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**End Semester Examination of Semester-II, 2016**

**Subject : BOTANY (PG)**

**Paper : BOTPG-202**

**Full Marks : 40**

**Time : 2 Hrs**

*The figures in the margin indicate the marks corresponding to the question.*

*Candidates are requested to give their answers in their own word as far as practicable.*

*Illustrate the answers wherever necessary.*

**Answer all the questions**

1. Answer any seven of the following : 2x7=14
- a) Define oxygenic photosynthesis. Name one potent inhibitor of it.
  - b) What are singlet and triplet state of chlorophyll molecule?
  - c) Name two synthetic plant hormones used in agriculture.
  - d) What are root nodules? Why are effective nodules pink coloured?
  - e) Name first stable products of CO<sub>2</sub> fixation in C<sub>3</sub> and C<sub>4</sub> plants.
  - f) Define gibberellins and cite an example.

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- g) Mention the dual role performed by Rubisco.
  - h) Write down one biochemical test for detection of IAA.
  - i) What is water deficient stress? How such stress can be artificially imposed on experimental plants?
  - j) How many moles of ATP are produced after oxidation of one mole of Acetyl-co-A in TCA cycle?
  - k) Write the full forms of CCC and ACC.
  - l) Mention the specific function performed by nitrogenase.
2. Answer any two of the following: 5×2=10
- a) What are phytohormones? Enumerate their major functions in higher plants. 2+3
  - b) Define photoperiodism. How are flowering plants classified on the basis of their photoperiodic responses? 2+3
  - c) How phytohormones differ from plant growth regulators? Name the precursor and chemical not use of IAA, GA<sub>3</sub>, Ethylene and Cytokinin. 1+4
  - d) What does it mean by cyanide resistant respiration? Mention its significance. Name two chemicals which involved rhizospheric nodule formation. 1+2+2

3. Answer any two of the following: 8x2=16

a) Define photorespiration. Name the organelles where photorespiratory reactions are operated. Describe in brief and schematically represent the compartmentalized reactions of photorespirations.  $1\frac{1}{2}+1\frac{1}{2}+5$

b) What are indole and nonindole auxins? Name two indole and two nonindole auxins species. Show with a flow chart the tryptophane-dependent pathways of IAA biosynthesis. 2+2+4

c) Why is citric acid cycle alternatively called TCA cycle? Write down the reaction steps involved during conversion of pyruvic acid and to acetyl-Co-A in the EMP-TCA link phase of aerobic respiration. Schematically represent elec from transport chain operated in mitochondria. 1+3+4

d) What does it mean by red drop and emersion effect? Write down the carbon assimilation pathway  $C_3$  plants. Name one photosynthetic inhibitor. 2+5+1

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