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3 (Sem 4) BOT M1

2015

**BOTANY**

**(Major)**

Theory Paper : M-4.1

Full Marks – 60

Time – 2½ hours

The figures in the margin indicate full marks  
for the questions.

**(Morphology, Palynology and Embryology  
of Angiosperms)**

1. Answer the following : 1×7=7
- (a) Write two names of plants where a dimorphic tapetum is found.
  - (b) How many antipodal and synergids are found in *Plumbago* type embryo-sac ?
  - (c) What is callose plug ?
  - (d) What is xenia ?

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- (e) Who first coined the term 'polyembryony' ?
- (f) Write the name of the most common example of somatic apospory.
- (g) What is harmomegathus ?
2. Answer the following :  $2 \times 4 = 8$
- (a) Draw and describe the structure of pollinium.
- (b) Write about the tenuinucellate ovule.
- (c) Describe the structure of stamens of Magnoliaceae.
- (d) Describe the application of palaeopalynology in hydrocarbon exploration.
3. Answer any *three* of the following :  $5 \times 3 = 15$
- (a) Write the NPC system of classification.
- (b) Describe the structure of pollen grain with neat diagram.
- (c) Draw and describe hypostase and epistase.
- (d) Describe the characteristic features of cellular endosperm haustoria.
- (e) Describe the classification of pathenogenesis on the basis of cytological features.

4. Answer the following :  $10 \times 3 = 30$

- (a) Describe in details about the micro-sporangium of angiosperm.

Or

Describe in details about the structure of mature embryo sac with neat diagram.

- (b) Describe the practical applications of embryo culture in respect to experimental embryology.

Or

Describe the prerequisites of in vitro culture experiments.

- (c) What are the evolutionary significance of carpels ? Describe in details the classical concept of carpel morphology.

Or

What are the various theories of origin of Angiosperms ? Explain with examples.