

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012****Subject code: 171407****Date: 28/12/2012****Subject Name: Controlled and Modified Atmosphere Storage Engineering****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Enlist and describe factors responsible for deterioration of durable foods. **07**
- (b) Describe the effects of internal and external environment on barrier properties of film. **07**
- Q.2** (a) What are the factors affecting rate of dark respiration? Describe any two factors in detail. **07**
- (b) State various changes taking place during ripening of fruits and vegetables and describe flavor changes. **07**
- OR**
- (b) What do you mean by 'respiratory quotient'? Write a note on respiratory substrates present in fruits and vegetables **07**
- Q.3** (a) Give historical background of controlled and modified atmosphere storage as a preservation means. **07**
- (b) Describe how field heat contributes towards deterioration of fruits and vegetables? What are methods used for removal of field heat? **07**
- OR**
- Q.3** (a) Describe how microclimatic requirements for fresh and processed foods are different? **07**
- (b) What is the role of absorbents in CA- MA storage? **07**
- Q.4** (a) Explain hermetic sealing, active packaging and passive packaging with suitable examples. **07**
- (b) Describe and scientifically justify 'Pasteur effect' **07**
- OR**
- Q.4** (a) Mention the advantages of CA-MA system over traditional storage systems and list the constraints in popularization of CA-MA system. **07**
- Q.4** (b) Explain the selective permeability of packaging materials used for modified atmosphere packaging of foods. **07**
- Q.5** (a) What do you mean by physiological stress? Give it's types and resistance mechanism **07**
- (b) What are the effects of either reducing the oxygen concentration or increasing carbon dioxide concentration during controlled atmosphere storage of fruits and vegetables? **07**

OR

- Q.5 (a)** Write short notes on following **06**
- a. Post harvest losses
 - b. High carbon dioxide Storage
- (b)** Give scientific basis for following statements **08**
- i. Leafy vegetables are having comparatively more shelf life than tubers.
 - ii. RQ value can be used as general indication of type of respiratory substrate being utilized during respiration at specific time.
 - iii. Climacteric fruits exhibit irreversible respiratory rise with external application of ethylene.
 - iv. Post harvest losses in developed countries are comparatively less than that of developing countries.