

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2012.

Ph.D. (FOOD SCIENCE AND TECHNOLOGY)

COURSE CODE : 158

Register Number :

Signature of the Invigilator
(with date)

COURSE CODE : 158

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 of the 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. Bacterial cells show maximum resistance during
 - (A) Logarithmic phase
 - (B) Lag phase
 - (C) Late lag phase
 - (D) Decline phase

2. Dole process is an example of
 - (A) heat-cool-fill
 - (B) cold sterilization
 - (C) batch pasteurization
 - (D) fast canning

3. Lethal rate is the reciprocal of
 - (A) Z-value
 - (B) Thermal death time
 - (C) F-value
 - (D) None of the above

4. Growth-no-growth method is
 - (A) A method of inoculation
 - (B) A method for obtaining data and plotting TDT curve
 - (C) A method to determine the heat process
 - (D) None of the above

5. _____ is the term used to label foods treated with low level ionizing radiation
 - (A) Picowaved
 - (B) Irradiated
 - (C) Radapertized
 - (D) Grayed

6. Which of the following statement is/are correct?
 - (A) Co-60 is the most promising for commercial application
 - (B) Higher the charge of electron, the deeper is the penetration
 - (C) X-rays are not considered economical for use in food industry
 - (D) None of the above

7. Rapid cooling of the cells from an optimal temperature to 0° can also result in cell death. This is referred to as
 - (A) Freezer burn
 - (B) Cold shock
 - (C) Storage death
 - (D) Lethal effect

8. In the preparation of sugar syrup, citric acid is added for
 - (A) The prevention of growth of mold
 - (B) The inversion of sugar
 - (C) The generation of fruity flavor
 - (D) Removal of unwanted impurities in the sugar

9. Heating of frozen food is termed as
(A) Dehydrofreezing (B) Thawing
(C) F-value (D) None of the above
10. Fat of fish prone to oxidation because of
(A) More saturation
(B) Less saturation
(C) Higher amount of lipoxidase enzyme
(D) Oxidation has nothing to do with saturation
11. An agent used for glazing is
(A) Edible wax (B) Layers of ice
(C) Sodium salt (D) Bee wax
12. Frankfurters sausages are
(A) Cured, cooked and smoked (B) Cured, uncooked and smoked
(C) Fresh, cooked and smoked (D) Fresh, uncooked and smoked
13. Smoking is done
(A) After slaughtering (B) Before curing
(C) After curing (D) At any time
14. The amount of fish, salt and acetic acid in marinade is _____ respectively
(A) 25%, 3% and 0.1% (B) 2%, 1% and 0.5%
(C) 94%, 5.5% and 0.5% (D) 85%, 3% and 0.2%
15. Cured meats are called
(A) Beef (B) Bacon (C) Ham (D) Marinades
16. Which of the following statement is not correct?
(A) Bromelin from pine apple can be used for tenderization of meat
(B) Electrical stimulation of carcasses after slaughtering of animals can cause tenderization
(C) Ficin is a proteolytic enzyme, obtained from Faba beans can be used for tenderization of meats
(D) None of the above

17. The specific heat of milk is highest at temperature of _____ °C
 (A) 19.4 (B) 20.4 (C) 21.4 (D) 18.4
18. The first KVK in India is at
 (A) Pondicherry (B) Pattambi
 (C) Jalna (D) Varanasi
19. The example for C4 plant is
 (A) Rice (B) Wheat (C) Cotton (D) Maize
20. Golden rice is genetically modified rice with yellow colored seeds rich in
 (A) Vitamin A (B) Vitamin C (C) Vitamin E (D) Vitamin K
21. Pungency of onion is due to
 (A) Allyl propyl disulphide (B) Allyl tertiarybutyl sulphide
 (C) Allicin (D) Propanal
22. Milk is deficient in
 (A) Na (B) K
 (C) Fe (D) None of the above
23. Storage of food under reduced pressure is called
 (A) Aseptic packaging (B) Hyperbaric storage
 (C) Hypobaric storage (D) Gas storage
24. Polystyrene is used for
 (A) Acid foods (B) Neutral foods
 (C) Basic foods (D) All of the above
25. SWMA stands for
 (A) Standard Weight & Measurement Act
 (B) Switzerland Weight and Measurement Act
 (C) Sweden Weight and Measurement Act
 (D) None
26. What is cellophane?
 (A) A cellulose combined with ethane
 (B) A cellulose combined with methane
 (C) Regenerated cellulose
 (D) It has no relation with cellulose

27. Aluminum foil acts as
 (A) a good barrier for vapor (B) a good barrier for oxygen
 (C) a good barrier for light (D) all of the above
28. IPP standards for
 (A) Institute of plastic packaging
 (B) Institute of packaging professionals
 (C) Institute of package protection
 (D) Indian packaging professionals
29. Which of the following is excellent oxygen barrier?
 (A) Polyethylene (B) Ethylene Vinyl Alcohol
 (C) Polyvinyl Alcohol (D) Propylene
30. AGMARK was promulgated in
 (A) 1954 (B) 1934 (C) 1937 (D) 1935
31. Sake is a
 (A) Beer made from wheat (B) Low calorie beer
 (C) Yellow rice beer (D) None of the above
32. Distilled wines are
 (A) Whisky (B) Brandy (C) Beer (D) Rum
33. The force involved in crushers is
 (A) Impact force (B) Compression (C) Attrition (D) Pseudo force
34. Screening method depends primarily on
 (A) Surface area of the particle
 (B) Specific gravity of the particles
 (C) Magnetic property of the particles
 (D) Size of the particles
35. Operating speed of ball mill must be less than
 (A) Critical speed (B) Centrifugal speed
 (C) Operating speed (D) Normal speed

36. For the flow of fluid we need difference in
 (A) Pressure (B) Concentration
 (C) Moisture content (D) Force
37. The work required for crushing material is proportional to the logarithm of the ratio between initial and final diameters. This is the statement of
 (A) Rittingers law (B) Kinks law
 (C) Bonds law (D) Boyles law
38. The vacuum filters are limited to maximum filtering pressure of
 (A) One (B) Two (C) Three (D) Five
39. Washing of filter presses are generally
 (A) Simple washing (B) Thorough washing
 (C) Partial washing (D) Chemical washing
40. Baffles are used to
 (A) To improve rate of mixing (B) To minimize vortex formation
 (C) Both (A) and (B) (D) Neither (A) or (B)
41. The ribbon blender mix solids by
 (A) Centrifugation (B) Mechanical shuffling
 (C) Electrical shuffling (D) Sedimentation
42. For the laminar flow, the Reynolds number should be less than
 (A) 2100 (B) 3100 (C) 4100 (D) 5100
43. In boiling point diagram, the saturated vapor curve is called
 (A) Triple point (B) Boiling point
 (C) Dew point (D) Saturation point
44. The moisture content in excess to equilibrium moisture content is called
 (A) Saturated moisture (B) Free moisture
 (C) Specific moisture content (D) None of the above
45. Convert 2.K cal/Kg°C to BTU/lb°F (1 K cal = 3.968 BTU and 1 Kg = 2.2 lb)
 (A) 36.81 (B) 25.02 (C) 44.67 (D) 56.08
46. Canning also sometimes called as
 (A) Appertization (B) Pasteurization
 (C) Sterilization (D) Cold sterilization

47. The color of spores in Dorners method is
 (A) Black (B) Green (C) Red (D) Pink
48. Pressurized packed foods are called
 (A) Barofoods (B) Aerosols
 (C) Aceituno (D) Barges
49. Propionates are effective against
 (A) Bacteria (B) Algae
 (C) Fungi (D) All organisms
50. Hurdle technology consists of
 (A) Mixture of different ingredients to form a uniform quality product
 (B) Mixture of different preservation techniques
 (C) Using irradiation for increasing shelf life
 (D) None of the above
51. Both extracellular and intracellular crystallization takes place in
 (A) Slow freezing only
 (B) Fast freezing only
 (C) Both fast as well as slow freezing
 (D) Neither slow freezing nor fast freezing
52. Marine products export development authority rules was formulated in
 (A) 1941 (B) 1951 (C) 1961 (D) 1971
53. Which of the following comes under non mandatory regulations?
 (A) PFA act (B) Codex Alimentarius
 (C) Environmental protection act (D) Consumer protection act
54. Which rules of PFA deals with the obligatory conditions of packaging?
 (A) 12 (B) 36 (C) 49 (D) 69
55. Which of the following statement is correct?
 (A) HACCP is a certification for the food industries
 (B) ISO standards are valid for only industries
 (C) OHSAS is a mandatory government regulation
 (D) All organisms

56. How many central food laboratories are there in India?
(A) 4 (B) 8 (C) 16 (D) 20
57. Dunnett test is
(A) A test for monitoring the quality of imported grains in terms of its pesticide content
(B) Applied to compare the treatment against a pre-determined control
(C) For the test of GM foods
(D) To decide whether a company has followed PFA standards.
58. Casein present in milk is found in the form of
(A) Magnesium caseinate phosphate complex
(B) Calcium caseinate phosphate complex
(C) Potassium caseinate phosphate complex
(D) None of the above
59. _____ is the basis for checking pasteurization efficiency of milk.
(A) Peroxidase and catalase test (B) Phosphatase test
(C) Analase test (D) None of the above
60. Clot on boiling test carried out to
(A) Determine both heat stability and pH of milk
(B) Determine the heat stability of the milk
(C) Determine the extent of bacterial contamination and growth in milk
(D) None of the above
61. Eyes are characteristic features of
(A) Ice cream (B) Khoa
(C) Swiss cheese (D) Cottage cheese
62. What is the energy value of cow milk?
(A) 25 Cal/100 g (B) 50 Cal/100 g
(C) 75 Cal/100 g (D) 100 Cal/100 g
63. Blue cheese is also called
(A) Roquefort cheese (B) Cottage cheese
(C) Camembert cheese (D) Soft cheese

64. According to PFA, the fat content of buffalo milk should not be less than
 (A) 2% (B) 4% (C) 5% (D) 8%
65. Which of the following chemical is used to preserve the milk samples taken for "platform tests"?
 (A) Calcium chloride (B) Mercuric chloride
 (C) Sodium chloride (D) Ferric chloride
66. Diacetyl concentration in butter should not exceed
 (A) 2 ppm (B) 4 ppm (C) 8 ppm (D) 16 ppm
67. The most variable compound of milk is
 (A) The protein followed by fat (B) The fat followed by protein
 (C) The protein (D) All organisms
68. A butter of 80.5% fat is manufactured from 700 Kg of cream. While manufacturing 2% fat is lost. Calculate the amount of butter formed and % overrun in butter.
 (A) 686 Kg and 21.53% (B) 686 kg and 21.73%
 (C) 685 Kg and 21.73% (D) 868 Kg and 21.53%
69. The natural antioxidant present in butterfat is
 (A) NDGA (B) Lecithin
 (C) Ascorbic acid (D) Ethyl gallate
70. Which of the following is a liquefying enzyme?
 (A) α -amylase (B) β -amylase
 (C) both (D) None of the above
71. Palatinose is isomer of sucrose and differ from it in having
 (A) β -1,2-glycosidic bond (B) α -1,4-glycosidic bond
 (C) α -1,6-glycosidic bond (D) β -1,6-glycosidic bond
72. Which of the following compound do you expect at the end of strecker degradation?
 (A) Acid (B) Ester
 (C) Aldehyde (D) All of the above
73. Which of the following is a structural polysaccharide?
 (A) Chitin (B) Cellulose
 (C) Lignin (D) All of the above

74. Modification of starches may affect the starch's
 (A) Gelatinization and heating time
 (B) Freezing stability and cold water stability
 (C) Viscosity
 (D) All of the above
75. Cellulose I_β-form have
 (A) Triclinic structure (B) Monoclinic structure
 (C) Hexagonal structure (D) Pentagonal structure
76. Waxes come under
 (A) Simple (B) Complex
 (C) Both (A) and (B) (D) None
77. Butter scotch aroma can be obtained by heating glucose with _____ at 180°C.
 (A) Glutamine (B) Valline
 (C) Glycine (D) Leucine
78. Which of the following is/are marine derived ω-3 fatty acids?
 (A) ALA (B) Linoleic acid
 (C) EPA (D) All of the above
79. Cis configuration of the double bonds produces a bond angle
 (A) 25° (B) 30° (C) 35° (D) 40°
80. Vegetable oils are rich in
 (A) ω-3 fatty acids (B) ω-4 fatty acids
 (C) ω-5 fatty acids (D) ω-6 fatty acids
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. $(17)^{3.5} \times (17)^? = 17^8$
 (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. In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize?
 (A) 1/10 (B) 2/5 (C) 2/7 (D) 5/7
92. Find odd man out
 8, 27, 64, 100, 125, 216, 343
 (A) 27 (B) 100 (C) 125 (D) 343

93. The angle of elevation of the sun, when the length of the shadow of a tree 3 times the height of the tree, is:
 (A) 30° (B) 45° (C) 60° (D) 90°
94. An observer 1.6 m tall is 203 away from a tower. The angle of elevation from his eye to the top of the tower is 30° . The heights of the tower is:
 (A) 21.6 (B) 23.3 m
 (C) 24.72 m (D) None of the above
95. What is the difference between the compound interests on Rs. 5000 for $1\frac{1}{2}$ years at 4% per annum compounded yearly and half-yearly?
 (A) Rs. 2.04 (B) Rs. 3.06 (C) Rs. 4.80 (D) Rs. 8.30
96. The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 4% per annum is Re. 1. The sum (in Rs.) is:
 (A) 625 (B) 630 (C) 640 (D) 650
97. The angle between the minute hand and the hour hand of a clock when the time is 4.20, is:
 (A) 0° (B) 10° (C) 5° (D) 20°
98. A hollow iron pipe is 21 cm long and its external diameter is 8 cm. If the thickness of the pipe is 1 cm and iron weighs 8 g/cm^3 , then the weight of the pipe is:
 (A) 3.6 Kg (B) 3.696 Kg (C) 36 Kg (D) 36.9 Kg
99. The difference between a two-digit number and the number obtained by interchanging the positions of its digits is 36. What is the difference between the two digits of that number?
 (A) 3 (B) 4
 (C) 9 (D) Cannot be determined
100. A boat can travel with a speed of 13 km/hr in still water. If the speed of the stream is 4 km/hr, find the time taken by the boat to go 68 km downstream.
 (A) 2 Hours (B) 3 Hours (C) 4 Hours (D) 5 Hours