

Note the below:

1. All the questions are compulsory.
2. Draw neat & suitable diagrams wherever necessary.
3. Figures to the right indicate full marks.

**Q.1A Choose the correct option & rewrite the statements**

**(10 marks)**

1. \_\_\_\_\_ are white dots arranged in two longitudinal rows on adaxial(dorsal) surface along the margins of each pinna.  
a) Ramenta      b) Hydathodes      c) Chloroplast      d) Sori
2. \_\_\_\_\_ is cushion-like parenchymatous structure providing nourishment to the developing sporangia.  
a) Placenta      b) Sporangia      c) Indusium      d) Sorus
3. Advanced types of Steles \_\_\_\_\_  
a) Protostele      b) Siphonostele      c) Solenostele      d) Atactostele
4. The largest sperms are found in this plant  
a) Pinus      b) Sunflower      c) Mango      d) Cycas
5. \_\_\_\_\_ is a connecting link between gymnosperms and angiosperms.  
a) Cycadales      b) Ginkgoales      c) Coniferales      d) Gnetales
6. In *Cycas*, the endosperm is a \_\_\_\_\_  
a) post fertilization product and diploid      b) post fertilization product and haploid      c) pre fertilization product and diploid      d) pre fertilization product and haploid
7. This is considered to be a living fossil  
a) Podocarpus      b) Zamia      c) Cycas      d) Pinus
8. Which of the following is a member of the family Malvaceae  
a) *Crinum malabaricim*      b) *Polyalthia longifolia*      c) *Hibiscus cannabinus*      d) *Cucurbita maxima*
9. In *Ficus* species \_\_\_\_\_ type of inflorescence is present.  
a) Hypanthodium      b) Cyathium      c) Verticillaster      d) Racemose
10. The main axis of inflorescence is called \_\_\_\_\_.  
a) Peduncle      b) Vein      c) Pedicel      d) Petiole

**Q.1B Answer the following in one sentence**

**(10 marks)**

- a) Define Ramentum.
- b) Define Protostele.
- c) What is the normal root of *Cycas*?
- d) Which ovule is present in *Cycas*?
- e) Versatile anthers.

**Q.2 Answer any two from the following****(20 marks)**

- Explain the structure of *Nephrolepis* stolon with a neat and labeled diagram.
- Explain the structure of T.S. of pinna passing through sorus with a neat & labeled diagram.
- Write down the systematic position of *Nephrolepis*. add a note on alternation of generation.
- Explain the different types of Siphonostele and draw a neat labeled diagram.

**Q.3 Answer any two from the following****(20 marks)**

- Give details in life cycle and alternation of generation of *Cycas*.
- Write a brief note on the economic importance of Gymnosperms.
- Describe T.S. of leaflet of *Cycas revoluta*
- Describe structure and development of male and female cones of *Cycas*.

**Q.4 Answer any two from the following****(20 marks)**

- Explain the various types of reticulate venation. Give suitable examples and support your answer with labeled diagrams.
- With the help of suitable examples, explain the different Cymose type of inflorescence studied by you.
- Give the classification with reasons, distinguishing characters and 2 plant of economic importance of the family *Malvaceae*
- Give the classification with reasons, distinguishing characters and 2 plant of economic importance of the family *Amaryllidaceae*

**Q.5 Write short notes on (any four)****(20 marks)**

- External morphology of *Nephrolepis*
- Actionstele.
- Coralloid roots
- Morphology of *Cycas* Stem
- Explain any five types of stipules with examples.
- Cyathium*

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