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**GS-340**

IV Semester B.Sc. Examination, May/June - 2019

**BOTANY IV**

**Gymnosperms and Embryology of Angiosperms  
(CBCS) (Fresh+Repeaters) (2015-16 & Onwards)**

Time : 3 Hours

Max. Marks : 70

**Instructions to Candidates :**

- (i) Answer **all** questions.
- (ii) Draw diagrams wherever necessary.

**PART - A**

- I. Explain/Define **any ten** of the following in **two** or **three** sentences : **10x2=20**
1. What is winged pollen-grain ? Where is it found ?
  2. Define megasporogenesis.
  3. What is polyembryony ? Mention any two types.
  4. Define Chalazogamy and Mesogamy.
  5. What is Somatic hybridization ?
  6. Draw a neat labelled diagram of axile placentation with example.
  7. What is algal zone ? Where is it found ?
  8. Differentiate between bract scale and ovuliferous scale.
  9. What are Cataphylls ?
  10. Mention two advantages of pollen storage.
  11. Give two economic importance of Gymnosperms.
  12. Mention any two practical applications of tissue culture.

**P.T.O.**

**PART - B**

4x5=20

**II.** Write critical notes on **any four** of the following :

13. Describe the structure of Orthotropous ovule in angiosperms.

14. T.S. of leaf let of Cycas.

15. Contribution of P. Maheswari to embryology of angiosperms.

16. Female Cone of Gnetum.

17. T.S. of young anther.

18. Polygonum type of embryosac development.

**PART - C**

**III.** Give a comprehensive account of **any three** of the following :

3x10=30

19. Male and Female Cone of Pinus.

20. Double fertilization and post fertilization changes in angiosperms.

21. Any two types of endosperm.

22. Development and structure of monocot embryo.

23. (a) Nutrient media

(b) Anther culture