

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: IMSC
BRANCH: FOOD TECH.

SEMESTER : VII
SESSION : MO/18

SUBJECT: SAF1003 ADVANCED FOOD CHEMISTRY AND NUTRITION
TIME: 03:00 HRS.

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Explain the concept of 'water activity'. How water activity is relevant in assessment of perishability of foodstuff. [6]
- Q.1(b) Describe in details the characteristics of 'bound water'. List the most common types of water-solute interactions. [6]
- Q.2(a) What is the nomenclature of a monosaccharide that carries - 2 aldehyde groups, aldehyde and keto groups and 2 keto groups? [2]
- Q.2(b) What is caramelization? How is it carried out? [4]
- Q.2(c) Discuss the mechanism of oxidation of aldose to aldonic acids. [6]
- Q.3(a) Give the systematic names for D-glucose and D-fructose. [2]
- Q.3(b) Explain the relationship between specific rotation constant and angle of rotation. [4]
- Q.3(c) Describe different types of polysaccharides. [6]
- Q.4(a) Describe the various components of bovine milk. [6]
- Q.4(b) Classify the various plant carbohydrates according to their chemistry and physiological roles. [3]
- Q.4(c) What are contractile proteins? Give examples. [3]
- Q.5(a) Discuss along with relevant schematics the *combined method approach* to controlling growth of microorganisms towards food stability. [6]
- Q.5(b) Discuss the three major forms of processing of milk fats. [6]
- Q.6(a) Compare and contrast 'enrichment' and 'fortification' of food products. [6]
- Q.6(b) Discuss and compare the phenomenon: 'cold shortening' and 'thaw rigor'. [6]
- Q.7(a) What do you mean by 'mutual supplementation'? Give examples. [6]
- Q.7(b) What are anti-nutrients? How can they be removed during food processing? [6]

*****28.11.18*****M