Exam. Code : 210004
Subject Code : 8447

M.Sc. (Botany) Semester—IV

BOTC-522 : STRUCTURE AND METABOLISM OF PLANT HORMONES

Time Allowed—3 Hours] [Maximum Marks—50

Note :— The candidates are required to attempt all the **EIGHT** parts of Question No. **1** from Section A; **SEVEN** parts of Question No. **2** from Section B and **THREE** parts of Question No. **3** from Section C. Be brief and to the point in your answer.

SECTION—A

1. Give short answers to each of the following questions, not exceeding **4** lines :

   (i) Name at least three inhibitors of ethylene biosynthesis.

   (ii) Brassinosteroids are considered safe pest control agents. Why ?

   (iii) Which hormone is called stress hormone ? What is its chemical nature ?

   (iv) Differentiate between cytokinins and kinetin.

   (v) Discuss the anti-transpirant effects of ABA.

   (vi) Discuss the role of gibberellins in malting of Barley.

(vii) Enlist the inhibitory effects of Jasmonates.

(viii) How were gibberellins discovered ? 8×1=8

SECTION—B

2. Give answers to any **SEVEN** of the following questions. Answer to any one of the following questions should not exceed two pages.

(i) Discuss the commercial uses of cytokinins.

(ii) What is a bioassay ? Discuss bio assay for any one plant hormone.

(iii) What is climacteric respiration ? Discuss the role of hormones in it.

(iv) What is the role of abscisic acid in leaf abscision ?

(v) Discuss the role of plant growth regulators to delay senescence.

(vi) Enlist micro-organisms that are employed to produce PGRs on a commercial scale.

(vii) What is the role of plant growth substance in sex expression of cucurbit flowers ?

(viii) Discuss the biosynthesis of Jasmonic acid or brassinolides.

(ix) Write a short note on genetic transformation by *Agrobacterium tumefaciens*.

(x) Discuss the microbial genes involved in biosynthesis of IAA and cytokinins. 7×3=21

SECTION—C

3. Give detailed answers to any **THREE** of the following questions. Answer to any **ONE** of the following questions should not exceed **4** pages :

(i) Discuss the following in brief :

(a) Carotenoids or ABA synthesis mutants

(b) Jasmonic acid synthesis mutants

(c) Regulation of endogenous levels of ABA or Jasmonic acid.

(ii) Discuss the discovery and structural details of Brassinosteroids. Discuss their role in cell division, elongation and differentiation.

(iii) Comment upon the following :

(a) Production of plant hormones by various micro-organisms.

(b) Microbial genes involved in ABA and cytokinin biosynthesis.

(iv) Discuss the biosynthesis and inhibitors of biosynthetic pathway of ethylene. Also enlist the synthetic compounds that produce ethylene.

(v) Discuss the following :

(a) Biosynthetic pathway of GAs in plants and also inhibitors of biosynthetic pathway

(b) Substances with GA like activity. 3×7=21