Total No. of Questions : 11 Total No. of Printed Pages : 7

NP-320

M.Sc. (IIIrd Sem.) Botany Exam.-2013-14

PLANT BIOCHEMISTRY & METABOLISM

Paper - II PG-302

Time Allowed : Three Hours
Maximum Marks : 85

Note : Section 'A' is compulsory. Attempt five short answer type question from Section B and five long answer type question from Section C.

Section-A
Objective Type Questions

Q.I Choose the correct answer— 1 each

(i) Enzymes generally have—
- (a) Same pH and temperature optima
- (b) Same pH but different temperature optima
- (c) Different pH but same temperature optima
- (d) Different pH and different temperature optima

(ii) One of the first enzymes discovered in isoenzyme form is—
- (a) Aspartate kinase
- (b) Lactate dehydrogenase
- (c) Malate dehydrogenase
- (d) Fumarate dehydrogenase

(iii) Warbung effect is decreased rate of photosynthesis at—
- (a) Low concentration of CO_2
- (b) High concentration of CO_2
- (c) Higher concentration of O_2
- (d) None of these

(iv) Number of carboxylation in C_4 cycle are—
- (a) Four
- (b) Three
- (c) Two
- (d) One

(v) ATP synthesis occurs in which part of mitochondria—
- (a) Inner membrance of mitochondria
- (b) Outer membrance of mitrochondria
- (c) Mitochondrial matrix
- (d) Mitochondria as a whole

(vi) Protein is substance in—

(a) Anaerobic respiration

(b) Protoplasmic respiration

(c) Seedling stage

(d) Floating respiration

(vii) Conversion of succinate into fumarate in glyoxylate cycle takes place in—

(a) Mitochondria

(b) Glyoxysome

(c) Cytosol

(d) Lysosome

(viii) The most important sources of geological sulfer is—

(a) Gypsum

(b) Dolomite

(c) Muscovite

(d) Apatile

(ix) Most of the plants obtains nitrogen from the soil in the form of—

(a) Nitric acid

(b) Nitrites

(c) Nitrates

(d) Free N_2 gas

(x) Nitrogen fixing anaerobic bacterium in soil is named—

(a) Rhizobium

(b) Azotobacter

(c) Streptococeus

(d) Clostridium

Section-B

Short Answer Type Questions

Note : Attempt all five questions. Each question carries 5 marks.

Q.II Differentiate between—

(a) Holoenzyme and apoenzyme

(b) Competive and non-competive inhibitors.

or

Explain the following term—

(a) FMN

(b) NADPH

(c) TPP

(d) FAD

(e) PAPS

Q.III Differentiate between—

(a) Photorespiration and aerobic respiration

(b) Cyclic and non cyclic photophospherylation

or

Expand the following term—

(a) PEPC

(b) RuBP

(c) PAR

(d) PC

(e) Cyt b

Q.IV What do you mean by E.M.P. pathway. Describe different steps of it throughout line diagram only.

or

Differentiate between aerobic and anaerobic respiration. Respiratory quotient and photosynthetic quotient.

Q.V Differentiate between—

(a) Storage lipids and structural lipids

(b) Oil and fats

or

Describe in brief biosynthesis of fats in plants.

Q.VI Write a short note on nitrate reduction in plants.

or

Differentiate between—

(a) Physical nitrogen fixation and biological nitrogen fixation

(b) Ammonification and nitrification

Section-C

Long Answer Type Questions

Note : Attempt all five questions. Each question carries 10 marks.

Q.VII Describe allosteric mechanism of enzymes.

or

Describe Michaelis-Menten's equation and its significance.

Q.VIII Give the diagramatic representation of Calvin cycle and Haten and Slack cycle.

or

What is Blackman's law of limiting factors ? Explain it with reference to photosynthesis.

Q.IX Explain the electron transport system with its significance.

or

Write an essay on pentose phosphate pathway.

Q.X Give a general account of the reduction of sulfate to sulfide in plants. What is the fate of sulfides in plants.

or

Give a brief account of the metabolic pathway of conversion of fats into carbohydrate in plants.

Q.XI What do you understand by the term symbiotic N_2 fixation ? Give a brief account of nodule formation in the roots of leguminous plants infected by Rhizobium.

or

Describe how the ammonium assimilation takes place in plants.
