Porifera

1. It includes sedentary, mostly branched plant like animals
2. These are commonly called**-Sponges**
3. **'Robert E Grant'** established their animal nature & coined the word**-Porifera (Pore bearing animals).**
4. Because of absence of well defined tissues they are kept in a separate sub-kingdom**-Parazoa (different from Eumetazoa)**
5. Fresh water sponges are included only in **Family Spongillidae** (eg:Spongilla)
6. **Symmetry of sponges-** Radially symmetrical or asymmetrical
7. Sponges are multicellular and cell layers are not true tissues because the cells are relatively 'unspecialised' (tissue& organ grade of organization absent)
8. Body wall of sponges consists of **two layers.** The two layers are separated by a gelatinous substance called- **Mesohyl or mesenchyme**
9. Outer layer is called**-pinacoderm** (epidermis), Pinacoderm is made up of - **flattened cells called** pinacocytes
10. Inner layer is called -**choanoderm**(gastrodermis)
11. Choanoderm is made up of **specialized cells** with a flagellum & collar around its base called -choanocytes or collar cells.
12. Mesohyl contains wandering**-amoebocytes**
13. Large cells with large nuclei are called -archeocytes which are phagocytes & play a role in digestion
14. Archaeocytes can capable of giving rise to any other cell types, hence these are called**-totipotent cells**
15. Contractile cells found around osculum - **myocytes**
16. Cells that produce spicules and spongin fibres, **respectively -** Scleorocytes and Spongocytes
17. Inhalent pores are called**-Ostia**
18. Pores occur in specialized cells called **-porocytes**
19. Porocytes occur in between -pinacocytes &extend up to the spongocoel through body wall
20. Central cavity of sponges is called **-spongocoel or paragastric cavity**
21. Paragastric cavity opens out through **-osculum, an exhalant pore**
22. Pores on the body open into a simple or complex unique system called- **Canal system or Acquiferous system**
23. **Two unique features of sponges -** Acquiferous system and totipotent nature of cells
24. **Choanocytes help in** -drawing water into the body, eliminates ammonia &exchange of $\mathbf{0_2}$**&**$\mathbf{C0_2}$ by simple diffusion.
25. Nutrition is -holozoic
26. **Sponges are -** Suspension feeders or filter feeders.
27. Collar cells ingest food by-phagocytosis & digest them
28. **Digestion is -** Intracellular (as in protozoans) **Digestion occur in** -collar cells & archaeocytes
29. Reserve food material are stored in cells called **- thesocytes**
30. **Internal skeleton is made up of -** calcareous or sliliceous spicules or proteinaceous spongin fibres or both.

31. There is no coordination of the functioning of various parts of body due to the absence of **Nerve cells & Sensory cells**
32. Asexual reproduction occurs by**-budding, fragmentation gemmules**
33. Most cells of fresh water sponges contain - **contractile vacuole.**
34. Fresh water sponges & a few marine sponges produce internal buds called gemmules
35. **Gemmules help -** to tide over unfavorable conditions.
36. Most sponges are- hermaphrodites Sperms & eggs develop from**-Choanocytes &archaeocytes**
37. Sperms are carried to spongocoel by **-Choanocytes**
38. **Fertilization occurs in -** mesohyl **Cleavage is -** holoblastic (complete) **Development is** -Indirect with larval stages like paranchymula (Stereogastrula) and amphiblastula
39. **Power of regeneration is** -high (even loose cells can aggregate to form the entire body)

CLASSIFICATION:

Phylum Porifera is divided into three classes

Class: Calcarea(Calcispongiae)

- These are simple, live in - **Shallow waters** Spicules are- **calcareous, monaxon, triaxon or tetraxon**
- Larva is Coeloblastula or amphiblastula E.g: *Scypha,* Leucosolenia, *Clathrina*

Class- Hexactinellida

- These are solitary sponges living in- **Deeper parts of Sea**
- Skeleton consists of 6 rayed (hexactinal) Siliceous spicules
- **Development includes** -Trichimella Larva **E.g: Hyalonema**-glassrope sponge **Euplectel la**-venus flower basket

Class:Demospongia

- It includes marine, fresh water sponges Skeleton is made up of - siliceous spicules or spongin fibres or both Development parenchymulla larva **e.g Spongilla** - Fresh water sponge **Euspongia** - bath sponge, **Chalina** - dead man's finger **e.g.: Cliona-** boring sponge **Calcarea and Demospongiae are grouped under subphylum** - Cellularia
- Hexactinellidans included under subphylum **- Symplasma**