Q.1. Select the best option/answer and fill in the appropriate box on the Answer Sheet. (20)

(i) The Green Algae belongs to:
(a) Cyanochloranta  (b) Chlorophycophyta  (c) Charophyta
(d) Cryptophycophyta (e) None of these

(ii) If the gametes and gametangia in Fungi are of unequal size, they are termed as:
(a) Heterothallic  (b) Homothallic  (c) Isogametes
(d) Anisogametes (e) None of these

(iii) Chlorophyll ‘d’ exists in:
(a) Pyrrophyta  (b) Phaeophyta  (c) Cryptophyta
(d) Rhodophyta  (e) None of these

(iv) Which of the type of chlorophyll is rare in Xanthophyceae and has been determined in only two of its genera:
(a) chlorophyll ‘a’  (b) chlorophyll ‘e’  (c) chlorophyll ‘b’
(d) chlorophyll ‘d’  (e) None of these

(v) The Axoneme in an algal filament is composed of ____________ fibrils:
(a) five  (b) seven  (c) eleven
(d) one  (e) None of these

(vi) An antibiotic called “Chlorellin” is derived from:
(a) Chara  (b) Spirogyra  (c) Volvox
(d) Chlorella  (e) None of these

(vii) In Pakistan, Volvox is found abundantly in water ponds during the months of:
(a) March and April  (b) May and June  (c) November and December
(d) January and February (e) None of these

(viii) Because of extracting ______ from water and depositing it in their walls different species of Chara are referred to as “Stone Worts:
(a) Sodium chloride  (b) Calcium carbonate  (c) Potassium sulphate
(d) Potassium nitrate  (e) None of these

(ix) Puccinia graminis causes ______ in wheat:
(a) Yellow or stripe rust  (b) Brown or orange leaf rust  (c) Black or stem rust
(d) Loose green smut  (e) None of these

(x) The zero and one stages of Puccinia graminis are produced on:
(a) Triticum aestivum  (b) Hordeum Vulgare  (c) Sorghum Vulgare
(d) Barberis Vulgaris (e) None of these

(xi) A stable self-supporting association of a ______ is termed as lichen:
(a) bryophyte & a pteridophyte  (b) mycobiont & a phycobiont  (c) plant & animal
(d) gymnosperm & angiosperm (e) None of these

(xii) Equisetum is the only living genus that belongs to:
(a) Sphenopsida  (b) Caphalida  (c) Chlorophycophyta
(d) Pteropsida  (e) None of these

(xiii) The genus Equisetum comprises about 25 species distributed world-over except in:
(a) Eurasia  (b) North America  (c) South America
(d) Australasia  (e) None of these

(xiv) The members of class Filicinae in pteridophyta date back to ______ era:
(a) Mesozoic  (b) Paleozoic  (c) Cenozoic
(d) Cambrian  (e) None of these
(xv) **Marsilea quadrifolia** belongs to the group of plants known as:
(a) Lichens  (b) Sedges  (c) Ferns  
(d) Shrubs  (e) None of these

(xvi) _______ show marked affinities with both Pteridophytes and angiosperms:
(a) Bryophytes  (b) Hydrophytes  (c) Gymnosperms  
(d) Epiphytes  (e) None of these

(xvii) _______ has five leaves in the spur:
(a) Pinus longifolia  (b) Pinus excelsa  (c) Pinus roxberghii  
(d) Pinus wallichiana  (e) None of these

(xviii) The resting period between pollination and fertilization in *Taxas baccata* may be:
(a) Five to ten months  (b) Two to three months  (c) One to two months  
(d) Ten to eleven months

(xix) In Ephedra, the oosphore undergoes repeated divisions to produce eight-celled:
(a) Zygote  (b) Zygosphere  (c) Endosperm  
(d) Pro-embryo  (e) None of these

(xx) Double fertilization is a characteristic of:
(a) Gymnosperms  (b) Bryophytes  (c) Angiosperms  
(d) Pteridophytes  (e) None of these

**PART – II**

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<th>NOTE:</th>
<th>(i) PART-II is to be attempted on the separate Answer Book.</th>
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<td>(ii)</td>
<td>Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL marks.</td>
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<td>(iii)</td>
<td>Extra attempt of any question or any part of the attempted question will not be considered.</td>
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**Q.2.** (a) Classify different groups of algae based on their habitat and pigmentation.  
(b) Write a note on the Economic Importance of Chlorophyta.

**Q.3.** Fungi have great impact on our national economy. Explain their constructive and destructive roles with a special emphasis on agriculture sector.

**Q.4.** What are lichens? Explain how lichens are not only beneficial for humans but also for the entire universe?

**Q.5.** (a) Explain the general characteristics of Bryophytes.  
(b) Write a detailed note on mode of reproduction in Marchantia.

**Q.6.** (a) Discuss the structure of strobilus and sporangia of Equisetum.  
(b) Explain the major resemblances and differences between Gymnosperms and Pteridophytes.

**Q.7.** Explain the mechanism of pollination, fertilization and development of seed as well as seed dispersal in Angiosperms.

**Q.8.** Write short notes on ANY TWO of the following:  
(i) Rules of botanical nomenclature  
(ii) Chemo – taxonomy and Numerical taxonomy  
(iii) Concept of Speciation

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