

Subject: Fish Processing Technology

1. Spoilage of salted fish which manifests as slimy pink patches on the surface is caused by
 - a. Xerophilic moulds
 - b. Halophilic bacteria
 - c. Insect infestation
 - d. Gram-positive bacteria

2. The Code of Conduct of Responsible Fisheries (CCRF) was adopted in the FAO conference held in the year
 - a. 1990
 - b. 1995
 - c. 2000
 - d. 2010

3. *Muroami* fishing practiced in South East Asia is better known as
 - a. Tuna fishing
 - b. Conservation type of fishing
 - c. Cage type fish rearing
 - d. Destructive coral reef fishing

4. Streamer (tori) lines are used to
 - a. Reduce seabird catch in long lines
 - b. Reduce turtle bycatch
 - c. Enhance tuna catch
 - d. Recover lost nets from the sea

5. Two-walled gill net is an example of
 - a. Trammel net
 - b. Semi-trammel net
 - c. Double ring net
 - d. Rangoon net

6. The minimum botulinum cook at 121.1°C that should be ensured in low acid foods
 - a. 0.35 min
 - b. 5.22 min
 - c. 2.52 min
 - d. 0.45 min

7. What type of product is “*Ceviche*”?
- Salt cured
 - Marinated
 - Fermented
 - MAP
8. What type of freezers are employed for IQF products?
- Cryogenic freezer
 - Vacuum freezers
 - Plate Freezer
 - Tunnel freezer
9. Which one of the following canned foods require refrigeration storage?
- Canned shrimp
 - Canned mussel
 - Canned crab meat
 - Canned seaweeds
10. Which one of the following *Clostridium botulinum* types is commonly associated with marine fish from its source?
- C. botulinum* Type A
 - C. botulinum* Type B
 - C. botulinum* Type D
 - C. botulinum* Type E
11. “*Lampara*” is a type of
- Bag net
 - Siene net
 - Lift net
 - Surrounding net
12. Antioxidant effect of smoke is due to
- Formaldehyde
 - Benzopyrene
 - Guaiacol
 - Organic acids
13. Which of the following is used in cans for processing fish products?
- Sulphur resistant lacquer
 - Acid resistant lacquer
 - Oleoresinous
 - Polyester

14. Falling rate of drying of fish does not depend on
- Air velocity
 - Salt content
 - Fat content
 - Surface area
15. The suspension of crystalline guanin particles in suitable solvent is called
- Isinglass
 - Pearl essence
 - Peptone
 - Gelatin
16. Hydrolytic rancidity of fish oil is mainly due to
- Light
 - Oxygen
 - Decarboxylase activity
 - Action of lipase
17. Which one of the following is not a ω -3 HUFA?
- Arachidonic acid
 - Eicosapentaenoic acid
 - Linolenic acid
 - DocosaHexaenoic acid
18. The component of isinglass responsible for its clarification property
- Gelatin
 - Elastin
 - Myosin
 - Collagen
19. Sorption isotherm for fish upon drying is constructed by plotting moisture content against
- Temperature
 - Moisture content
 - Water activity
 - Drying time
20. Heat capacity of frozen fish is 0.4. How much calories are required to reduce the temperature of 10kg fish from -5°C to -25°C ?

- a. 80 Kcal
b. 8 Kcal
c. 800 Kcal
d. 0.8 K cal
21. Test to determine water absorption capacity of paperboard
a. Compression test
b. Folding test
c. Cobb test
d. Hobb test
22. BUDU is a fish sauce produced by one of the following countries
a. Indonesia
b. Vietnam
c. Malaysia
d. Korea
23. Panelling of cans is caused due to
a. Overfilling
b. Underfilling
c. High vacuum
d. Improper sealing
24. The enzyme responsible for the modori phenomenon in kamaboko product
a. Amylase
b. Endogenous proteolytic enzymes
c. Decarboxylase
d. Alkaline proteinase
25. Ring test is used to test the digestibility of
a. Fish oil
b. Fish silage
c. Fish meal
d. Fish gelatin
26. Intermediate moisture foods have a water activity range of
a. 0.6-0.85
b. >0.86
c. 0.5-0.65
d. 0.25-0.6

27. Which one of the following is a compatible solute accumulated by microbes to overcome stress
- Sucrose
 - Lactose
 - Proline
 - Glycogen
28. The quaternary structure of myosin molecule is made up of subunits
- 2
 - 4
 - 6
 - 8
29. The region between two Z lines in a myofibril is called
- Myofibre
 - Sarcolemma
 - Sarcomere
 - Myotome
30. The “HTST pasteurization” refers to
- Boiling for 10 min
 - 140°C for 2 secs
 - 63°C for 30 min
 - 72°C for 15 sec
31. The most heat resistant endospores are produced by
- Clostridium* spp.
 - Bacillus* spp.
 - Lactobacillus* spp.
 - Brucella* spp.
32. Which part of myosin has ATPase activity that helps in its interaction with actin?
- Globular head
 - Tail part
 - Middle part
 - M line

33. Which one of the following is an amino acid
- Lysine
 - Glycine
 - Tryptophan
 - Proline
34. The basic requirement for microwave heating is that the heating medium should contain
- Polar molecules
 - Non-polar molecules
 - Charged amino acids
 - Flammable substance
35. Carbon-1 (C1), which is responsible for the formation of pyranose ring structure of carbohydrates in solution is, known as
- Isomeric carbon
 - Asymmetric carbon
 - Anomeric carbon
 - Enantiomeric carbon
36. The type-1 collagen found in fish is a
- Homotrimer
 - Heterodimer
 - Heterotrimer
 - Homotrimer
37. The structure of actin is
- Random coil
 - Pleated sheet
 - Double helical
 - Triple helical
38. The style of packing fish recommended for round cans is
- Axial packing
 - Length wise packing
 - Breadth wise packing
 - Random packing

39. Thermophilic spores germinate at temperatures range of
- <37°C
 - >43°C
 - 80-100°C
 - >100°C
40. Structurally, sugars mannose and galactose are
- Enantiomers of glucose
 - Epimers of glucose
 - Monomers of glucose
 - Dimers of glucose
41. In tuna canning, pre-cooking is done by
- Cooking in steam without pressure
 - Hot blanching
 - Pressure-cooking in steam
 - Cold blanching
42. The sticking of fish skin on to the can sides during retorting cannot be controlled by the use of
- Acetic acid
 - Sodium chloride
 - Sodium hydroxide
 - Citric acid
43. High pressure processing of foods typically employs a pressure of
- 15-25 MPa
 - 150-600 MPa
 - 1-6 MPa
 - 1000-6000 MPa
44. Self-heating packaging materials employ one of the followings to generate exothermic heat
- Calcium/magnesium oxide and water
 - Chlorine dioxide and water
 - Calcium/potassium chloride
 - Potassium dichromate and water

45. Paramyosin is a protein found in striated and smooth muscle cells of
- Demersal fish such as soles
 - Marine cartilaginous fish
 - Air breathing fish such as catfishes
 - Invertebrates such as bivalves
46. Liver oils of many species of fish are rich in vitamins
- A & C
 - B & D
 - A, D & E
 - A, B & E
47. One of the free amino acids that immensely contributes to the sweet taste of shrimp is
- Cysteine
 - Tryptophan
 - Lysine
 - Glycine
48. In one of the following curing methods, the gut and the gills of the fish are pulled out through the mouth without split opening the fish
- Colombo curing
 - Mas-meencuring
 - Mona curing
 - Pit curing
49. One of the characteristic components of bacterial spores is
- Glucose
 - Dipicolinic acid
 - N-acetyl glucosamine+ N-acetyl muramic acid
 - Glycine
50. When bacteria are subjected to lethal temperature, their death pattern can be described as
- Planar
 - Linear
 - Sigmoidal
 - Logarithmic

51. In aseptic packaging of foods, sterilization of foods occurs
- During packaging of foods
 - After packaging of foods
 - Before packaging of foods
 - Food is not sterilized, but the container is
52. To completely inhibit the activity of microorganisms, fish should be dried to a_w level of
- 0.6 or below
 - 0.8 or above
 - 0.55
 - 0.8-0.9
53. The US-FDA regulatory residual limit for sulphite in sodium metabisulphite exposed shrimp is
- 100 ppm
 - 150 ppm
 - 30 ppm
 - 1 ppm
54. Algal intoxication that occurs when toxin containing reef fishes such as groupers, barracuda, red snapper and seabass are consumed
- Paralytic shellfish poisoning
 - Ciguatera poisoning
 - Amnesic shellfish poisoning
 - Tetradon poisoning
55. Which one of the following is an agent of food poisoning *via* intoxication?
- Salmonella*
 - Vibrio cholerae*
 - Staphylococcus aureus*
 - Shigella
56. One of the following drying methods employs freezing of fish moisture first, followed by sublimation of moisture under vacuum
- Drum drying
 - Spray drying
 - Tunnel drying
 - Freeze drying

57. Which one of the following freezers is suited for small sized items such as shrimp and fillets is
- Tunnel freezer
 - Plate freezer
 - Fluidized bed freezer
 - Spiral freezer
58. The number of principles in a HACCP system is
- 5
 - 7
 - 8
 - 10
59. In a stern trawler, the trawl winch is placed in wheel _____ part of the wheelhouse.
- mid-house
 - aft
 - forward
 - side
60. The role of “bilge keel” fitted just below the water level in the mid ship area is to
- Increase the speed of the boat
 - Support the wheel house
 - Prevent corrosion
 - Reduce the rolling of the boat
61. The inclining experiment for the newly constructed ship is performed to determine its
- Speed
 - Metacentric height
 - Weight
 - Quality of materials and machinery
62. Modern fiberglass boats are built using resins based on
- Saturated polyester
 - Polyhydroxy ester
 - Coal tar ester
 - Isophthalic polyester

63. “Suberkrub” otterboards are generally used in
- Bottom trawling
 - Mid-water trawling
 - Squid jigging
 - Side trawling
64. Trammel nets are composed of
- Single mesh
 - Two panels of mesh
 - Three panels of mesh
 - Four panels of mesh
65. “Struvite crystals” formed after thermal processing of canned fish is chemically
- Sodium aluminium sulphate
 - Calcium phosphate
 - calcium sulfate dihydrate
 - magnesium ammonium phosphate
66. A three-class sampling was performed for a fishery product. The results showed that less than “c” number of samples exceeded m, and none exceeded M. The lot is
- Accepted
 - Rejected
 - Sampled again
 - Accepted for certain category of consumers
67. The use of nitrites to preserve the red meat color of tuna can result in consumer health hazard leading to
- Colangiocarcinoma
 - Kerourea
 - Methemoglobinemia
 - Hyperplasia
68. “Katsuobushi ” is prepared from
- Skipjack tuna
 - Shark fin rays
 - Sea cucumber
 - Atlantic salmon

69. JECFA of WHO/FAO functions to assess the health risks from
- Bacterial pathogens
 - Parasites
 - Food additives and chemical contaminants
 - Consumer handling of food
70. The latest global food safety management system (FSMS) is
- ISO 14001
 - ISO 22000:2018
 - ISO 45001
 - ISO 22000:2005
71. FSSAI was established in the year
- 2008
 - 1998
 - 2015
 - 1986
72. The slope of thermal death time (TDT) curve is known as
- D value
 - F₀ value
 - m value
 - z value
73. The water, gas, odour and light barrier properties in retort pouches are contributed by
- Polyester
 - Aluminium
 - Nylon
 - Polypropylene
74. The muddy flavour of freshwater fish is attributed to
- Fat content
 - Myosin
 - Geosmin
 - Mucus
75. Sucrose as a cryoprotectant in surimi functions to
- Prevent denaturation of proteins
 - Reduce drip loss
 - Increase shelflife
 - Improve gelation

76. The zone of maximum ice crystal formation during freezing is
- Between -5 & -10°C
 - At 0°C
 - Between -1 and -5°C
 - between 0 & -1°C
77. Low acid foods have a pH of
- 4.5 to 5.5
 - 3.7 to 4.5
 - 2 to 3
 - >5.5
78. Which one of the following seaweed group is a good source of agar-agar?
- Red seaweed
 - Brown seaweed
 - Green seaweeds
 - Blue-green seaweeds
79. The liquid that is separated from the solid phase during the pressing stage of fish meal preparation is known as
- Drip water
 - Stick water
 - Meal water
 - Oil exudate
80. The best raw material for preparing fish collagen is
- Scales
 - Gill
 - Skin
 - Entrails
81. Which one of the following is a likely source of *Listeria monocytogenes*?
- Canned fish
 - Salt cured fish
 - Cold smoked fish
 - Marinated fish

82. The preservation effect of marinated fish products is due a combination of
- Acid and salt
 - Fat and salt
 - Benzoates
 - Salt and spices
83. The technique used to understand the 3-dimensional protein structure is
- ICPMS
 - LC-MS/MS
 - X-ray crystallography
 - Electron microscopy
84. “*Satsuma-age*” is product prepared using
- Sea cucumber
 - Surimi
 - Dried fish
 - Fish powder
85. Which of the following is also known as cold pasteurization/sterilization?
- Blanching
 - Freezing
 - Freeze drying
 - Gamma radiation
86. While canning fish packed in natural style, the following step is avoided
- Pre-cooking
 - Exhausting
 - Seaming
 - Dressing
87. In which of the following methods exhausting and seaming are done simultaneously ?
- Steam injection
 - Heat exhausting
 - Clinching
 - Mechanical exhausting

88. A concentration of 0.02% available chlorine in a solution is equal to
- 20 ppm
 - 200 ppm
 - 2 ppm
 - 2000 ppm
89. The degree of unsaturation of a lipid is indicated by
- Peroxide value
 - Saponification value
 - Iodine value
 - TBA value
90. Conversion of chitin to chitosan involves replacement of the following groups with hydrogen
- Amino group
 - Carboxyl group
 - Acetyl group
 - Hydroxyl group
91. HACCP is a food safety management system that emphasizes
- Finished product quality
 - SOPs
 - Rectification of product defects
 - Preventive measures to ensure quality
92. The major allergenic protein across all crustacean species is
- Gluten
 - Tropomyosin
 - Actomyosin
 - Carotenoids
93. In a refrigeration unit, the level of water flow to evaporator is controlled by
- Float valve
 - Expansion valve
 - Supply valve
 - Junction valve

94. “Greening” of canned tuna involves reaction between
- Free fatty acids and myoglobin
 - TMAO and myoglobin
 - Haemoglobin and nitrite
 - Hemocyanin and amino acids
95. “CAMP” test is an important biochemical test for
- Campylobacter jejuni*
 - Escherichia coli*
 - Listeria monocytogenes*
 - Staphylococcus aureus*
96. Process of removing of the higher melting point parts from fish oil is known as
- Winterization
 - Weaning
 - Whipping
 - Filtration
97. The freezing point of solution the lowest at
- Chilling point
 - Eutectic point
 - Triple point
 - Transition point
98. Freezing at extreme low temperature is known as
- IQF
 - Cryogenic freezing
 - Blast freezing
 - Contact freezing
99. The algal toxin that causes amnesic shellfish poisoning is
- Saxitoxin
 - Brevetoxin
 - Phosphokinase
 - Domoic acid
100. At isoelectric point, proteins exhibit
- Maximum solubility
 - Least solubility
 - Coagulation
 - Maximum water holding capacity

101. Lieberman-Burchard reaction is used to test
- Lipid oxidation
 - Cholesterol
 - Reducing sugar level
 - Degree of hydrolysis
102. The reaction between amino acid and aldehyde results in
- Lipid oxidation
 - Maillard's reaction
 - Malondialdehyde formation
 - Sugar alcohol formation
103. Dahn Buoy is used in
- Gill net
 - Bag net
 - Tuna longline
 - Trawl net
104. EPIRB is a
- Fishing device
 - Type of net
 - Life saving device
 - Fish holding tank in vessel
105. The average cruising speed of a fishing boat should be about
- Displacement tonnage
 - Square root of length of vessel
 - Square root of length at waterline
 - 2x of the width of the vessel
106. Formation of water-oil emulsion in canned foods can be prevented by
- Exhausting
 - Seaming
 - Pre-cooking
 - Retorting
107. In dry salted fish, "dun" is caused by
- Musca domestica*
 - Sporendonemaepizoum*
 - Listeria monocytogenes*
 - Vibrio harveyii*

108. Which of the following functions is achieved by addition of liquid medium in cans?
- Rapid heat penetration
 - Oxygen removal
 - Improvement of vacuum
 - Removal of moisture
109. Which of the following processes controls the drained weight of the product?
- Blanching
 - Cooking
 - Exhausting
 - Retorting
110. Which is the most important bacterial risk in vacuum packaged sousvide products?
- Staphylococcus aureus*
 - Listeria monocytogenes*
 - Salmonella*
 - Clostridium botulinum*
111. The common type of irradiation used in food processing is
- Radurization
 - Radicidation
 - Radappertisation
 - Ionisation
112. Which of the following is an important application of high pressure processing
- Filleting of fish
 - Shucking of oysters
 - Peeling of shrimp
 - Beheading of fish
113. Which packaging material is preferred for frozen storage of fish?
- Polyethylene
 - Polypropylene
 - Laminated film
 - Aluminium film

114. Temperature ($^{\circ}\text{C}$) below which *sous-vide* processed foods must be stored to ensure microbial safety
- 2.3
 - 3.3
 - 4.3
 - 5.3
115. The high pressure processing of foods is based on principle of
- Coulomb
 - Kelper
 - Gauss
 - Le Chatlier
116. The density of super-critical fluids is _____ than/to that of gases
- higher
 - equal
 - lower
 - not comparable
117. Frequency range of microwave employed in food processing is
- 300 MHz to 30 GHz
 - 30 MHz to 300 GHz
 - 30 MHz to 300 MHz
 - 300 MHz to 300 GHz
118. Protein denaturation in frozen fish primarily affects
- Myoglobin
 - Collagen
 - Myofibrillar proteins
 - Sarcoplasmic proteins
119. The key protein component of air bladder of fish is
- Gelatin
 - Myosin
 - Collagen
 - Troponin
120. Squalene is a
- Unsaturated isoprenoid hydrocarbon
 - Free fatty acid
 - PUFA
 - Wax

1.	B
2.	B
3.	D
4.	A
5.	B
6.	C
7.	B
8.	D
9.	C
10.	D
11.	D
12.	C
13.	A
14.	A
15.	B
16.	D
17.	A
18.	D
19.	C
20.	A
21.	C
22.	C
23.	C
24.	B
25.	C
26.	A
27.	C
28.	C
29.	C
30.	D

31.	B
32.	A
33.	D
34.	A
35.	C
36.	C
37.	C
38.	A
39.	B
40.	B
41.	C
42.	C
43.	B
44.	A
45.	D
46.	C
47.	D
48.	C
49.	B
50.	D
51.	C
52.	A
53.	A
54.	B
55.	C
56.	D
57.	C
58.	B
59.	B
60.	D

61.	B
62.	D
63.	B
64.	C
65.	D
66.	A
67.	C
68.	A
69.	C
70.	B
71.	A
72.	D
73.	B
74.	C
75.	A
76.	C
77.	D
78.	A
79.	B
80.	C
81.	C
82.	A
83.	C
84.	B
85.	D
86.	A
87.	D
88.	B
89.	C
90.	C

91.	D
92.	B
93.	A
94.	B
95.	C
96.	A
97.	B
98.	B
99.	D
100.	B
101.	B
102.	B
103.	A
104.	C
105.	C
106.	C
107.	B
108.	A
109.	A
110.	D
111.	B
112.	B
113.	A
114.	B
115.	D
116.	A
117.	D
118.	C
119.	C
120.	A