Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14FP2002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **FOOD CHEMISTRY** | **Max. marks :** | **100** |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Q. No.** | **Questions** | | | | **Course outcome** | **Marks** |
| **PART-A (40X1=40 MULTIPLE CHOICE QUESTIONS)** | | | | | | |
| 1. | A sugar alcohol is | | | | CO1 |  |
|  | a. mannitol | b. trehalose | c. xylulose | d. arabinose |  | (1) |
| 2. | Which of the following is a reducing sugar? | | | | CO1 |  |
|  | a. sucrose | b. trehalose | c. isomaltose | d. agar |  | (1) |
| 3. | Egg is rich in all of the following except | | | | CO1 |  |
|  | a. cholesterol | b. saturated fatty acids | c. ascorbic acid | d. calcium |  | (1) |
| 4. | An oligosaccharide contains 2- 20 sugar units joined by \_\_\_\_\_\_\_\_\_\_\_\_ bond | | | | CO1 |  |
|  | a. covalent | b. ionic | c. hydrogen | d. glycosidic |  | (1) |
| 5. | A pentose sugar is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. ribulose | b. glucose | c. fructose | d. dihydroxy acetone |  | (1) |
| 6. | \_\_\_\_\_\_\_\_\_\_ enhances the creaming in unstable emulsion | | | | CO2 |  |
|  | a. coalescence | b. ostwald ripening | c. sedimentation | d. aggregation |  | (1) |
| 7. | Isomerization of monosaccharides involves both the carbonyl group  and the adjacent \_\_\_\_\_\_\_\_ group | | | | CO1 |  |
|  | a. oxygen | b. hydroxyl | c. aldehyde | d. carbonyl |  | (1) |
| 8. | Plastic fats of food gels are obtained from cooling of  \_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. triglyceride | b. egg yolk | c. phospholipid | d. cholesterol |  | (1) |
| 9. | Food stability and  safety properties can be predicted more reliably from \_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO2 |  |
|  | a. water activity | b. relative vapor pressure | c. moisture content | d. relative humidity |  | (1) |
| 10. | Hydrolysis of fats by alkalies into fatty acids and glycerol is called \_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. coagulation | b. saponification | c. suspension | d. colloidal |  | (1) |
| 11. | The cholesterol molecule is \_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. benzene derivative | b. quinoline derivative | c. steroid | d. straight chain acid |  | (1) |
| 12. | A fatty acid which is not synthesized in the body and has to be supplied in the diet is \_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. palmitic acid | b. lauric acid | c. linolenic acid | d. palmitoleic acid |  | (1) |
| 13. | All of the following are rich sources of polyunsaturated fatty acids except | | | | CO1 |  |
|  | a. palm oil | b. fish oil | c. soybean oil | d. safflower oil |  | (1) |
| 14. | Lipids differ in their degree of saturation or unsaturation due to their number of | | | | CO1 |  |
|  | a. amino acids | b. double bonds | c. saccharide units | d. peptides |  | (1) |
| 15. | **Unpleasant  odours  and   taste in  a fat (rancidity) can be delayed  or  prevented by the  addition of \_\_\_\_\_\_\_\_\_\_\_\_** | | | | CO1 |  |
|  | a. lead | b. copper | c. tocopherol | d. ergosterol |  | (1) |
| 16. | A lipid is formed by the condensation reactions between | | | | CO1 |  |
|  | a. carbon & hydrogen | b. fatty acids & alcohol | c. fatty acids & amines | d. fatty acids & amino acid |  | (1) |
| 17. | Which of the following is a derived lipid? | | | | CO1 |  |
|  | a. fats | b. oils | c. steroids | d. waxes |  | (1) |
| 18. | Compounds with carbohydrates along with fatty acids are called\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. simple lipid | b. glycolipid | c. waxes | d. phospholpid |  | (1) |
| 19. | Naturally occurring fats are | | | | CO1 |  |
|  | a. L type | b. D type | c. An equimolar mixture of L and D types | d. Symmetric |  | (1) |
| 20. | Greater the number of carbon atom in chain of fatty acid \_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. The boiling point will be higher | b. The boiling point will be lesser | c. The melting point will be higher | d. The melting point will be lower |  | (1) |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 21. | The water binding capacity of most proteins is greater at \_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. pH 3-4 | b. pH 4-6 | c. pH 6-8 | d. pH 9-10 |  | (1) |
| 22. | Albumins are those that are soluble in water at pH \_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. 5.6 | b. 6.6 | c. 7.6 | d. 8.6 |  | (1) |
| 23. | When milk is homogenized, the \_\_\_\_\_\_\_\_\_\_\_membrane is replaced by a protein film comprised of casein micelles and whey proteins | | | | CO1 |  |
|  | a. plasma membrane | b. ceruloplasmin | c. lipoprotein | d. micelles |  | (1) |
| 24. | The foaming property of a protein refers to its ability to form a thin tenacious film at \_\_\_\_\_\_\_\_\_\_ interfaces | | | | CO1 |  |
|  | a. gas-liquid | b. solid-gas | c. liquid-liquid | d. solid-liquid |  | (1) |
| 25. | The mechanism of flavor binding to proteins depends upon \_\_\_\_\_\_\_\_\_of the protein sample | | | | CO1 |  |
|  | a. temperature | b. moisture content | c. amino acid | d. isoelectric pH |  | (1) |
| 26. | The major storage protein of wheat is \_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. gluten | b. albumin | c. globulin | d. prolamine |  | (1) |
| 27. | Redness is due only to \_\_\_\_\_\_\_\_\_\_\_ , the main pigment in meat | | | | CO2 |  |
|  | a. nitrate | b. oxymyoglobin | c. deoxymyoglobin | d. metmyoglobin |  | (1) |
| 28. | \_\_\_\_\_\_\_\_\_\_ pectic enzyme is synthesized in microorganism | | | | CO1 |  |
|  | a.polygalacturonase | b.pectin methylesterase | c. pectic hydroxylase | d. pectate lyase |  | (1) |
| 29. | \_\_\_\_\_\_\_\_\_\_\_ enzyme is responsible for off flavor development in peas, green beans, and corn | | | | CO1 |  |
|  | a. peroxidase | b. cystine oxidase | c. lipoxygenase | d. β- galactosidase |  | (1) |
| 30. | Name the sulfur containing essential amino acid \_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. glutamine | b. tyrosine | c. methionine | d. aspartic acid |  | (1) |
| 31. | In nature milk, fat globules are stabilized by \_\_\_\_\_\_\_\_\_\_\_ | | | | CO2 |  |
|  | a. mitochondrial membrane | b. lipoprotein membrane | c. casein | d. fatty acids |  | (1) |
| 32. | Vitamin which helps in antioxidation is | | | | CO1 |  |
|  | a. Vitamin A | b. Vitamin D | c. Vitamin E | d. Vitamin K |  | (1) |
| 33. | Hydrogenation of fat is carried out in the presence of gas and \_\_\_\_\_\_\_\_\_\_\_\_ as catalyst | | | | CO2 |  |
|  | a. copper | b. zinc | c. nickel | d. cobalt |  | (1) |
| 34. | The vitamin folate works together with \_\_\_\_\_\_\_\_\_\_\_ to produce new red blood cells | | | | CO1 |  |
|  | a. Vitamin A | b. Vitamin D | c. Vitamin B12 | d. Vitamin E |  | (1) |
| 35. | Biotin functions coenzymatically in \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_ reactions | | | | CO1 |  |
|  | a. carboxylation and transcarboxylation | b. carboxylation and hydrogenation | c. hydroxylation and transcarboxylation | d. hydroxylation and isomerization |  | (1) |
| 36. | Carotenoids may contribute significant \_\_\_\_\_\_\_\_\_\_\_ activity to foods of both plant and animal origin | | | | CO1 |  |
|  | a. Vitamin A | b. Vitamin B2 | c. Vitamin B3 | d. Vitamin K |  | (1) |
| 37. | Which of the following is mismatched? | | | | CO1 |  |
|  | a. Vitamin A- Xerophthalmia | b. Vitamin D- Rickets | c.  Vitamin K- Beriberi | d. Vitamin C-Scurvy |  | (1) |
| 38. | Which one of the following is correctly matched? | | | | CO1 |  |
|  | a. Vitamin E - Tocopherol | b. Vitamin D - Riboflavin | c. Vitamin B - Calciferol | d. Vitamin A – Thiamine |  | (1) |
| 39. | The unsubstituted form of vitamin K is \_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. menaquinones | b. phylloquinone | c. melanin | d. menadione |  | (1) |
| 40. | Cholecalciferol forms in human skin upon exposure to sunlight involving photochemical modification of \_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. 7-dehydroglycerol | b. 7- ethylglycerol | c. 7-dehydrocholesterol | d. 7-methylcholesterol |  | (1) |

|  |  |  |  |
| --- | --- | --- | --- |
| **PART B(8 X 5 = 40 MARKS) (ANSWER ANY EIGHT)** | | | |
| 41. | Explain the structure of water with illustrations. | CO1 | (5) |
| 42. | What is dispersed system? Discuss the functional properties of gels. | CO1 | (5) |
| 43. | Describe the properties and types of cellulose. | CO1 | (5) |
| 44. | Give example of a reducing disaccharide and draw its structure. | CO1 | (5) |
| 45. | What is inter-esterification? What is its importance in food systems? | CO2 | (5) |
| 46. | Outline the classification of protein based on their composition. | CO1 | (5) |
| 47. | Explain the mechanism of action of antioxidant. | CO3 | (5) |
| 48. | Discuss the significance of fat hydrogenation. | CO2 | (5) |
| 49. | Describe the chemistry and stability of vitamin B2. | CO1 | (5) |
| 50. | List out the deficiencies for fat soluble vitamins in humans. | CO1 | (5) |
| **PART C( 2 X 10 = 20 MARKS) (ANSWER ANY TWO)** | | | |
| 51. | With a help of neat flow diagram, discuss in detail on the production of HFCS. | CO3 | (10) |
| 52. | Describe the functional properties of emulsion and its types of instabilities. | CO1 | (10) |
| 53. | Draw and explain the enzyme immobilization techniques and their application in food industry. | CO2 | (10) |

ALL THE BEST