

2017

BOTANY

( Major )

Paper : 4-1

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

Full Marks : 60

Time : 3 hours

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

1. Answer the following : 1×7=7

- (a) What are the aspects of origin and evolution of angiosperms?
- (b) What is the characteristic feature of the stamens of Cucurbita?
- (c) Write the name of flattened petiole of Australian Acacia.
- (d) What is pollen calendar?
- (e) Who wrote the book, *An Introduction to the Embryology of Angiosperms* in 1950?

- (f) What is the name of a pollen sac in Asclepiadaceae?
- (g) What is androgenesis?

2. Answer the following : 2×4=8

- (a) Write about plination with neat diagram.
- (b) What is pollenkit?
- (c) Describe hemi-anatropous ovule with neat diagram.
- (d) Describe the polysiphonous characteristics of Malvaceae.

3. Answer any *three* of the following : 5×3=15

- (a) Describe the applied aspects of palynology.
- (b) Describe the theories on the development of carpel.
- (c) Describe the prerequisites of *in-vitro* culture.
- (d) Explain the theories of morphological nature of inferior ovary.
- (e) What are xenia and metaxenia? Write the morphological nature of endosperm.

4. Answer the following :

10×3=30

- (a) Explain the theories of origin and phylogeny of probable ancestors of angiosperms.

Or

Describe the phylogenetic developments of male reproductive elements of angiosperms.

- (b) How are functional megaspore and embryo sac formed? Describe the various types of embryo sac developments in angiosperms with neat diagram.

Or

Describe in detail about microsporogenesis in angiosperms.

- (c) Describe the development of a typical dicotyledonous embryo with suitable diagram.

Or

What is polyembryony? Describe various types of polyembryony in angiosperms.

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