

**ENTRANCE EXAMINATION FOR ADMISSION, MAY 2013.**

**M.Sc. (FOOD SCIENCE AND TECHNOLOGY)**

**COURSE CODE : 396**

Register Number :

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*Signature of the Invigilator  
(with date)*

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**COURSE CODE : 396**

**Time : 2 Hours**

**Max : 400 Marks**

***Instructions to Candidates :***

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you -1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. Hurdle Technology consists of
  - (A) Mixture of different ingredient from uniform quality product
  - (B) Mixture of different preservation techniques
  - (C) Using irradiation for increasing shelf life of meat
  - (D) None of the above
  
2. Both extracellular and intra cellular crystallization takes place in
  - (A) Slow freezing only
  - (B) Fast freezing only
  - (C) Both fast as well as slow freezing
  - (D) Neither slow nor fast freezing
  
3. Match the following fermentation products with their explanations
 

Group I	Group II
a. Rum	1. Distilled from saccharified and fermented grain
b. Whisky	2. Distillate from grape wine
c. Brandy	3. Distillate from fermented sugar cane juice

Codes

	a	b	c
(A)	3	1	2
(B)	2	1	3
(C)	1	2	3
(D)	3	2	1
  
4. 100 kg tomato juice containing 5% Total Solids (w/w) is concentrated to 25% Total Solids (w/w). The total amount of water removed from tomato juice in kg is
  - (A) 60
  - (B) 65
  - (C) 70
  - (D) 75
  
5. Vinegar is defined as the condiments made from
  - (A) Juices of fruit eg: apple, Orange
  - (B) Malted cereals such as barley Starchy
  - (C) Vegetables eg: Potatoes
  - (D) All of the above
  
6. What is the optimum pH for acting sulphite as preservative?
  - (A) 1.8
  - (B) 2.4
  - (C) 3.6
  - (D) 4.7
  
7. The separation of liquid from solid by applied pressure is termed as
  - (A) Expression
  - (B) Filtration
  - (C) Extraction
  - (D) All of the above

8. The unit operation in which food pieces are coated with chocolate or other material is called
- (A) Masking (B) Both (A) and (B)  
(C) Enrobing (D) None of the above
9. The time required to destroy a given percentage of microorganism at a particular reference temperature is called
- (A) D-value (B) F-value  
(C) Z-value (D) None of the above
10. The glass transition temperature of chicken is
- (A) 16.63° C (B) -10.23° C (C) 10.23° C (D) -16.63° C
11. The key component in onion is
- (A) Quercetin (B) Lycopene  
(C) Trans-Resveratrol (D) Lutein
12. The antimicrobial substance "Nisin" produced by
- (A) *Lactobacillus bulgaricus* (B) *Lactobacillus plantarum*  
(C) *Lactobacillus lactis subsp. Lactis* (D) *Lactobacillus brevis*
13. The higher amount of PUFA found in
- (A) Coconut oil (B) Ghee (C) Olive oil (D) Safflower oil
14. The water soluble polymer is
- (A) PP (B) PVA (C) PVC (D) PVDC
15. Mustard shows antimicrobial effect because it contains
- (A) Allyl sulphide (B) Allyl isosulphide  
(C) Allyl isothiocyanate (D) Allyl thiocyanate
16. Clean and good quality paddy can give an yield of
- (A) 44% (B) 49% (C) 74% (D) 34%
17. The dimension of Reynolds number is
- (A)  $MLT^{-2}$  (B)  $ML^2T$   
(C)  $MLT^2$  (D) None of the above

18. The Tyler standard screen is based on  
 (A) 240 mesh screen (B) 200 mesh screen  
 (C) 150 mesh screen (D) 100 mesh screen
19. The polymerase chain reaction was discovered by  
 (A) Hargobind Khurana (B) Hamiltar Smith  
 (C) George Kohler (D) Kary Mullis
20. Match the following dimension less number with field of use
- |                   |                               |
|-------------------|-------------------------------|
| a. Grashof Number | 1. Compressive flow           |
| b. Froude Number  | 2. Free convection            |
| c. Euler Number   | 3. Free surface flow          |
| d. Mach Number    | 4. Pressure variation in flow |
- |       |   |   |   |
|-------|---|---|---|
| a     | b | c | d |
| (A) 2 | 1 | 4 | 3 |
| (B) 4 | 3 | 2 | 1 |
| (C) 2 | 3 | 4 | 2 |
| (D) 4 | 1 | 2 | 3 |
21. Marinades are prepared from  
 (A) Egg (B) Meat (C) Fish (D) Cereals
22. Nitrate and Nitrite is helpful in meat processing as it  
 (A) Increases tenderness  
 (B) Increase juiciness  
 (C) Improves color  
 (D) Prevent from microbial contamination
23. Veal is obtained from  
 (A) Sheep (B) Buffalo (C) Goat (D) Calf
24. Function of casing in sausage is/are  
 (A) Packing  
 (B) Tenderization of meat  
 (C) Prevention of fat and moisture loss during smoking and cooking  
 (D) All of the above

25. For smoking, which type of wood is used  
 (A) Hard wood (B) Soft wood  
 (C) Sandal wood (D) Any of the above
26. Fish proteins are more digestible than meat protein because  
 (A) The amount of connective present is more  
 (B) The amount of connective tissue present is less  
 (C) The amount of muscle fibers present is more  
 (D) The amount of muscle fiber present is less
27. Method of fish liver oil extraction generally followed in small cottage scale industry is  
 (A) Method of auto fermentation (B) Method of boiling  
 (C) Method of chemical digestion (D) Method of steaming
28. Glazing of fish is done to protect the fish from  
 (A) Microbial spoilage (B) Freezer burn  
 (C) Oxidation and freezer burn (D) Chemical spoilage
29. The branch of science which deals with the study of muscle is termed as  
 (A) Mycology (B) Myology (C) Cytology (D) Onchology
30. Meat juiciness depends on  
 (A) Amount of fat in meat  
 (B) Amount of fat and WHC of meat  
 (C) Connective tissue  
 (D) Protein present in connective tissue
31. The superior method of slaughter of meat animals as far as efficacy of bleeding is considered is,  
 (A) Jhatka method (B) Halal method  
 (C) Kosher method (D) Both (A) and (B)
32. The shrinkage of meat is greater at pH  
 (A) 4.0 (B) 5.8 (C) 7.0 (D) 5.6
33. Cooked meat suppose to have  
 (A) Red to pink (B) Red to dull red color  
 (C) Dull red to brown color (D) Dull red to pink color

34. Pressurized packed foods are called  
 (A) Barofoods (B) Aerosols (C) Aceituno (D) Barges
35. Which microorganism is commonly associated with fecal contamination?  
 (A) *Clostridium botulinum* (B) *Bacillus cereus*  
 (C) *Trichinella spirali* (D) *Campylobacter jejuni*
36. A food with a pH 3.5 considered to be  
 (A) Neutral (B) Low acid (C) High acid (D) Non-acid
37. Which of the following is a biotin binder?  
 (A) Avidin (B) Aflatoxin (C) Gossypol (D) Ovalbumin
38. A substance incorporates into a polymeric material to increase its deformity is called  
 (A) Stabilizer (B) Emulsifier  
 (C) Plasticizer (D) All of the above
39. Colorant used in butter is  
 (A) Annato (B) Erythrosine  
 (C) Congo red (D) None of the above
40. "Pinking" can be avoided by  
 (A) Blanching (B) AR enamel  
 (C) Treatment of fruit with vinegar (D) Blairs process
41. Maximum amount of psi angle in the peptide bond is  
 (A)  $-40^\circ$  (B)  $-50^\circ$  (C)  $-60^\circ$  (D)  $-70^\circ$
42. The peptide bond has  
 (A) Planar structure (B) Angular structure  
 (C) Tetrahedral structure (D) Pyramidal structure
43. Simmering is  
 (A) Closing the mouth of can during canning process  
 (B) Gentle boiling with temperature about  $100^\circ\text{C}$   
 (C) Killing the microorganism with the help of antibiotics  
 (D) Method of removal of contaminants from the raw material

44. What is Ale?
- (A) Fermented corn (B) Type of beer  
(C) Fermented carrot (D) None of the above
45. Ginger beer is produced by the use of
- (A) *Lactobacillus bulgaricus* (B) *Saccharomyces bulgaricus*  
(C) *Saccharomyces pyriformis* (D) *Rhizopus soni*
46. Sarcina sickness is the defect of
- (A) Wine (B) Sauer kraut  
(C) Beer (D) Bread
47. Green beer is
- (A) Spoiled beer contaminated by *Pseudomonas* sp.  
(B) An artificial beer manufactured by mixing water with beer flavor and added color  
(C) Beer like beverage obtained from plant extract  
(D) Freshly prepared beer which is further stored at 0° C for few months
48. Rum is
- (A) Distilled liquor (B) Undistilled liquor  
(C) Fortified wine (D) By product of brewing industry
49. The force involved in crushers is
- (A) Impact force (B) Compression  
(C) Attrition (D) Pseudo force
50. Reynolds number is
- (A) Ratio b/w inertial force and viscous force  
(B) Ratio b/w viscuous force and inertial force  
(C) Ratio b/w inertial force and pressure  
(D) Ratio b/w viscuous force and pressure difference
51. Boiling of water will leads to
- (A) Sterilization (B) Pasteurization  
(C) Disinfection (D) None of the above

52. Both extra cellular and intracellular crystallization takes place in  
 (A) Slow freezing only (B) Fast freezing only  
 (C) Both in fast as well as slow freezing (D) Neither slow or fast freezing
53. What is the strength of the brine solution for the canning of vegetables?  
 (A) 2% (B) 8% (C) 15% (D) 67%
54. Antifreeze proteins  
 (A) Lower the freezing temperature  
 (B) Raise the temperature of nucleation  
 (C) Reduce the degree of super cooling  
 (D) Accelerate recrystallization
55. In standard salinometer 100° is equal to \_\_\_\_\_ % of brine.  
 (A) 22.5 (B) 26.5 (C) 27.5 (D) 29.5
56. Death of bacteria follows  
 (A) Zero order reaction (B) First order reaction  
 (C) Second order reaction (D) It does not follow any pattern
57. Freeze crack is seen when foods are frozen by  
 (A) Air freezing (B) Contact freezing  
 (C) Immersion freezing (D) Cryogenic freezing
58. Process lethality at a specified temperature is a multiple of  
 (A) Initial concentration of microbes  
 (B) Final concentration of microbes  
 (C) Z-value  
 (D) Decimal reduction time
59. Most resistant spores of *Clostridium botulinum* have  $D_{121.1}$  of  
 (A) 0.02 min (B) 0.21 min (C) 0.89 min (D) 9 min
60. Corn gluten is rich in the corn protein known as  
 (A) Zein (B) Glutenin (C) Glutelin (D) Prolamin



61. Food products under dough system include  
 (A) Bread (B) Pasta products  
 (C) Cookies (D) All of the above
62. Bond involved in the dough of the flour is/are  
 (A) Hydrogen bond (B) Hydrophobic bond  
 (C) Covalent bond (D) All of the above
63. Pasta products are prepared from  
 (A) Hard wheat (B) Soft wheat  
 (C) Durum wheat (D) Buck wheat
64. Water content of apple and \_\_\_\_\_ are similar.  
 (A) Wheat (B) Khoa  
 (C) Milk (D) Cucumber
65. Tomato ketchups TSS should not be less than  
 (A) 25% (B) 39% (C) 35% (D) 40%
66. Which of the following fruit is climacteric?  
 (A) Apple (B) Melon (C) Lemon (D) Orange
67. During smoking of meat, the meat is subjected to temperature of more than  
 (A) 10° C (B) 30° C (C) 50° C (D) 60° C
68. Pelagic fish are found in  
 (A) Middle water layer of sea (B) Bottom water layer of sea  
 (C) Middle and surface water layer of sea (D) None of the above
69. Consider the following statement  
 Candling can reveal  
 1. A crack in the shell and the size of air cell  
 2. Position and mobility of yolk and possible presence of blood spots  
 3. The firmness of albumin  
 Choose the correct from the above  
 (A) Only 1 (B) Only 2 (C) 2 and 3 (D) All

70. What are barges?  
 (A) A variety of cocoa (B) A method of cocoa processing  
 (C) A method of cocoa shipment (D) A by product of cocoa processing
71. Cherry coffee is obtained by  
 (A) Wet processing (B) Vacuum processing  
 (C) Dry processing (D) Chemical treatment
72. Roasting temperature of coffee varies from  
 (A) 100 – 110° C (B) 200 – 250° C  
 (C) 350 – 475° C (D) 120 – 140° C
73. Chicory is obtained from  
 (A) Leaf (B) Stem (C) Flower (D) Root
74. High quality tea with good color, strength, briskness can be used as the indicator of quality  
 (A) High (B) Low  
 (C) Unity (D) Any of the above
75. Tisanes are  
 (A) Herbal tea  
 (B) Type of beverage made from semi-fermented tea leaves  
 (C) Method of incorporation of flavor to tea  
 (D) None of the above
76. Which of the following containers should not be used in microwave oven?  
 (A) Glass (B) China ware (C) Silver (D) Plastic
77. ISO standards are  
 (A) Mandatory orders (B) Mandatory regulations  
 (C) Non mandatory regulations (D) Non mandatory orders
78. Which of the following is a self carbonated beverage?  
 (A) Kumiss (B) Kefir  
 (C) Yoghurt (D) Bulgarian buttermilk
79. Operation flood-1 was launched in  
 (A) 1969 (B) 1970 (C) 1972 (D) 1971

80. A churn used for manufacturing of butter contains 950 Kg of cream. While manufacturing 2 % of fat is lost. Calculate the amount of butter formed and the % of overrun in butter  
 (A) 22.52 Kg (B) 22.50 Kg (C) 22.55 Kg (D) 22.53 Kg
81.  $(935421 \times 625) = ?$   
 (A) 575648125 (B) 584638125 (C) 584649125 (D) 585628125
82. The largest 4 digit number exactly divisible by 88 is  
 (A) 9944 (B) 9768 (C) 9988 (D) 8888
83. If  $2994 \div 14.5 = 172$ , then  $29.94 \div 1.45 = ?$   
 (A) 0.172 (B) 1.72 (C) 17.2 (D) 172
84.  $(17)^{2.5} \times (17)^2 = 17^8$   
 (A) 2.29 (B) 2.75 (C) 4.25 (D) 4.5
85. If  $5^a = 3125$ , then the value of  $5^{(a-3)}$  is  
 (A) 25 (B) 125 (C) 625 (D) 1635
86. Three pipes A, B and C can fill a tank from empty to full in 30 minutes, 20 minutes, and 10 minutes respectively. When the tank is empty, all the three pipes are opened. A, B and C discharge chemical solutions P, Q and R respectively. What is the proportion of the solution R in the liquid in the tank after 3 minutes?  
 (A) 5/11 (B) 6/11 (C) 7/11 (D) 8/11
87. A tank is filled by three pipes with uniform flow. The first two pipes operating simultaneously fill the tank in the same time during which the tank is filled by the third pipe alone. The second pipe fills the tank 5 hours faster than the first pipe and 4 hours slower than the third pipe. The time required by the first pipe is  
 (A) 6 hours (B) 10 hours (C) 15 hours (D) 30 hours
88. If  $\log_{10} 2 = 0.3010$ , the value of  $\log_{10} 80$  is  
 (A) 1.6020 (B) 1.9030  
 (C) 3.9030 (D) None of the above
89. The value of  $\log_2 16$  is  
 (A) 1/8 (B) 4 (C) 8 (D) 16
90. Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?  
 (A) 1/2 (B) 2/5 (C) 8/15 (D) 9/20

91. The greatest number of four digits which is divisible by 15, 25, 40 and 75 is  
 (A) 9000 (B) 9400 (C) 9600 (D) 9800
92. 39 persons can repair a road in 12 days, working 5 hours a day. In how many days will 30 persons, working 6 hours a day, complete the work?  
 (A) 10 (B) 13 (C) 14 (D) 15
93. A can contains a mixture of two liquids A and B in the ratio 7 : 5. When 9 litres of mixture are drawn off and the can is filled with B, the ratio of A and B becomes 7 : 9. How many litres of liquid A was contained by the can initially?  
 (A) 10 (B) 20 (C) 21 (D) 25
94. The banker's gain of a certain sum due 2 years hence at 10% per annum is Rs. 24. The present worth is  
 (A) Rs. 480 (B) Rs. 520 (C) Rs. 600 (D) Rs. 960
95. A train can travel 50% faster than a car. Both start from point A at the same time and reach point B 75 kms away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations. The speed of the car is  
 (A) 100 kmph (B) 110 kmph (C) 120 kmph (D) 130 kmph
96. Choose the word from the option given below that is most nearly opposite in the meaning to the given word  
 Frequency  
 (A) Periodicity (B) Rarity  
 (C) Gradualness (D) Persistency
97. Buffer stock is the stock of food grains, namely wheat and rice procured by the government through  
 (A) IFCI (B) FCI (C) IDBI (D) FICCI
98. Given digit 2, 2, 3, 3, 3, 4, 4, 4, 4, how many distinct 4 digit numbers greater than 3000 can be formed  
 (A) 50 (B) 51 (C) 52 (D) 54
99. 25 persons are in a room, 15 of them play hockey, 17 of them play football and 10 of them play both hockey and football. Then the number of the person playing neither hockey nor football is  
 (A) 2 (B) 17 (C) 13 (D) 3
100. If a man takes 2h to row 7 km upstream or 15 km down stream, what is the speed of current (Km/h)  
 (A) 2 (B) 10.5 (C) 3.5 (D) 7.5