



## BIOLOGY

### NCERT - FULL MARKS BIOLOGY(TAMIL)

#### EXCRETION

#### Evaluation

1. Arrange the following structures in the order that a drop of water entering the nephron would encounter them.

Afferent arteriole

Bowman's capsule

Collecting duct

Distal tubule

Glomerulus

Loop of Henle

Proximal tubule

Renal pelvis

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2. Name the three filtration barriers that solutes must come across as they move from plasma to the lumen of Bowman's capsule. What components of the blood are usually excluded by these layers?

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3. What forces promote Glomerular filtration? What forces opposes them? What is meant by net filtration pressure?

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4. Identify the following structures and explain their significance in renal physiology?

a. Juxtaglomerular apparatus

b. Podocytes

c. Sphincters in the bladder

d. Renal cortex

A.

B.

C.

D.

**Answer:**



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5. In which segment of the nephron most of the re absorption of substances takes place?



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6. When a molecule or ion is reabsorbed from the lumen of the nephron, where does it go? If a solute is filtered and not reabsorbed from the tubule, where does it go?

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7. Match each of the following substances with its mode of transportation in proximal tubular reabsorption. (a)  $\text{Na}^+$  – 1. indirect active transport (b) Glucose – 2. endocytosis (c) Urea – 3. paracellular movement (d) Plasma – 4. facilitated diffusion (e) Water – 5. primary active transport Answer

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8. Which segment is the site of secretion and regulated reabsorption of ions and pH homeostasis?

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9. What solute is normally present in the body to estimate GFR in humans?

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10. Which part of the autonomic nervous system is involved in Micturition process?

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11. If the afferent arteriole of the nephron constricts, what happens to the GFR in that nephron? If the efferent arteriole constricts what happens to the GFR in that nephron? Assume that no auto regulation takes place.

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12. How is the process of micturition altered by toilet training?

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13. Concentration of urine depends upon which part of the nephron

- A. Bowman's capsule
- B. length of Henle's loop
- C. P.C.T
- D. net work of capillaries arising from glomerulus

**Answer:**



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14. If Henle's loop were absent from mammalian nephron, which one of the following is to be expected?

- A. There will be no urine formation

- B. There will be hardly any change in the quality and quantity of urine formed
- C. The urine will be more concentrated
- D. The urine will be more dilute

**Answer:**



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15. A person who is on a long hunger strike and is surviving only on water, will have\_\_\_\_\_

- A. Less amino acids in his urine
- B. Macula densa cells
- C. Less urea in his urine
- D. More sodium in his urine

**Answer:**

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16. What will happen if the stretch receptors of the urinary bladder wall are totally removed?

- A. Micturition will continue
- B. Urine will be continue to collect normally in the bladder
- C. there will be micturition
- D. urine will not collection the bladder

**Answer:**

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17. The end product of Ornithine cycle is

- A. carbon dioxide
- B. uric acid



C. urea

D. ammonia

**Answer:**



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**18.** Identify the wrong match

(a. , Bowman's capsule, – Glomerular filtration), (b. , DCT , – absor

(d. , PCT , – absorption of

Na<sup>(+)</sup> and K<sup>(+)</sup> "ions"):



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**19.** Podocytes are the cells present on the

A. Outer wall of Bowman's capsule

B. Inner wall of Bowman's capsule

C. neck of nephron

D. Wall glomerular capillaries

**Answer:**



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**20.** Glomerular filtrate contains

- A. Blood without blood cells and proteins
- B. Plasma without sugar
- C. Blood with proteins but without cells
- D. Blood without urea

**Answer:**



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**21.** Kidney stones are produced due to deposition of uric acid and

- A. silicates
- B. minerals
- C. calcium carbonate
- D. calcium oxalate

**Answer:**

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**22.** Animal requiring minimum amount of water to produce urine are

- A. ureotelic
- B. ammonotelic
- C. uricotelic
- D. chemotelic

**Answer:**

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**23.** Aldosterone acts at the distal convoluted tubule and collecting duct resulting in the absorption of water through:

- A. Aquaporins
- B. spectrins
- C. GLUT
- D. Chloride channels

**Answer:**



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**24.** The hormone which helps in the reabsorption of water in kidney tubules is

- A. cholecystokinin
- B. angiotensin II

C. antidiuretic hormone

D. pancreozymin

**Answer:**



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25. Malpighian tubules remove excretory products from

A. mouth

B. oesophagus

C. haemolymph

D. alimentary canal.

**Answer:**



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26. Identify the biological term.

Excretion, glomerulus, urinary bladder, glomerular filtrate, ureters, urine, Bowman's capsule, urinary system, reabsorption, micturition, osmosis, proteins.

- (a) A liquid which gathers in the bladder.
- (b) Produced when blood is filtered in a Bowman's capsule.
- (c) Temporary storage of urine.
- (d) A ball of inter twined capillaries.
- (e) Removal of unwanted substances from the body.
- (f) Each contains a glomerulus.
- (g) Carry urine from the kidneys to the bladder.
- (h) Scientific term for urination.
- (i) Regulation of water and dissolved substances in blood and tissue fluid.
- (j) Consists of the kidneys, ureters and bladder.
- (k) Removal of useful substances from glomerular filtrate.
- (l) What solute the blood contains that are not present in the glomerular filtrate?



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**30.** Identify the biological term Homeostasis, excretion, glomerulus,urea, glomerular filtration, ureters, urine, Bowman's capsule, urinary system, reabsorption, micturition, osmosis, glomerular capillaries via efferent arteriole, proteins.

Contains urea and many useful substances.



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**31.** Identify the biological term Homeostasis, excretion, glomerulus,urea, glomerular filtration, ureters, urine, Bowman's capsule, urinary system, reabsorption, micturition, osmosis, glomerular capillaries via efferent arteriole, proteins.

Bloods is filtered through its walls into the Bowman's capsule



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**32.** Identify the biological term.

Excretion, glomerulus, urinary bladder, glomerular filtrate, ureters, urine, Bowman's capsule, urinary system, reabsorption, micturition, osmosis, proteins.

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**35.** Identify the biological term Homeostasis, excretion, glomerulus, urea, glomerular filtration, ureters, urine, Bowman's capsule, urinary system, reabsorption, micturition, osmosis, glomerular capillaries via efferent arteriole, proteins.

Consists of the kidneys, ureters and bladder.



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**36.** Identify the biological term.

Excretion, glomerulus, urinary bladder, glomerular filtrate, ureters, urine, Bowman's capsule, urinary system, reabsorption, micturition, osmosis, proteins.

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**37.** Identify the biological term Homeostasis, excretion, glomerulus, urea, glomerular filtration, ureters, urine, Bowman's capsule, urinary system, reabsorption, micturition, osmosis, glomerular capillaries via efferent arteriole, proteins.

The process by which water is transported in the proximal convoluted tubule.



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**38.** Identify the biological term Homeostasis, excretion, glomerulus, urea, glomerular filtration, ureters, urine, Bowman's capsule, urinary system, reabsorption, micturition, osmosis, glomerular capillaries via efferent arteriole, proteins.

Where has the blood in the capillaries surrounding the proximal convoluted tubule come from?

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**40.** With regards to toxicity and the need for dilution in water, how different are ureotelic and uricotelic excretions? Give examples of animals that use these types of excretion?



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**41.** Differentiate protonephridia from metanephridia.



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**42.** What is the nitrogenous waste produced by amphibian larvae and by the adult animal?

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**43.** How is urea formed in the human body? (OR) We are not consuming urea. But in our body urea is produced. Why?

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**44.** Differentiate cortical from medullary nephrons.

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**45.** What vessels carry blood to the kidneys? Is this blood arterial or venous?



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**46.** Which vessels drain filtered blood from the kidneys?



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**47.** What is tubular secretion? Name the substances secreted through the renal tubules.



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**48.** How are the kidneys involved in controlling blood volume? How is the volume of blood in the body related to arterial pressure?



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49. Name the three main hormones are involved in the regulation of the renal function?

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50. What is the function of antidiuretic hormone? Where is it produced and what stimull Increases or decreases its secretion?

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51. What is the effect of aldosterone on kidneys and where is it produced?

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52. What evolutionary hypothesis could explain the heart's role in secreting a hormone that regulates renal function?

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