

THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY: PATIALA

B. Tech. (Biotechnology) 4th Year

End-Semester Examination, December 2006

BT- 012 : PLANT PHYSIOLOGY AND PLANT PROTECTION

Time : 3 hrs.

Instructor : Dr. M. Anand

MM : 45

Note:

- Attempt any **five** questions. All parts of the same question should be strictly at the same place.
- The evaluated answer sheets can be seen on 15.12.2006 in DBTES at 12.00 noon.

- Write down the salient features of Auxin transport in the plant body. Discuss the chemiosmotic model for polar transport of IAA. 5.5
 - Explain the biosynthetic pathways of IAA with chemical structures. 3.5
- Define inductive period and photoperiodism. Discuss the classification of plants based on photoperiodic responses. 6.0
 - "Short day plants are actually long night plants". Explain 3.0
- What are phytochromes? Name some phytochrome mediated processes in the plant body. Discuss the role of phytochrome in seed germination in Lettuce. 5.0
 - What are nastic movements and its types? How do they differ from tropic movements? 2.0
 - Explain briefly the sleep movements in *Mimosa pudica*. 2.0
- Draw a well labelled, self-explanatory diagram of Kreb's cycle. Name 3 enzymes which regulate citric acid cycle. 5.5
 - Explain the process of alcoholic fermentation. 2.5
 - How does cyanide – a deadly poison affects the cellular respiration. 1.0
- What are natural and synthetic auxins? Name four most common methods of auxin bioassay. 3.0
 - Discuss the role of auxins & cytokinins in apical dominance. 1.5
 - Name a natural gaseous hormone and discuss its physiological effects on plants. 3.0
 - "An excised leaf does not turn yellow if its is induced to root" Explain. 1.5
- Discuss the mechanism and significance of Crassulacean acid metabolism in photosynthesis. 4.0
 - Write briefly about Anion (Salt) respiration **OR** Donnan equilibrium. 3.0
 - Define water potential. What are the two factors which effect water potential. 2.0
- Write notes on (any 4) 9.0
 - PDH complex
 - Pasteur effect
 - Quantasomes
 - Hydroponics
 - Stomatal apparatus