

Total No. of printed pages = 3

3 (Sem-2) BOT M1

2015

**BOTANY**

**( Major )**

Theory Paper : 2.1

**(Gymnosperms, Palaeobotany and Plant  
Anatomy)**

Full Marks – 60

Time – 2½ hours

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

1. Answer the following : 1×7=7
- (a) What is the other name of Bennettitales ?
  - (b) Name a fossil genus belonging to the class Equisetinae.
  - (c) What is precocious germination ?
  - (d) What is tent pole ?
  - (e) In which living cell of Angiosperm the nucleus is not found ?

[Turn over

(f) Find the asymptotes of the hyperbola

$$2x^2 + 5xy + 2y^2 + 4x + 5y = 0$$

6. Answer any *four* parts : 5×4=20

(a) Find the condition that the two lines whose equations are

$$\frac{x - x_1}{l_1} = \frac{y - y_1}{m_1} = \frac{z - z_1}{n_1}$$

$$\text{and } \frac{x - x_2}{l_2} = \frac{y - y_2}{m_2} = \frac{z - z_2}{n_2}$$

may intersect and also find the equation of the plane in which they lie.

(b) Prove that the plane  $ax + by + cz = 0$  cuts the cone  $yz + zx + xy = 0$  in perpendicular lines

$$\text{if } \frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 0$$

(c) Find the equation of the cylinder whose generators are parallel to the line

$$2x = y = 3z$$

and which passes through the circle

$$y = 0, \quad x^2 + z^2 = 8$$



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

- (a) Describe with diagram the structure of tissues found in Dicotyledonous stem. How does it help in normal secondary growth ?
- (b) Give an illustrated account of anomalous primary structures found in some plants of Angiosperms citing examples.
- (c) Describe the development of male and female gametophytes of *Cycas*.
- (d) Giving suitable diagrams write an account of the external morphology and strobilar structure of *Lepidodendron*. What is its importance in origin of seed habit ?
- (e) Describe the structures of the male and female cone of *Pinus*.
- (f) Write the salient features of Cycadofilicales. What is its importance in evolution ?