2016

BOTANY

PAPER : BOT 203

PLANT PHYSIOLOGY AND BIOCHEMISTRY

(Old Course)

Full Mark : 80

Time : 3 Hrs

Figures in the right hand margin indicate full marks for the question

Q1). Answer the following Multiple Choice Questions

(any Nine) 1×9=9

(i) C_4 photosynthesis is a biochemical and structural syndrome that enhances:

(a) Photorespiration

(b) Concentration of CO_2 in the bundle sheath cells

(c) Requirement of H_2O and N_2

(d) Lower radiation use efficiency

(ii) Identify the correct statement

(a) Cytokinin enhances the leaf senescence

(b) Cytokinin does not regulate cell division in plants

(c) Kinetin was discovered as a breakdown prod uct of DNA

(d) All of the above

(iii) The most abundant lipid in a cell membrane is__.

(a) Steroid (b) Chlesterol

(c) Phospholipid (d) Cutin

(iv) Which of the following protein is useful in defense mechanism?

(a) Immunoglobin (b)Tropomycin

(c) Globulin (d)Haemoglobin

(v) In the Electron transport system, the final acceptor of electron is:

(a) Oxygen (b)Cytochrome b and c

(c) Cytochrome a3 (d)Ubiquinone

(vi) During Calvin cycle the reduction of CO_2 occurs in:

(a) Stroma of chloroplast

(b) Grana of chloroplast

(c) Cristae of mitrochondria

(d) All of the above

(vii) Deficiency symptoms of nitrogen first appear in:

(a) Young leaves (b) Old leaves

(c) Both *(a)* and *(b)* (d) Developing fruits

(viii) Which of the following are coenzymes?

(a) Fe, Cu, ATP (b)ATP, NAD, Fe

(c) ATP, NAD, TPP (d)NAD, NADP, amylase

(ix) Replication of DNA takes place in the presence of:

(a) DNA polymerase and DNA ligase

(b) DNA polymerase, ligase and RNA polymerase

(c) DNA polymerase, ligase and nuclease

(d) DNA polymerase only

(x) The Okazaki fragments consist of:

(a) DNA only (b) RNA only

(c) DNA + RNA (d) DNA+ Primer

Q2). Match the followings in column X with appropriate items in column Y: 1x7=7

	Column X		Column Y
2.1	*Magnesium*	*A*	Phloem proteins
2.2	Electron acceptor	*B*	*Copper*
2.3	Translocation of organic solutes	*C*	K^+
2.4	Plastocyanin	*D*	iron-sulphur protein complex
2.5	Cation of intracellular fluid	*E*	*Chlorophyll*
2.6	Porphyrin synthesis	*F*	Zinc
2.7	Carbonic anhydrase	*G*	*Proline*

Q3).Distinguished between (any three) 4 x 3=12

a. tRNA and mRNA

b. Peroxisome and Lysosomes

c. C_3 and C_4 plants

d. Transpiration and Guttation

Q4). Write an explanatory notes on any Four of the following 5 x 4 = 20

a. Ribosome

b. Plant pigments

c. Biological's clock

d. Stomatal movements

e. Carbohydrates

Q5). Answer the following questions (any Two) 2 x 10 = 20

a. What do you mean by inhibition in enzyme catalyzed reactions? Find out the K_m and V_{max} in different types of enzyme inhibitions. 2+4+4=10

b. Give an account of Pentose Phosphate pathway. Discuss it significance. 10

c. What is protein? Explain different protein structures. 2+8=10

Q6). Answer the following questions (any One) 12

a. Give a detail account about the cyclic and non-cyclic electron transport system in Photosysnthesis.

b. Discuss the various theories on flowering in relation to photoperiodism and vernalisation.

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