PLANT KINGDOM

Que.1. Choose the correctly matched pair. **[Marks :(1)]**

a. Carrageen : Green algae
b. Algin : Brown algae
c. Laminarin : Red algae

Ans. b Algin : Brown algae

Que.2. Analyse the table and fill in the blanks. **[Marks :(2)]**

Algae	**Algal class**	**Stored food**
Porphyra	**….....(a).....**	**….....(b).....**
Spirogyra	**.....(c).....**	**starch**
Sargassum	**….....(d).....**	**Laminarin**

Ans. a) Rhodophyceae
b) Floridean starch
c) Chlorophyceae
d) Phaeophyceae

Que.3. Names of certain bryophytes are given below **[Marks :(3)]**
Funaria, Marchantia, Sphagnum
a. Classify them as liverworts and mosses.
b. Write any three significance of bryophytes.

Ans. a. Liverworts- Marchantia

Mosses – Funaria, Sphagnum

b)

decomposes rocks.

prevents soil erosion.

provides peat/fuel.

used as packing material. (Any three)

Que.4. Differentiate homosporous and heterosporous condition. Name a pteridophyte that shows heterosporous condition. **[Marks :(3)]**

Ans. Homosporous : All the spores are of similar kinds
Heterosporous : Spores are of two kinds.
Heterosporous pteridophyte: Selaginella/ Salvinia.

Que.5. Choose the correct answer. **[Marks :(3)]**
Pollen grain is also known as
A. Megaspore or male gametophyte.

B. Microspore or male gametophyte.
C. Megaspore or female gametophyte.
D. Microspore or female gametophyte

Ans. B. Microspore or male gametophyte

Que.6. Double fertilisation involves two fusions. [Marks :(2)]
(a) Write the structures formed as a result of these two fusions.
(b) Write the changes occuring in the above mentioned structures after fertilisation.

Ans. a) Zygote, PEN
b) Zygote develops into embryo.
PEN develops into endosperm .

Que.7. Find the odd one and write the common feature of others. [Marks :(2)]
Chlorophyll, Starch, Phycoerythrin, Fucoxanthin.

Ans. Starch . Others are pigments.

Que.8. Notice the name of algae given below [Marks :(3)]

Spirogyra, Sargassum, Gracilaria, Ectocarpus
a) Identify the green alga from the above
b) Differentiate isogamous and oogamous type of sexual reproduction in green algae.

Ans. a) Spirogyra

b) Isogamous- Fusion of two gametes dissimilar in size .
Oogamous - Fusion between one large non-motile female gamete and a smaller motile male gamete.

Que.9. Match the items of column A with column B [Marks :(1)]

A	B
a. Pteridophyte.	**i) Gracilaria.**
b.Alga.	**ii) Pinus.**
c.Gymnosperm.	**iii)Selaginella.**
d.Bryophyte.	**iv) Eucalyptus.**
	v)Marchantia.

Ans. a) iii, b) i c) ii d)v

Que.10. Fertilisation in angiosperms involves two fusions. So it is termed as double fertilization . Explain the two fusions [Marks :(2)]

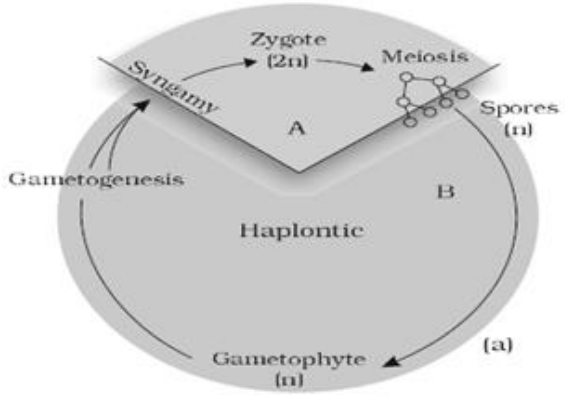
Ans. One of the male gametes fuses with the egg cell to form the zygote. The other male gamete fuses with the haploid polar nuclei/ diploid secondary nucleus to form the primary endosperm nucleus.

Que.11. Differentiate haplontic and diplontic life cycle. Give an example of a plant group that shows haplo-diplontic life cycle [Marks :(3)]
Ans. Haplontic Life cycle - Haploid gametophyte is dominant , Diploid sporophytic generation is represented only by a zygote.

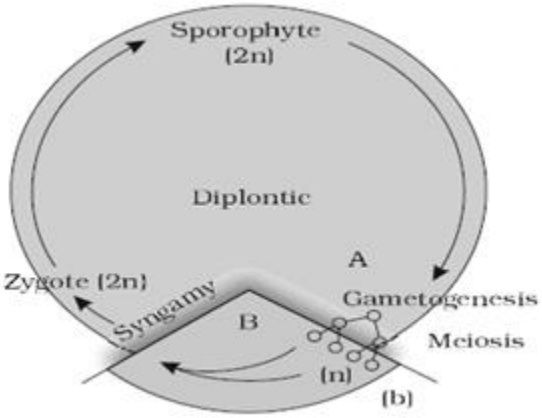
Diplontic Life Cycle :-Diploid sporophyte is dominant, Gametophytic phase is represented by the haploid gametophyte.

Examples : Bryophytes / Pteridophytes

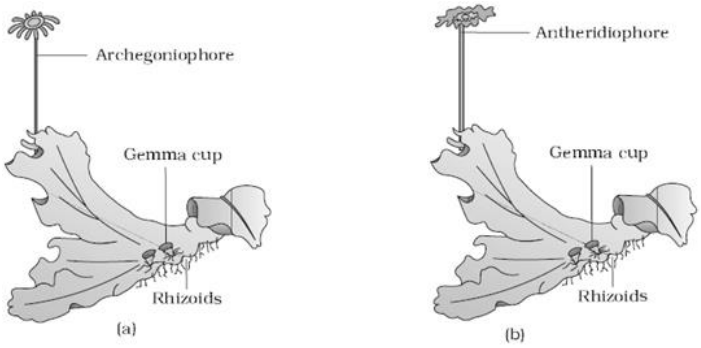
Que.12. Observe the haplontic life cycle pattern given below. Illustrate a diplontic life cycle. **[Marks :(3)]**



Ans.



Que.13. Observe the figure given below. **[Marks :(2)]**



Identify male and female thallus of marchantia and justify your answer.

Ans. a) Female thallus.

b) Male thallus.

a- contains archegoniophore .

b- contains antheridophore.

Que.14. Observe the figure given below **[Marks :(2)]**

a. Label the parts A and B.

b. Name the algae

Ans. a)

A- Hold fast

B- Stipe.

b) Laminaria.

Que.15. Observe the relationship between the first two terms and fill in the blank.

Brown algae : Fucoxanthin :: Red algae : _____ **[Marks :(1)]**

Ans. Phycoerythrin.

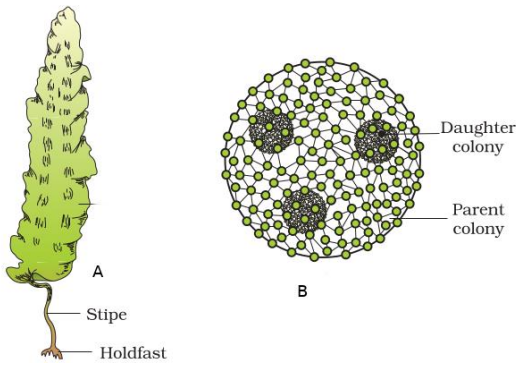
Que.16. Observe the relationship between the first two terms and fill in the blank.

Bryophyte : Protonema :: Pteridophyte : _____ **[Marks :(1)]**

Ans. Prothallus.

Que.17. Name the algae shown in picture 'A' and 'B'. **[Marks :(2)]**

Write the algal groups to which they belong and give one use of A.



Ans. A. Laminaria- Phaeophyceae

B. Volvox – Chlorophyceae.

Used as food.

Que.18. Match column A with B. **[Marks :(2)]**

A	**B**
a.Psilopsida	**i)Selaginella**
b.Lycopsida	**ii)Equisetum**
c.Sphenopsida	**iii)Adiantum**
d.Pteropsida	**iv)Psilotum**

Ans. a-iv , b-i , c-ii , d-iii

Que.19. Algae like Ectocarpus , Polysiphonia and kelps show simillarity to bryophytes and pteridophytes in life cyle pattern. Substantiate. **[Marks :(2)]**

Ans. Majority of algae exhibit haplontic life cycle, But these algae exhibit haplo-diplontic life cycle . Usually bryophytes and pteridophytes exhibit this kind of life cycle pattern.

Que.20. Heterospory in pteridophytes is a major step towards seed habit. Explain.

[Marks :(2)]

Ans. Megaspores and microspores germinate and give rise to female and male gametophytes.

The female gametophyte in these plants are retained on the parent sporophytes for variable periods .

Development of zygote into young embryo takes place within the female gametophyte.

This event is a precursor to seed habit

Que.21. In gymnosperms leaves are well adapted to withstand extreme temperature, humidity and wind. Write two such adaptations.

[Marks :(2)]

Ans. Needle like leaves to reduce surface area.

Thick cuticle and sunken stomata to reduce water loss.

Que.22. Fill in the blank.

[Marks :(1)]

Specialised roots in Cycas assosciated with N2-fixing cyanobacteria are called ----------

Ans. Coralloid roots

Que.23. Name the evolutionarily first vascular plants . Write the classes into which this group is divided.

[Marks :(3)]

Ans. Pteridophytes.

i)Psilopsida ii)Lycopsida iii)Sphenopsida iv)Pteropsida.

Que.24. Mosses are characterised by gametophytic phase with two stages. Name these stages .

[Marks :(2)]

Ans. Protonema stage and leafy stage.

Que.25. Linnaeus system of classification is an artificial system. Why? Write the demerit of artificial system of classification.

[Marks :(2)]

Ans. Linnaeus system of classification is based on vegetative or androecium characters. So ,it is an artificial system of classification.

Artificial system of classification separates closely related species and also gives equal weightage to vegetative and sexual characteristics.

This is not acceptable since the vegetative characters are often affected by environment.

Que.26. Bryophytes are called amphibians of plant kingdom as they need water for reproduction. Briefly explain how water plays an important role in the reproduction of bryophytes?.

[Marks :(2)]

Ans. Antheridium releases haploid biflagellate antherozoids into the water.

Antherozoids move through water to reach the archegonium.

Que.27. Name the algal group exhibiting the characters given below. Give two examples for this algal group.

Produces non-motile spores and gametes.

Oogamous sexual reproduction.

Complex post fertilization events.

[Marks :(2)]

Ans. Rhodophyceae.

Polysiphonia, Porphyra, Gracilaria ,Gelidium (Any two)

Que.28. Algae are useful to human beings in many ways . Write three useful aspects of algae.

[Marks :(2)]

Ans. Main producers on earth.

Increases the level of dissolved oxygen.

Algae like Porphyra, Laminaria and Sargassum are used as food .

Certain marine red algae and brown algae are sources of hydrocolloids.

Agar obtained from Gelidium and Gracillaria are used to grow microbes and in preparation of ice creams and jellies.

Unicellular algae Spirulina and chlorella are rich in proteins and are used as food supplements by space travellers.(any four uses).

Que.29. Now-a-days computers are used in the field of taxonomy to calculate / find out the similarities among organisms. Name this branch of taxonomy?.
Write its advantages?

[Marks :(3)]

Ans. Numerical taxonomy.

Advantages:-

All characters get equal importance.

Hundreds of characters can be considered at the same time.

Que.30. Differentiate chemotaxonomy and cytotaxonomy.

[Marks :(2)]

Ans. Cytotaxonomy utilizes cytological information like chromosome number, structure and behavior in establishing relationships between organisms.

Chemotaxonomy uses chemical constituents of the plants to resolve confusion in classification