

Topic :- Plant Kingdom

- 1 **(a)**
The characteristic red colour of algae is due to presence of excess amount of *r*-phycoerythrin, which masks the colour of other pigments
- 2 **(a)**
Chlorella is a unicellular green alga belonging to the class-Chlorophyceae, order-Chlorococcales and family-Chlorellaceae. It contains very high percentage of proteins and fats and also contains most of the known vitamins.
- 3 **(b)**
Water blooms are formed by the growth of some microscopic or semi-microscopic algae such as *Anabaena*, *Arthrospira*, *Nodularia*, *Nostoc*, etc. water blooms may be harmful because they are indirectly responsible for fish mortality due to depletion of oxygen.
- 4 **(a)**
Evolutionary relationship of organism
- 5 **(c)**
Dryopteris has circinate venation of leaves but is homosporous.

Circinate venation and heterospory is found in *Cycas*.
- 6 **(a)**
Endosperm in *Pinus* (gymnosperm) is formed before fertilization, *i.e.*,haploid.
- 7 **(c)**
Most of the members have one to many storage bodies called pyrenoids located in the chloroplast. Pyrenoids contain protein besides starch
- 8 **(a)**
True fertilisation together with triple fusion is known as double fertilisation, a unique phenomenon only occurs in angiosperms (absent in gymnosperms with few exception) and first time demonstrated by *Nawaschin* in *Fritillaria* and *Lilium*
- 9 **(b)**
Spirulina.
Spirulina (blue-green algae) is highly rich in proteins, vitamin-B complex and minerals. Powdered *Spirulina* is being used in herbal tonics and biscuits, *Chlorella* (50-55% proteins) and *Porphyra* (25-30% protein) are also used as a source of proteins
- 10 **(b)**

The spores of *Equisetum* when young are green and covered by a thin wall of cellulose. At maturity, they are relatively larger, rounded and contain numerous chloroplasts.

- 11 **(c)**
The leaves in pteridophytes are small (microphylls) as in *Selaginella* or large (macrophylls) as in fern
- 12 **(b)**
A- Biflagellate antherozoids, B-One egg
- 13 **(a)**
Heterosporous pteridophytes like *Selaginella* and *Marsilea* always produce dioecious gametophyte because microspore will form male gametophyte and megaspore will form female gametophyte
- 14 **(a)**
Volvox and *Fucus*.
Fusion of a large non-motile egg or ovum with a smaller motile sperm (except in Rhodophyceae). The gametes differ morphologically as well as physiologically and are called oogametes. The fusion of gametes is called oogamy, e.g., *Chlamydomonas*, *Fucus*, *Chara* and *Volvox*
- 15 **(a)**
Gametophyte refers to haploid plant that produces gametes. In **ferns**, haploid spore on germination gives rise to gametophyte, which is also called, **prothallus**. It bears both globose **antheridia** (male reproductive structure) and flask shaped **archegonia** (female reproductive structure).
- 16 **(a)**
Gametophyte and sporophytic phases are present in life cycle of bryophytes and both phases are morphologically distinct. The gametophytic phase is more conspicuous independent and dominant while sporophyte depends on gametophyte.
- 17 **(a)**
The plant body of bryophytes is more differentiated than that of algae
Difference between bryophytes and algae
(i) In bryophytes, tissue differentiation is well-developed, while in algae it is found only in higher forms
(ii) In algae, isogamous, anisogamous and oogamous type of sexual reproduction occur, while in bryophytes only, oogamous type of sexual reproduction is present
(iii) In bryophytes, sex organs are covered by a sterile jacket, while it is not covered in algae
(iv) Female sex organ in bryophytes is archegonium, while it is oogonium in algae
(v) In bryophytes sporophyte is dependent upon gametophyte, whereas in algae sporophyte is independent of gametophyte
(vi) Embryo is found in bryophytes, while it remains absent in algae
(vii) Sporophyte in bryophytes is differentiated into foot, seta and capsule
- 18 **(b)**
Microsporangia.
In gymnosperm, microspores develop into a male gametophytic generation, which is highly reduced and is confined to only a limited number of cell. This reduced gametophyte is called a pollen grain. Its development takes place in microsporangia

19 **(b)**

A-Zygote; B-Syngamy

In angiospermic sexual reproduction, syngamy is the nuclear fusion of the one male gamete with the egg producing diploid zygote or oospore

20 **(b)**

Numerical taxonomy which is now easily carried out using computers is based on all observable characteristics. Number and codes are assigned to all the characters and the data is then processed. In this way each character is given equal importance and at the same time hundreds of characters can be considered

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	A	A	B	A	C	A	C	A	B	B
Q.	11	12	13	14	15	16	17	18	19	20
A.	C	B	A	A	A	A	A	B	B	B