SL

[887] SEAT No._____

Sardar Patel University
M.Sc. Biochemistry, 1st Semester
External Theory Examination
Monday, 29th October 2018, 10:00 A.M. to 01:00 P.M.
PS01EBIC21: Biochemistry of Horticultural Commodities

No. of Printed Pages : 2.

Total marks: 70

Note: 1) Figures to right indicate marks.
2) Draw neat and labeled diagram wherever necessary.

Q1. Select the appropriate answer for the following multiple choice questions: (08)

(i) A branch of horticulture dealing with the production and marketing of vegetable is called

(a) Viticulture (b) Olericulture
(c) Pomology (d) Sericulture

(ii) Sweet potato is

(a) Tuber (b) Root
(c) Fruit (d) Rhizome

(iii) Ethylene has horticulture uses such as

(a) Inducing fruit maturity (b) Changing the green colour of fruits
(c) Initiating flowers (d) All of these

(iv) A physiological aging activity in which plant tissues degenerate and ultimately die is called

(a) Fruit ripening (b) Senescence
(c) Maturity (d) Both a & b

(v) Respiration rate and shelf life are

(a) inversely related (b) not related with each other
(c) in direct proportion (d) fully related with each other

(vi) _____ applications to rosette plants induce stem elongation by increasing cell division.

(a) Gibberellin (b) Cytokinin
(c) Auxin (d) Ethylene

(vii) In tomatoes and pink grapefruit a specific carotenoid called_____ gives them their red color

(a) anthocyanin (b) lycopene
(c) zeathanin (d) violaxanthine

(viii) Solar dehydration is considered as a _____.

(a) Low-Temperature method (b) High-Temperature method
(c) Low-moisture method (d) High- moisture method

(P. T. O.)

Q2. Answer <u>any SEVEN</u> of the following questions in brief: **(7 x 2 = 14)**

(i) Write the botanical name of Papaya and Brinjal and vernacular/ common name of *Mangifera indica* and *Pisum sativam*

(ii) Differentiate between climacteric and non-climacteric fruits

(iii) Explain the terms 'maturation' and 'maturity index'

(iv) List out the environmental factors that cause deterioration in the quality of horticultural commodities

(v) What is significance of ripening regulation in fruits?

(vi) Distinguish Postharvest Technology from Phytochemistry

(vii) With reference to carotenoids, comment upon health benefits of colour pigments in fruit & vegetables

(viii) Define - Harvest, Postharvest and Postharvest shelf life

(ix) What are the advantages of cold storage of horticultural produce?

Q3 (a) What is horticultural science? Briefly describe its branches. Support your explanation with suitable examples. **06**

(b) With suitable examples, explain in detail the types and characteristics of vegetables. **06**

<u>OR</u>

(b) Discuss the biological factors involved in deterioration of quality of horticultural produce **06**

Q4 (a) Differentiate between physiological maturity and commercial maturity and write a concise note on the biochemistry of fruit ripening **06**

(b) What is metabolism and how it is associated with the phytochemical compounds in fruits and vegetables? **06**

<u>OR</u>

(b) Discuss the biochemistry of flower development and senescence **06**

Q5 (a) Discuss the biosynthesis of carotenoids during fruit development and ripening **06**

(b) Discuss the physiological role of Gibberellins in fruit set and development **06**

<u>OR</u>

(b) List the compounds responsible for aroma in fruits and flowers and briefly discuss about any one metabolic pathway involved in aroma production in fruits or flowers **06**

Q6 (a) Briefly discuss the pre harvest, harvest and post harvest factors which effect qualities of horticulture produce? **06**

(b) Write an explanatory note on the biochemical constituents which determine the composition and quality of fruits & vegetables? **06**

<u>OR</u>

(b) Presenting the types of edible coating emulsions, discuss the advantages of edible coatings in postharvest preservation of perishable horticultural produce **06**