

U.G. 6th Semester Examination - 2020**BOTANY****Course Code : BBOTCCHC601****Course Title : Plant Metabolism**

Full Marks : 30

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any **ten** questions: 1×10=10
- a) Give the contribution of the following scientists in metabolism:
 - i) Peter Mitchell
 - ii) Emerson
 - b) Expand: DCMIP, OEC
 - c) What is ' ϕ ' cycle?
 - d) Distinguish between isoenzymes, allosteric enzymes.
 - e) What is LHC in photosynthesis?

- f) What are the end products of C_2 cycle and name the organelles associated with this metabolic cycle?
- g) Define: Anaplerotic reaction
- h) What do you mean by 'Quantum Yield'?
- i) What is Vant Hoff's co-efficient?
- j) How many molecules of ATP are required during the preparatory phase of cellular respiration and trace the site.
- k) What is 'nod' factor?
- l) How does transamination take place?
- m) What are the sources of assimilatory power and reducing power during symbiotic N_2 fixation?
- n) Give the ratio of ATP requirement during C_3 and C_4 cycle in course of the synthesis of one molecule of glucose.
- o) What is the basic differences between oxidative phosphorylation and substrate level phosphorylation?

[Turn over]

2. Answer any **five** questions: $2 \times 5 = 10$

- a) How does metabolic regulation takes place at the gene level?
- b) Distinguish: Ps I and Ps II.
- c) CAM is a desirable adaptation for succulents and xerophytic plants– why?
- d) What are the role of uncouplers in ATP synthesis?
- e) Give the role of MAP kinase cascade in signal transduction.
- f) What is PPP and where does it take place?
- g) High blood level of triglycerides are associated with heart attacks and strokes. Clotibrate– a drug the activity of peroxisomes is sometimes used to treat patients with such a condition. What is the biochemical basis of the treatment?
- h) What is the role of neoglucogenesis and mobilization during seed germination?

3. Answer any **two** questions: $5 \times 2 = 10$

- a) Distinguish between C_3 and C_4 cycle. Explain with neat labelled diagram of carbon fixation via C_4 cycle. $2+3=5$

b) Explain briefly the mechanism of ATP synthesis during oxidative phosphorylation through chemiosmotic hypothesis. What is cyanide resistant respiration? $4+1=5$

c) Explain with the help of flow chart of β -oxidation pathway. What is NAD^+ shuttle? $4+1=5$
