

2019

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

- Name the characteristic inflorescence which is also known as 'Syconus'.
- What is syntelome?
- What is phyllode?
- What do you mean by epiphyllous?
- What is progamy?

(f) What is forensic palynology?

(g) Name the most common embryo sac found in angiosperms.

2. Answer the following :

2×4=8

(a) What is pollen kit?

(b) Write on the characters of primitive stamen.

(c) What is double fertilization?

(d) Mention at least four advance characters of angiosperms.

3. Write briefly on any *three* of the following :

5×3=15

(a) Development of cymose inflorescence from solitary flower

(b) Morphology of an orchid flower

(c) Condition necessary for *in vitro* culture

(d) Cohesion of carpel

(e) Types and function of endosperms

4. Answer the following :

10×3=30

(a) Explain the various theories regarding the origin and evolution of probable ancestors of flowering plants. 10

Or

Describe the different aspects and prospects of palynology. 5+5=10

(b) What is microsporogenesis? Describe with proper diagram, the different steps involved in the formation of microspores in angiosperms. 1+9=10

Or

What is female gametophyte? Describe with neat diagram, the monosporic and bisporic embryo sac. 2+4+4=10

(c) What is polyembryony? Describe different types of polyembryony found in angiosperms. 1+9=10

Or

With proper diagram, describe the development of a typical dicotyledonous embryo. 10

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(Major)

Paper : 4-2

(Plant Taxonomy)

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) Which system of plant classification is followed in Indian herbaria?
 - (b) In which year was the *Origin of Species* written?
 - (c) What is pseudostem?
 - (d) Who first used the term 'taxon'?
 - (e) Where was 19th IBC (ICBN) held?
 - (f) What is meant by laminar stamen?
 - (g) What is ICNCP?

2. Answer the following : $2 \times 4 = 8$

- (a) What is the significance of pappus?
- (b) Write the principle of APG system.
- (c) What is phenetic relationship?
- (d) Differentiate between holotype and lectotype.

3. Answer any *three* of the following : $5 \times 3 = 15$

- (a) Explain the role of alkaloids and steroids in taxonomy.
- (b) Discuss the economic importance of Poaceae.
- (c) Write a note on *nomina conservanda*.
- (d) Describe the floral peculiarities in the family Apiaceae.
- (e) "A unique type of insect pollination is seen in a member of Liliaceae." Discuss.

4. Answer any *three* of the following : $10 \times 3 = 30$

- (a) What is natural system of classification? Give the detailed outline of Bentham and Hooker system of classification. How many natural orders were present in this classification? $2+7+1=10$

- (b) What is taximetrics? Give a brief account on the principles of numerical taxonomy. Why is numerical taxonomy useful in taxonomic classification?

$2+6+2=10$

- (c) Mention the salient features of any *two* of the following families with their systematic position : $5 \times 2 = 10$

Lamiaceae, Cucurbitaceae, Musaceae, Euphorbiaceae

- (d) Write explanatory notes on : $5+5=10$

- (i) Species concept
- (ii) Role of priority and its limitation

- (e) Describe briefly the characteristics of the earliest angiosperms as per your syllabus. Mention its phylogeny and affinities. 10

- (f) Why is the family Orchidaceae regarded as advanced among monocots? Define pollinium and rostellum. $8+2=10$

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