

## QNO#02

⇒ Describes the structure of Universe according to big bang theory?

Universe:-

The universe is the vast, infinite space that includes all matter, energy, space, and time, such as stars, planets, galaxies, and everything that exists.

Composition:-

It consists of different components.

(1) Galaxies:-

It is a large system of stars,

(2) Stars and planets:-

The stars that produce energy, while the planets revolve around stars.

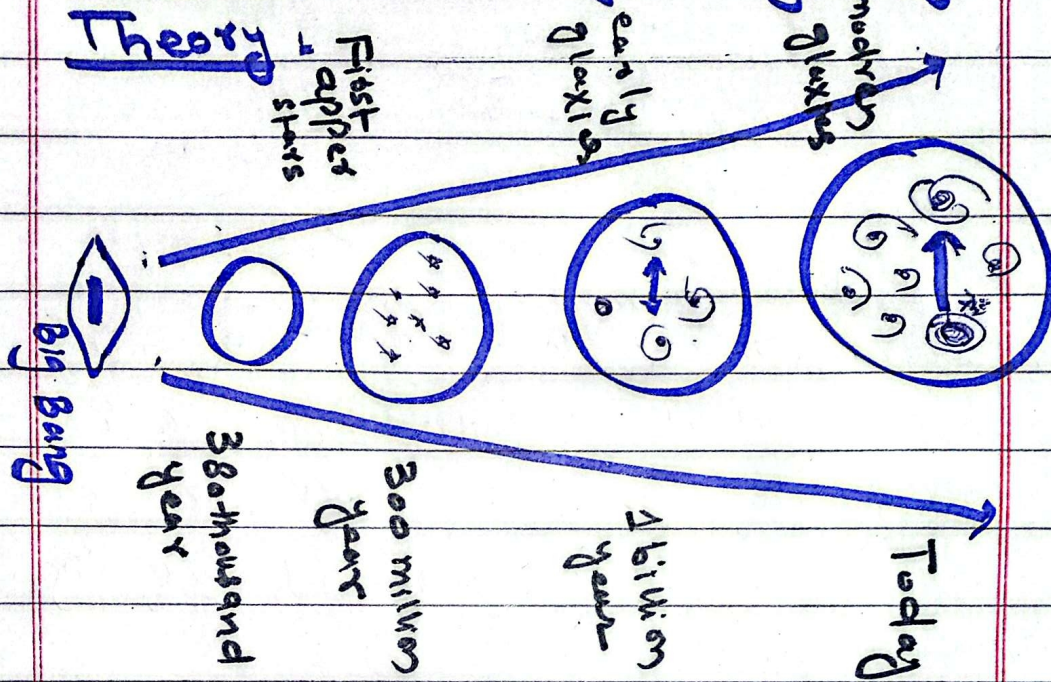
(3) Interstellar matter and energy:-

The interstellar matter and energy include gas, dust, radiations, and dark matter present between



celestial bodies.

## → Structure and function of Universe according to Big Bang Theory



⇒ According to the Big Bang Theory, the universe began before about 13.8 billions years ago from an extremely hot, dense point called a singularity.

- with the passage of time universe started expand and cool.
- As a result fundamental particles i.e. protons, neutrons and electrons were formed.
- Later these particles combined to form atoms, mainly "H" and "He".



→ Over millions of years, gravity caused these particles (gases) to come together <sup>to</sup>, forming stars.

→ Then, stars grouped together to form galaxies. and then to galaxies resulted into make up the universe.

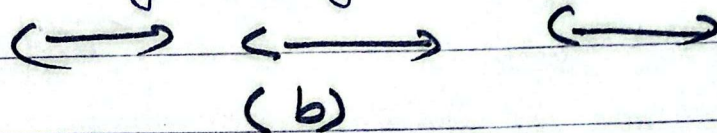
### → Structures of galaxies.

Galaxies are arranged into different large structures i.e. clusters, superclusters, filaments and vast empty regions called Voids, (web like structure).

→ The universe is still expanding today, ~~that it is showing that~~ showing that it is not static but dynamic in nature.

### → Expansion of Universe

It is the fact that supports the Big Bang theory.



### Urinary system:-

Definition:-

The urinary system is responsible



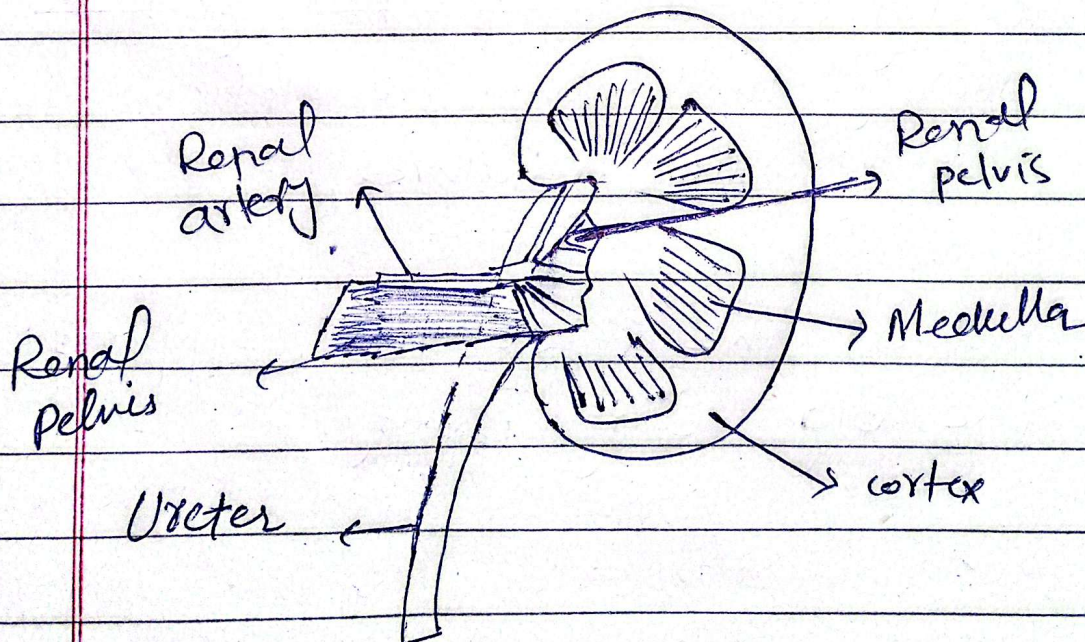
for functions i.e. removing waste products and excess water from blood and maintaining the balance of fluid, salts, and pH in the body.

### ⇒ Parts of Urinary system

There are different parts of urinary system these are

- (i) kidney
- (ii) Ureter
- (iii) Urinary bladder
- (iv) Urethra

### → Anatomy of the kidney



### structure of kidney

⇒ Kidney - It plays important role in filter blood (remove



wastes) and form urine

⇒ <sup>The</sup> Nephron is a structural and functional unit of kidney

⇒ Working of nephron:

The most important function of nephron form urine by filtering blood and removing wastes.

→ Steps of (in nephron) working:

(i) Glomerular Filtration:

The blood enters the nephron through glomerulus with high pressure. The high pressure of blood pushes water, salts, glucose, urea and other small molecules into Bowman's capsule. Other important nutrients and cells remain in blood.

(ii) Selective reabsorption:

The important nutrients, substances, salts, and water are reabsorbed into blood from renal tubules (mainly proximal convoluted tubule).

(iii) Tubular secretions:



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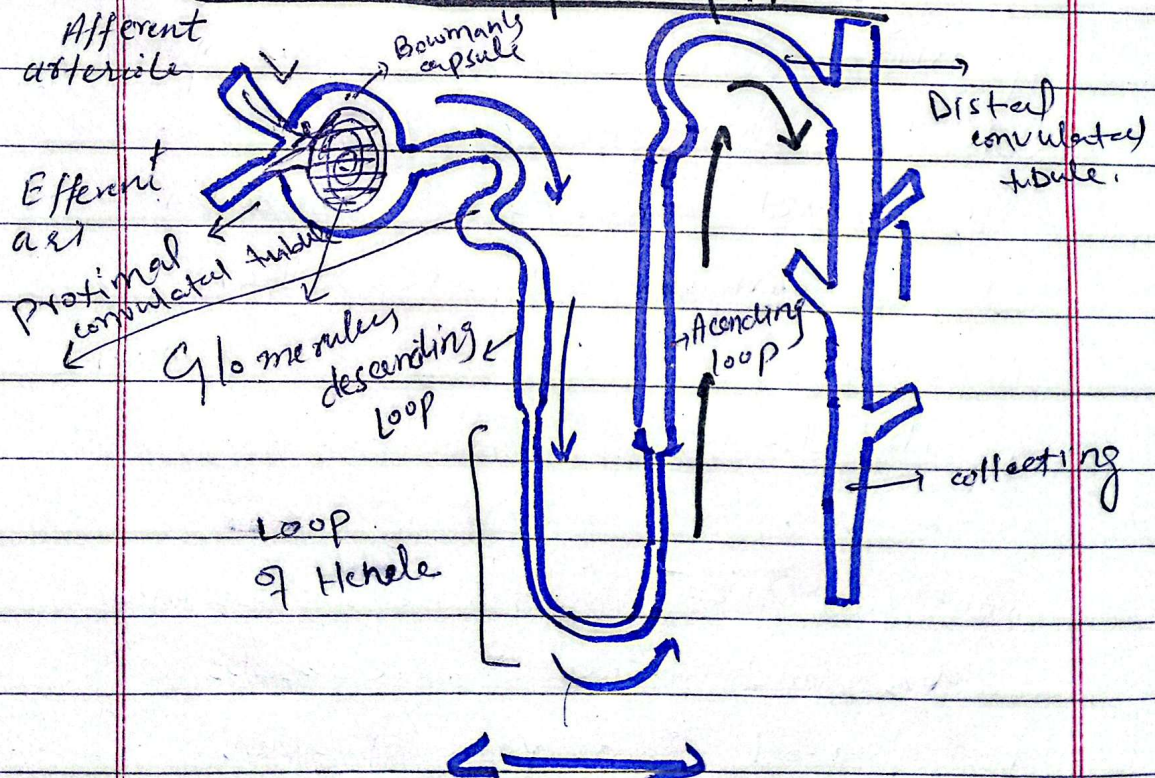
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The additional wastes material like hydrogen, (K) potassium ions and drugs are pushed into tubules from blood to maintain ionic and pH balance.

#### (iv) Urine Formation :-

The remaining fluid becomes urine which move towards the collecting duct, renal pelvis and urinary bladder. Then moves out through the Urethra

#### ⇒ Structure of nephron



(c)

Un-balanced diet



An unbalanced diet that does not provide the right amount or nutrients which are required for good health.

→ It may contain excess or deficiency of nutrients which are required.

i.e. Carbohydrates, proteins, fats, vitamins and minerals.

### ⇒ Causes of Unbalanced diet

The one of most big reason eating too much junk foods, not eating habit of fruits and vegetables, improper diet plan etc.

### → How it affects the body:-

There are numerous side-effects of unbalanced diet.

### ⇒ Types of effects

#### (i) Short-term effects

Such type of effects caused the digestive issues, lower the energy and skin problems etc.

#### (ii) Long term effects

Such type of effects caused the serious issues or chronic



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effects. are listed here:-

- (1) obesity and weight gain
- (2) Hypertension
- (3) Type-2 diabetes
- (4) Nutritional diseases

(a) anemia (low blood cells)

(b) rickets (bone disease).

### ⇒ Preventions:-

We can prevent the effects of unbalanced diet by eating healthy foods, taking essential nutrients, cereals, proteins etc.

### Conclusion:-

A healthy body needs a healthy nutritional diet to grow in proper ways.



(d)

(a) Structure and functions of cell membrane:- (fluid mosaic model)

⇒ The cell membrane is a thin, flexible, selectively permeable layer made up of phospholipid bilayer with embedded protein



### ⇒ Functions : ~~At~~ centro

- Controls the movement of substance into and outside of the cell
- Also protect the cell and helps maintain its shape.

### ⇒ Cell wall structure and function:-

It is a rigid outer layer in plant, fungi, bacteria and algae that provides structural support, maintains cell shape, protects against mechanical stress and pathogens, and regulates substance flow through pores.

→ Its structure varies made up of cellulose, pectin and hemicellulose in plants. Similarly, made up of chitin in fungi and peptidoglycan in Bacteria.