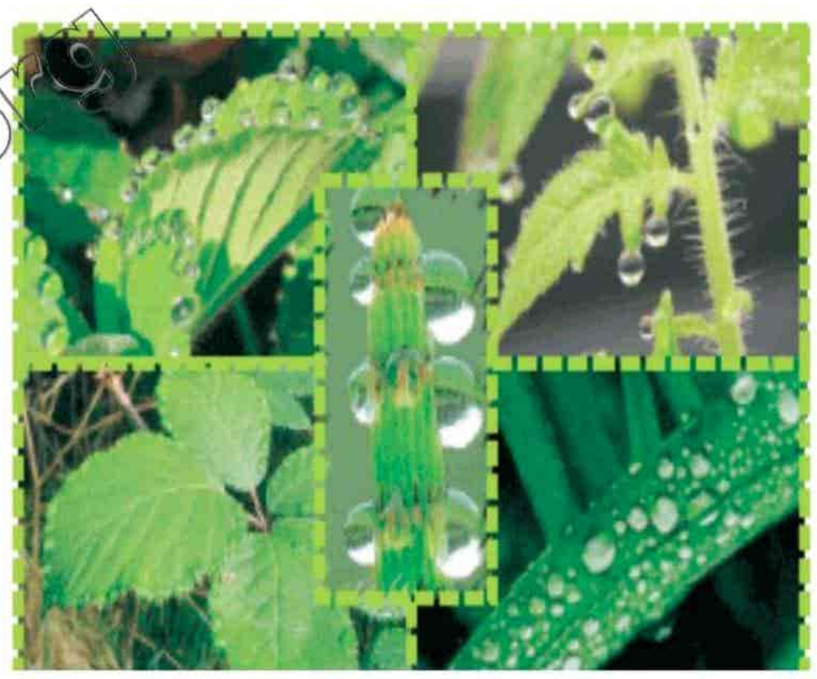

Figure : Guttation in different plants

Q4: ***Why does transpiration not occur at night?***

Ans: At night, transpiration usually does not occur because most plants have their stomata closed at night.

Q5: ***What is meant by metabolic waste?***

Ans: ***Aerobic Respiration:***

Metabolic waste means any material that is produced during body metabolism and that may harm the body.

Q6: ***Differentiate between turgidity and guttation.***

Ans: Difference between Thermoregulation and Excretion is:

Turgidity	Guttation
Plants store large amount of water in their cells which causes turgidity.	*The appearance of drop of, water on the tips or edges of leaves is called guttation.*

Q7: ***Differentiate between transpiration and dew.***

Ans: Difference between Thermoregulation and Excretion is:

Transpiration	Dew
Transpiration is the loss of water from plant surface in the form of water.	*Dew are the water droplets which condenses from the atmosphere on to the plant surface.*

Q8: ***Identify two processes for excretion of water plants?***

Ans: Two processes for excretion of water plants are:

- *Guttation*
- *Transpiration*

Q9: ***How plants excrete their metabolic wastes?***

Ans: Plants excrete their metabolic wastes from body during leaf fall.

Q10: ***How calcium oxalate is removed in tomato plant as metabolic waste?***

Ans: Plants deposit many metabolic wastes in their bodies as harmless insoluble materials.

For example:

Calcium oxalate is deposited in the form of crystals in the leaves and skins of many plants e.g in tomato.

This diagram is just for information.

Resin drops from a cut tree | *Latex being extracted from a tree* | *Mucilage drops on a carnivorous plant*

Figure Removal of some wastes in plants

Q11: ***Name the plants from which resins, Guns, latex, and mucilage are obtained.***

Ans: Name of the plants from which resins, Guns, latex, and mucilage are obtained:

- *Gums by keekar.*
- *Mucilage by carnivorous plants and a ladyfinger.*
- *Latex by rubber plant.*
- *Resins by coniferous tree.*

Q12: ***What are hydrophytes? Give an example.***

Ans: ***Hydrophytes:***

Hydrophytes are the plants which completely live submerged in water. These plants do not face the problem of water shortage. The plants have developed mechanism for the removal of extra amount of water in cell.

Example:

The most common example of plant is water lily.

Q13: ***Describe xerophyte with example.***

Ans: ***Xerophytes:***

Xerophytes live in dry environment. They possess thick, waxy cuticle over their epidermis to reduce water loss from internal tissues. They have less number of stomata to reduce the rate of transpiration.

Example:

Cactus.

This diagram is just for information.

Hydrophytes | *Halophytes* | *Xerophytes*

Figure : Three groups of plants

Q14: ***What is osmosis?***

Ans: ***Osmosis:***

Osmosis is the movement of water from hypotonic solution (less solute concentration) to hypertonic solution (higher solute concentration), through semipermeable membrane.

Q15: ***Define halophytes and give examples.***

Ans: ***Halophytes:***

Halophytes live in sea waters and are adapted to salty environments.
Many sea grasses are included in this group of plants.

Q16: ***What are succulent organs? Give example.***

Ans: ***Succulent organs:***

Some Xerophytes have special parenchyma cells in stems or roots in which they store large quantities of water. This makes their stem or roots wet or juicy called succulent organs.

For example:

Cactus.

Q17: ***What are the main organs for homeostasis in man? Explain.***

Ans: The main organs for homeostasis in man are:

- *Skin performs role in the maintenance of body temperature and also remove excess water and salts.*
- *The kidney filter excess water, salts, urea, uric acid etc. from the blood*
- *Lungs remove excess carbon dioxide and keep it in balance.*

Q18: ***What is meant by goose bumps on skin?***

Ans: Contractions of small muscles attached to hairs forms "Goosebumps". It creates an insulating blanket of warm air.

Q19: ***What is the function of ureter?***

Ans: There function is to carry the urine from the kidneys and put it into the urinary bladder.

Figure : Goose bumps

Q20: ***Write down the names of four organs of urinary system.***

Ans: The names of four organs of urinary system are:

- *1 pair of ureters*
- *1 pair of kidneys*
- *A urethra*
- *A urinary bladder*

This diagram is just for information.

Q21: ***What is the function of urinary bladder and urethra in urinary system of human?***

Ans: ***Alveolus:***

Each alveolar duct opens into a cluster of pouches called alveolus (Singular: Alveoli).
Each alveolus is a sac like structure lined by a single layer of epithelial cells.

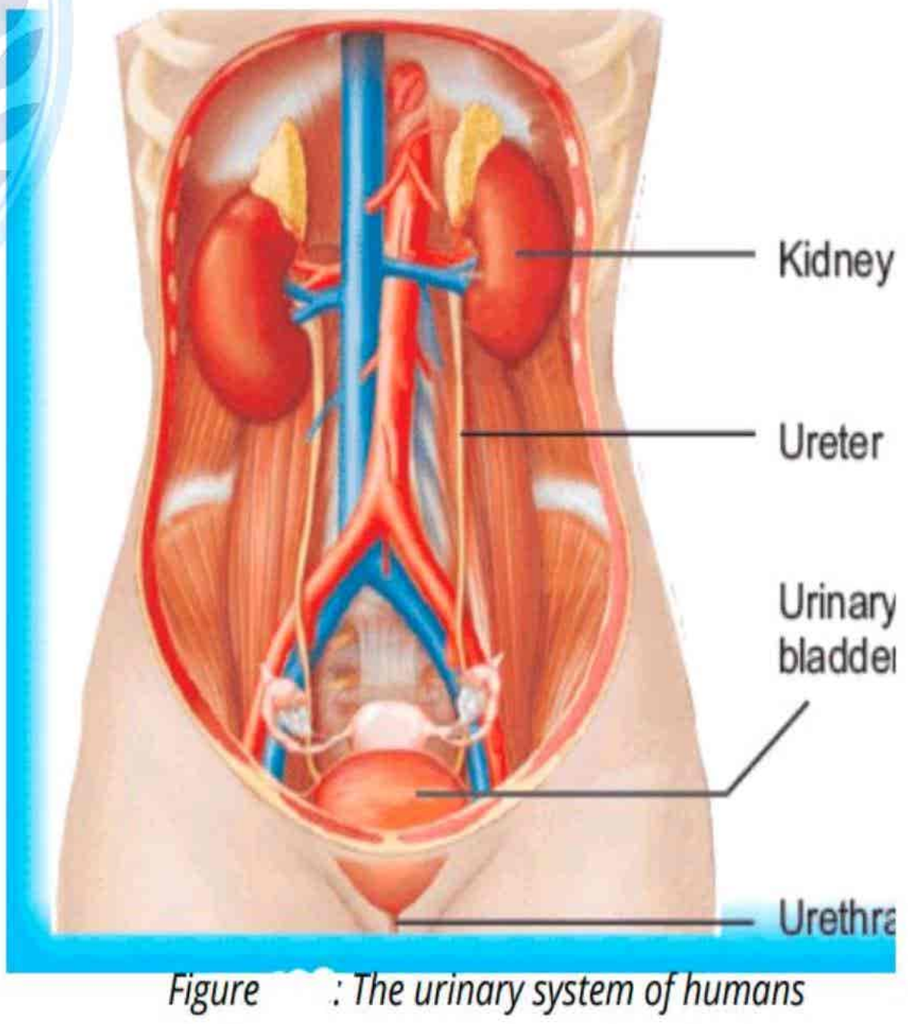

Figure : The urinary system of humans

Q22: ***Write the importance of trachea in the respiratory system.***

Ans: The Urinary bladder temporarily store until it is released from body.
Urethra is the tube that carries urine from urinary bladder to the outside of the body.

Q23: ***Differentiate between renal corpuscle and renal tubule.***

Ans: Difference between renal corpuscle and renal tubule is:

Renal Corpuscle	Dew
Renal Corpuscle is the collection for the glomerulus and Bowmen's capsule in the nephron.	The part of nephron after the Bowman's capsule consists of proximal convoluted tubule, loop of Henle and distal convoluted

	tubule.

Q24: ***Describe briefly structure of renal corpuscle present in the kidney.***

Ans: The renal corpuscle is not tubular and has two parts i.e.; glomerulus and Bowman's capsule. Glomerulus is a network of capillaries while Bowman's capsule is a cup shaped structure that encloses glomerulus.

This diagram is just for information.

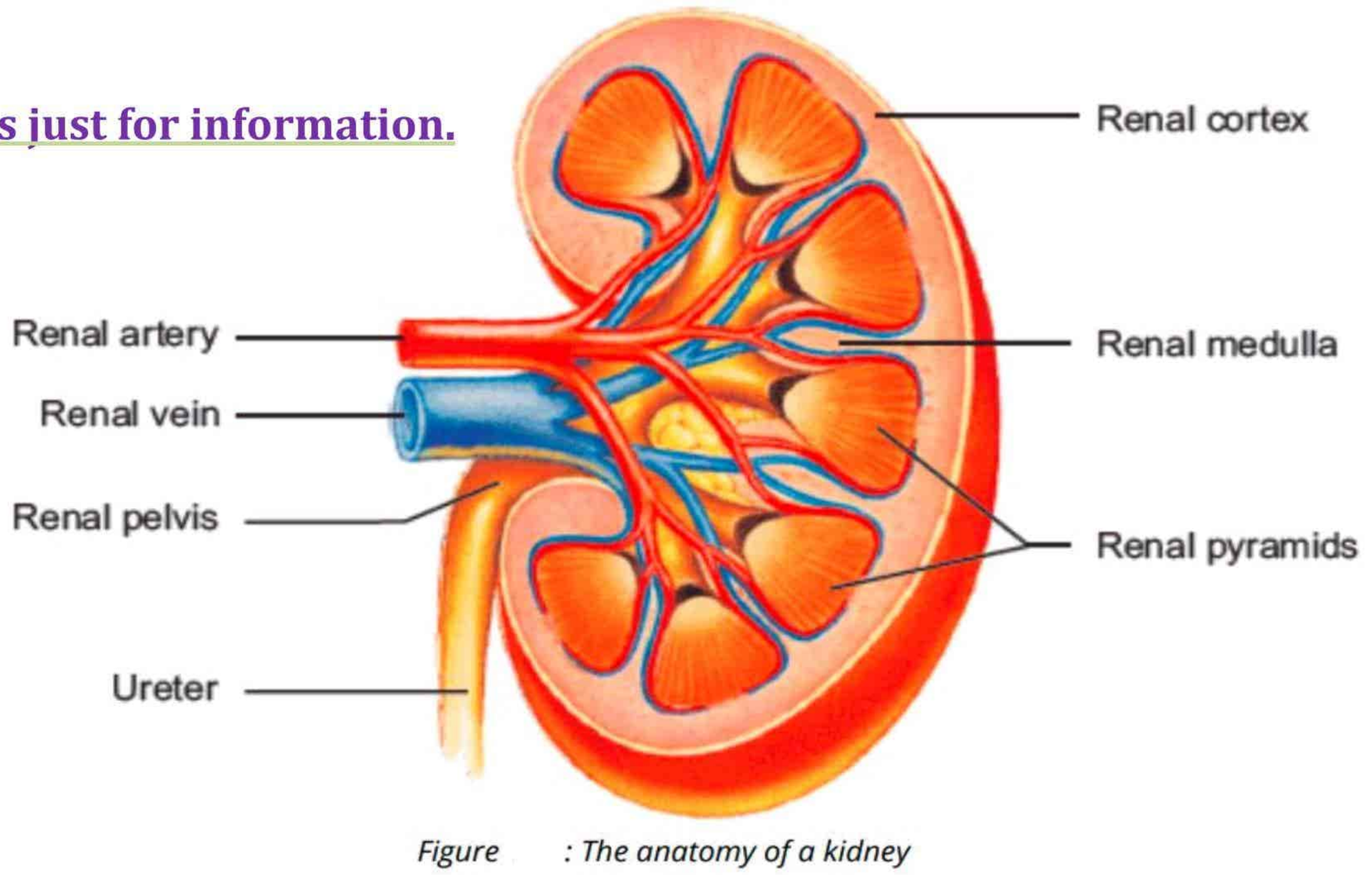

Figure : The anatomy of a kidney

Q25: ***Define nephron and write down the names of its parts.***

Ans: ***Nephron:***

The functional unit of kidney is called nephron.

There are two parts of nephron.

- *Renal corpuscle.*
- *Renal tubule.*

Q26: ***What is the size of human kidney?***

Ans: Each kidney is 10cm long, 5cm wide and 4cm thick and weighs about 120 gm.

Q27: ***Differentiate between renal cortex and renal medulla.***

Ans: Difference between renal corpuscle and renal tubule is:

Renal cortex	Renal medulla
Renal cortex is the outer part of kidney and it is dark red in colour.	Renal medulla is the inner part of kidney and is pale red in colour.

Q28: ***What is the functional unit of kidney?***

Ans: The functional unit of kidney is called nephron. There are over one million nephrons in each kidney. There are two types of nephron i.e. renal corpuscle and renal tubule.

This diagram is just for information.

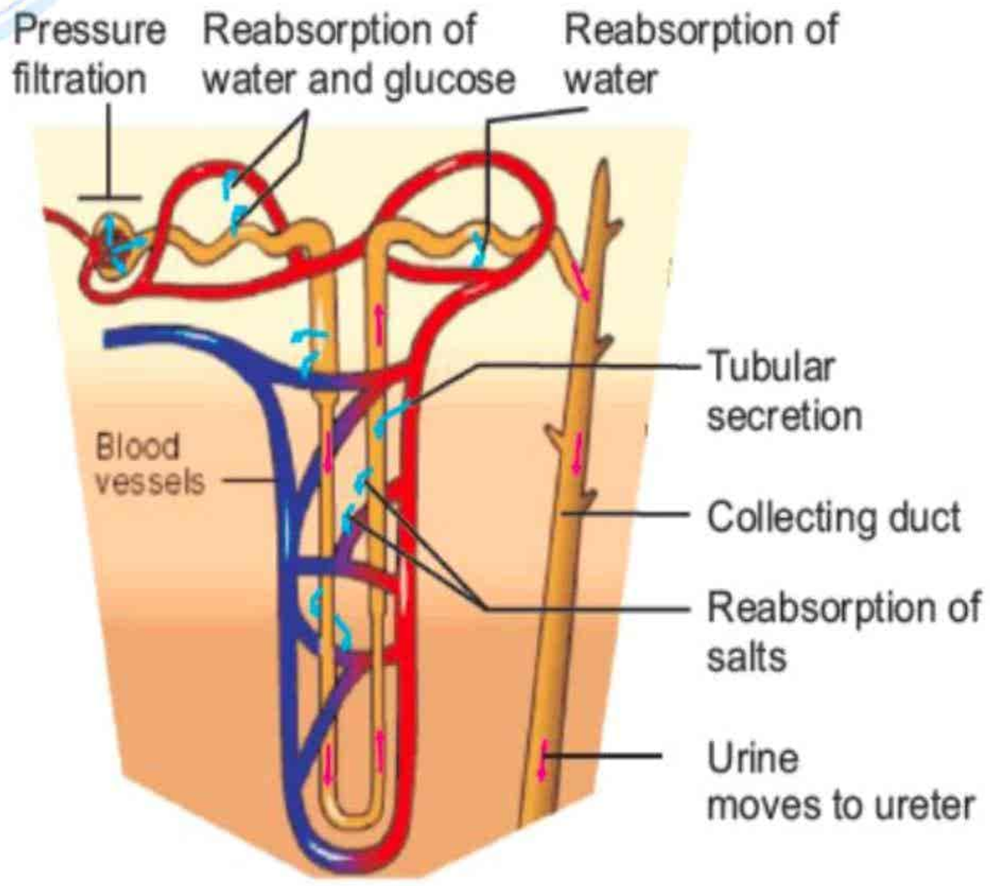

Figure : Functioning of kidney (nephron)

Q29: ***Describe renal tubule.***

Ans: The renal tubule is the part of nephron which starts after, Bowman's capsule. Its first portion is called proximal convoluted tubule. Next portion is u-shaped and is called the Loop of Henle. The last portion of renal tubule is the distal convoluted tubule.

Q30: ***What is the functional unit of kidney?***

Ans: The functional unit of kidney is called nephron. There are over one million nephrons in each kidney. There are two types of nephron i.e. renal corpuscle and renal tubule.

Q31: ***Write the name of two parts of renal corpuscle.***

Ans: The name of two parts of renal corpuscle is:

- *Bowman's capsule*
- *Glomerulus*

Q32: ***Differentiate between Glomerulus and Bowman's capsule.***

Ans: Difference between renal corpuscle and renal tubule is:

Glomerulus	Bowman's capsule
Glomerulus is a network of capillaries.	Bowman's capsule is a cup shaped structure that encloses glomerulus.

Q33: ***Differentiate between hillus and pelvis.***

Ans: Difference between hillus and pelvis is:

Hillus	Pelvis
The concave side a of kidney faces vertebral column. There is a depression, called hillus, near the centre of the concave area of kidney.	While renal pyramids project into a funnel shaped cavity called' renal pelvis, which is the base of ureter.

Q34: ***What is tubular secretion?***

Ans: Different ions, creatinine urea etc. are secreted from blood into the filtrate in renal tubule. This is done to maintaining the blood at the normal ph.

Q35: ***What is meant by pressure filtration?***

Ans: When blood enters the kidney via the renal artery it goes to many arterioles and then glomerulus. The pressure of blood is very high so the most of the water, salt, glucose and urea of blood is forced out of glomerular capillaries into Bowman's capsule.

Q36: ***Describe selective re-absorption in the nephron.***

Ans: In this step about 99% of the-glomerular filtrate is reabsorbed into the blood capillaries surrounding renal tubule. It occurs through osmosis, diffusion, and active transport.

Q37: ***When kidney form hypotonic and hypertonic urine?***

Ans: When there is excess water in body fluids, kidney form dilute (hypotonic) urine and when there is shortage of water in body fluids kidney filters less water from glomerular capillaries and rate of re-absorption is increased and concentrated (hypertonic) urine is formed.

Q38: ***What is lithotripsy?***

Ans: In this method, non-electrical shock waves from outside are bombarded on the stones and break them. Stones become sand-like and are passed through urine.

Q39: ***What are the causes of kidney stone? And write its symptoms.***

Ans: ***Causes of kidney stone:***

The major causes of kidney stones are. age, diet, recurring urinary tract infections, less intake of water and alcohol consumption.

Symptoms:

Symptoms of kidney stones include severe pain in kidney or in lower abdomen, vomiting, frequent urination and foul smelling with blood and pus.

Q40: ***What a do you meant by kidney transplant.***

Ans: It is the replacement of patients damaged kidney with the donor healthy kidney. Kidney may be donated by a deceased donor or living donor. The donor may or may not be relative of the patient. Before transplant; the tissue proteins of donor and patient are matched. The average life time for a donated kidney is ten to fifteen years.

Q41: ***Write two symptoms of kidney failure.***

Ans: Symptoms of kidney failure is:

High level of urea and other wastes in blood, which can result in vomiting, nausea, weight loss, frequent urination and blood in urine are the main symptoms of kidney failure.

Q42: ***Describe two major causes of kidney failure.***

Ans: Two major causes of kidney failure are:

- *Sudden interruption in the blood supply to kidney and drug over doze may also result in kidney failure.*
- *Diabetes Mellitus and hypertension are the leading causes of kidney failure.*

Q43: ***What does dialysis mean? Name its methods?***

Ans: Dialysis means the cleaning of blood by artificial way.

There are two method of dialysis.

- *Haemodialysis.*
- *Peritoneal dialysis.*

Q44: ***What is peritoneal dialysis?***

Ans: In this type of dialysis, the dialysis fluid is pumped for a time into the peritoneal cavity which is space around gut. This cavity is lined by peritoneum. Peritoneum contains blood vessels. When we place dialysis fluid in peritoneal cavity, waste materials form peritoneal blood vessels diffuse into the, dialysis fluid, which is then drained out: This type of dialysis can be performed at home, but must be done every day.

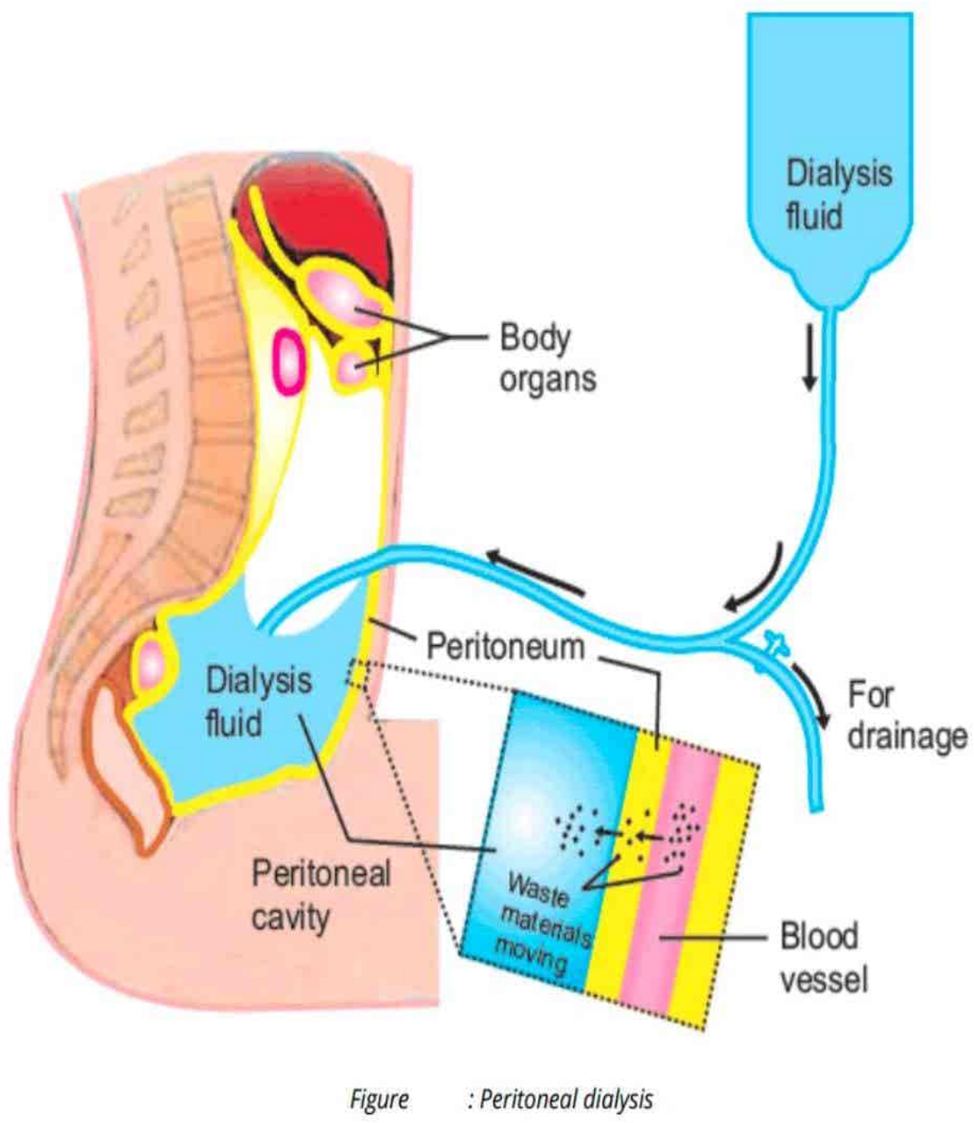

Figure : Peritoneal dialysis

Q45: ***What is dialyzer?***

Ans: ***Dialyzer:***

In hemodialysis, patient's blood is pumped through an apparatus called dialyzer.

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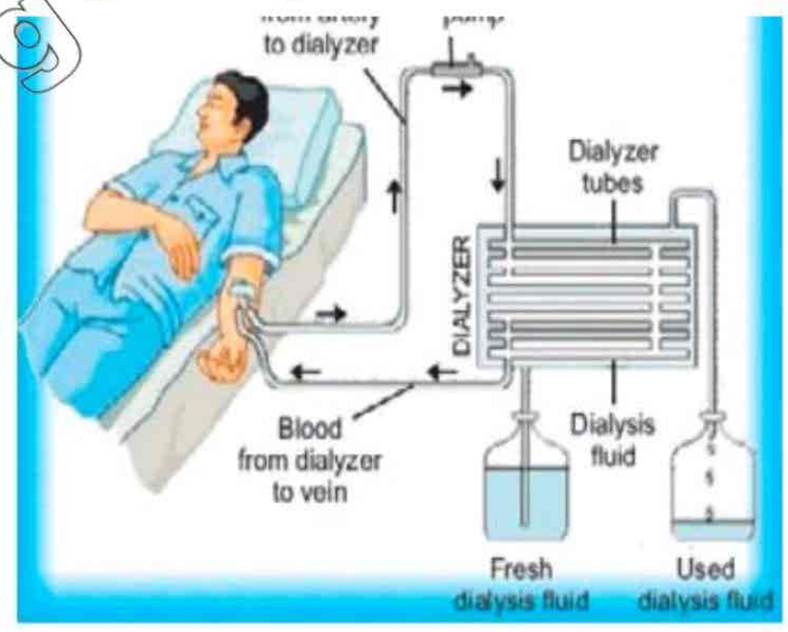

Figure : Haemodialysis

Q46: ***What is the average Age of denoted kidney?***

Ans: The Average lifetime for a denoted kidney is ten to fifteen years.

Q47: ***What is kidney failure? How it is treated?***

Ans: Kidney failure:

Kidney failure means a. complete or partial failure of kidneys to function.

The kidney failure is treated with dialysis and kidney transplant.

Q48: ***What role is played by lungs in homeostasis?***

Ans: Lungs maintain the concentration of carbon dioxide in the blood. Our cells produce carbon dioxide when they perform cellular respiration. Lungs remove this carbon dioxide from body.

Q49: ***How does human kidney produces hypotonic urine?***

Ans: When there is excess water in body fluid. For this purpose kidneys filter more water from glomerular capillaries into Bowman's capsule.

Similarly, Jess water is reabsorbed and abundant dilute urine is produced. It brings down volume of body fluid to normal.

Q50: ***Write two complexities which can arise in kidney transplant.***

Ans: Problems after a transplant may include transplant rejection, infections, unbalances in body salts which can lead to bone problem and ulcer.

Q51: ***How does skin control human body temperature?***

Ans: Skin performs important role in the regulation of body temperature. The thin layer of fat cells in the dermis insulates the body contraction of small muscles attached to hairs forms Goosebumps. It creates an insulating blanket of warm air.

Q52: ***How skin produces cooling effect of the body?***

Ans: Skin helps in providing cooling effect when sweat is produced by sweat gland and excess body heat escapes through evaporation. Metabolic wastes such as excess water, salts, urea and uric acid are also removed in sweat.

Q53: ***Why blood cells and proteins are not filtered through the glomerular capillaries?***

Ans: Blood cells and proteins are not filtered through the glomerular capillaries because they are relatively larger in size.

Q54: ***What steps are involved in the formation of urine in kidneys?***

Ans: There are three steps involved in the formation of urine.

- *Tubular secretion.*
- *Selective reabsorption.*
- *Pressure filtration.*

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Imp.Long Questions

Q.1: What is meant by kidney failure? Describe its causes.

Q.2: Explain the two methods of dialysis.

Q.3: Write a note on Kidney stones.

Q.4: How plants remove extra Carbon Dioxide, Oxygen and Water. V.imp

Q.5: How plants remove metabolic wastes.

Q.6: Describe the structure of nephron. V.imp

Q.7: Describe the internal structure of human kidney.

Q.8: Describe Osmoregulatory function of Kidney. V.imp

Q.9: Define Dialysis. Describe about Haemodialysis.

Q.10: Write a note on Kidney Transplant

Q.11: What is Difference between xerophytes and halophytes?

Q.12: What do you know about osmotic adjustments in Hydrophytes and Halophytes? Write three names and function of those organs which maintain Homeostasis.